

Training in Europe

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in Europe 2000: background report
Volume 2

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Part three:

Training and employment in a company perspective

Globalisation, division of labour and training needs from a company view

Johan Dejonckheere, Geert Van Hootegem

Abstract

In a global economy, where competition for innovation dominates and customers no longer accept standardised mass products or services but ask for individual solutions, markets become unstable, insecure and complex. Companies have to develop organisational structures and channels of information flow that can cope with uncertainty. There is widespread agreement that production can no longer be organised according to Tayloristic and Fordist principles and most studies talk about a 'new organisation logic'. More flexible organisation forms are needed which allow for extensive information and knowledge exchange to improve and speed up innovation processes. Key elements of the new organisation logic are outsourcing of non-core activities, transition to a process-oriented structure, introduction of teamwork, empowerment, participation in decision-making, etc. The central argument is that global competitiveness can only be achieved through changes in labour deployment policy and human resource orientation. Labour can no longer be considered a risk factor or something to be kept in line by means of a maximum division of labour. On the contrary, division of labour has to be reduced and human capital fully exploited. Until now, empirical research has not shown a widespread implementation of new organisation concepts.

Globalisation and changes in the division of labour require new skills, competences and work attitudes from employees. This imposes major challenges on vocational and educational training: work-process knowledge, on-the-job training, multiskilling, creativity, lifelong learning, employability, etc. have become keywords. Competences acquired in this new VET philosophy can influence and enhance the process of globalisation and changing division of labour.

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In the first chapter, we briefly discuss some general features of globalisation. We then analyse the consequences of globalisation on company restructuring, and more specifically on the division of labour. In the third chapter, we explore the challenges imposed by these changes on required qualifications and company training needs. Finally, we draw some more general conclusions.

1. Globalisation in general

1.1 Introduction: the transnational strategy

Globalisation can be defined as a 'process through which an increasing proportion of economic, social and cultural transactions take place directly or indirectly between parties in different countries' (Radice 1999, p. 3). However, in literature, there appears to be a lack of consensus about what globalisation is and means, let alone what consequences it brings. There are almost as many concepts of globalisation as there are disciplines (Parker 1996).

Very often, a distinction is made between internationalisation and globalisation. *Internationalisation* refers to an increasing spread of economic activity across national boundaries (Lane 1995). There are two ways in achieving this. Firms can extend their markets across national borders by exporting a significant share of their production. In this case, production remains in the home country but distribution networks may be built up in foreign countries. Firms can also place a significant proportion of direct investment in foreign countries. A company that operates in many different countries but retains a clear home base in one particular country is called a *multinational company* (MNC). The concept of *globalisation* goes a step further. It has given rise to the emergence of companies transcending national borders, i.e. *transnational companies* (TNC). These companies 'no longer have a national home base but source, produce and market on a global scale, as indicated by their business strategy' (Lane 1995, p. 83).

The distinction between multi and transnational strategies stems from the 1980s. For M. Porter, competition in the global economy requires the integration of activities on a worldwide basis rather than splitting the world into isolated markets or sites for operations (1986). Porter described global industries as those in which a firm's competitive position in one country is significantly influenced by its position in other countries. Global industries, therefore, impose daunting co-ordination requirements upon firms that seek to compete successfully. These requirements are best met by so-called 'transnational companies'. Bartlett and Ghosdal (1989) contrasted transnational enterprises to companies using global, multinational or international strategies.

The *global* strategy is used when an enterprise locates its headquarters in one country while its operations are performed in one or more other countries. Many domestic organisations adopted this approach to broaden their markets by exporting their products. Under this approach, an organisation operates in a centralised manner. *Efficiency*, obtained through economies of scale, is the key criterion of effectiveness sought by the global company.

In a *multinational strategy*, national or regional operations are relatively autonomous and decentralised to increase sensitivity to differences among the individual countries in which it operates. The key competitive issue is *responsiveness* to local markets.

Under an *international strategy*, enterprises compete on a worldwide basis against other international companies. The international approach calls for a more horizontal structure and establishes strategic links between countries in which a firm operates. Because the key to success lies in an enterprise's ability to transfer *knowledge* to overseas units, *learning* constitutes its key issue (Boudrea et al. 1998).

According to Bartlett and Ghosdal (1989), organisations will be most competitive if they simultaneously meet the challenges of *global efficiency, local responsiveness and learning*. Meeting these challenges requires a firm to

adopt a so-called *transnational strategy* in which each organisational activity is performed in a location where it can be best accomplished. Clearly, the transnational strategy poses the greatest challenges for organisations seeking to increase global competitiveness. The primary difficulty is to design an organisational form capable of being efficient and responsive, enabling transfer of knowledge across locations. According to Boudreau et al. (1998), designing effective transnational organisations depends to great extent on the effective deployment of advanced *information and communication technologies*.

Up to now, some general issues related to company strategies in a global context have been addressed. We now elaborate further on new competitive criteria emerging in the global environment (1.2) and the relationship between globalisation and modern technologies (1.3), since these aspects can influence emerging changes in the division of labour and company training needs. The next paragraph (1.4) gives some basic characteristics of the process of globalisation and we end by raising some critical points on the so-called globalisation thesis (1.5).

1.2 New competitive criteria in the global economy

Globalisation has contributed greatly to the stiffening of competition as national monopolies or oligopolies have collapsed. However, the fact that globalisation at the same time results in the establishment of new competition criteria is even more important. In the 1980s, organisations in the global economy were thought to be most successful if they simultaneously met the challenges of global efficiency, local responsiveness and learning (cf. supra; Bartlett and Ghosdal 1989). A decade later, the global competition criteria were examined again in an extensive survey by Schienstock et al. (1999).¹ The study argues

that to participate in global competition today, companies in all parts of the world must be capable of selling high quality products and services for a reasonable price and of delivering them within a short period of time. 'Price, quality and time can be seen as *entrance barriers* to the global market. Success, however, should depend upon the capability of companies to be first on the market with new products that meet their customer's demands' (Schienstock et al. 1999, p. 50). Under the conditions of global competition, innovativeness, flexibility and customisation are thought to be the *key criteria for economic success*.

This change in dominant competition criteria has caused major structural changes in work (Schienstock et al. 1999). Huys et al. (1995), consider flexibility and flexible automation to be important driving forces behind organisational restructuring. Initially, automation and high productivity was only possible combined with mass production, whereas customer orientation required small batch production. As a consequence, a choice had to be made between standardised, price competitive mass production and customer oriented, small batch quality production. The emergence of microelectronics and the breakthrough of flexible automation contributed to the undermining of this traditional distinction. Flexible automation makes it possible to meet new market demands in high volume production too. Furthermore, modern technology allows the 'small batch producer' to improve his cost-efficiency. In this way, the traditional gap between productivity and flexibility seems to have narrowed. Sorge and Streeck (1988) call this strategy of combining productivity and flexibility 'diversified quality production'. Especially in high wage countries, it could be an important survival strategy to remain competitive in the global market (Huys et al. 1995).

In summary, innovativeness, customisation and flexibility are considered to be the most important competitive criteria in a global context. *Customisation and flexibility* are related to Bartlett and Ghosdal's local responsiveness and can have serious implications for the division of labour when conducting business on a global scale. *Innovativeness* refers to the

¹ HIVA-researchers, Van Hootegem and Huys, were also involved in this survey. We will regularly refer to the text, since it gives a comprehensive overview of emerging changes in the current economic environment as well as organisational answers to new challenges.

learning and knowledge aspect in an international context. Learning and innovation are closely related, as learning is an important and necessary input in the innovation process (Lundvall and Johnson 1993). This can modify employee skill needs and therefore company training needs. These issues are yet to be fully addressed. We first underline the importance given in literature to customisation, flexibility and innovativeness in a global context in a quotation from the first Cedefop background report:

‘All relevant international studies on the subject confirm that the decisive factors affecting the competitiveness of companies are:

- the capacity for rapid product and process innovation and the introduction of new products on the market (innovativeness, time to market);
- swift reactions to dynamic changes in the environment and turbulent markets (customer orientation, flexibility);
- the internationalisation of corporate strategies (globalisation, ability to take action on worldwide markets)’ (Dybowski 1998, p. 117).

1.3 The relationship between information and communication technologies and globalisation

There is widespread agreement that the content of work is increasingly determined by activities such as information acquisition, processing and information-based decision-making. Major innovations in the field of information and communication technologies (ICTs) have enhanced and contributed to this evolution. It is essential to appreciate that the impact of new ICTs is not limited to a separate information business as a leading sector. ‘What really takes place is the informatisation of the whole economy, with more and more jobs for white-collar as well as blue-collar workers including information work to a greater extent. What really characterises the current transformation process, is the fact that all sectors and industries are increasingly interpenetrated by information work

and that human work will occur more and more through the intermediary of ICTs’ (Schienstock et al. 1999). We now look at the relationship between this evolution and the process of globalisation.

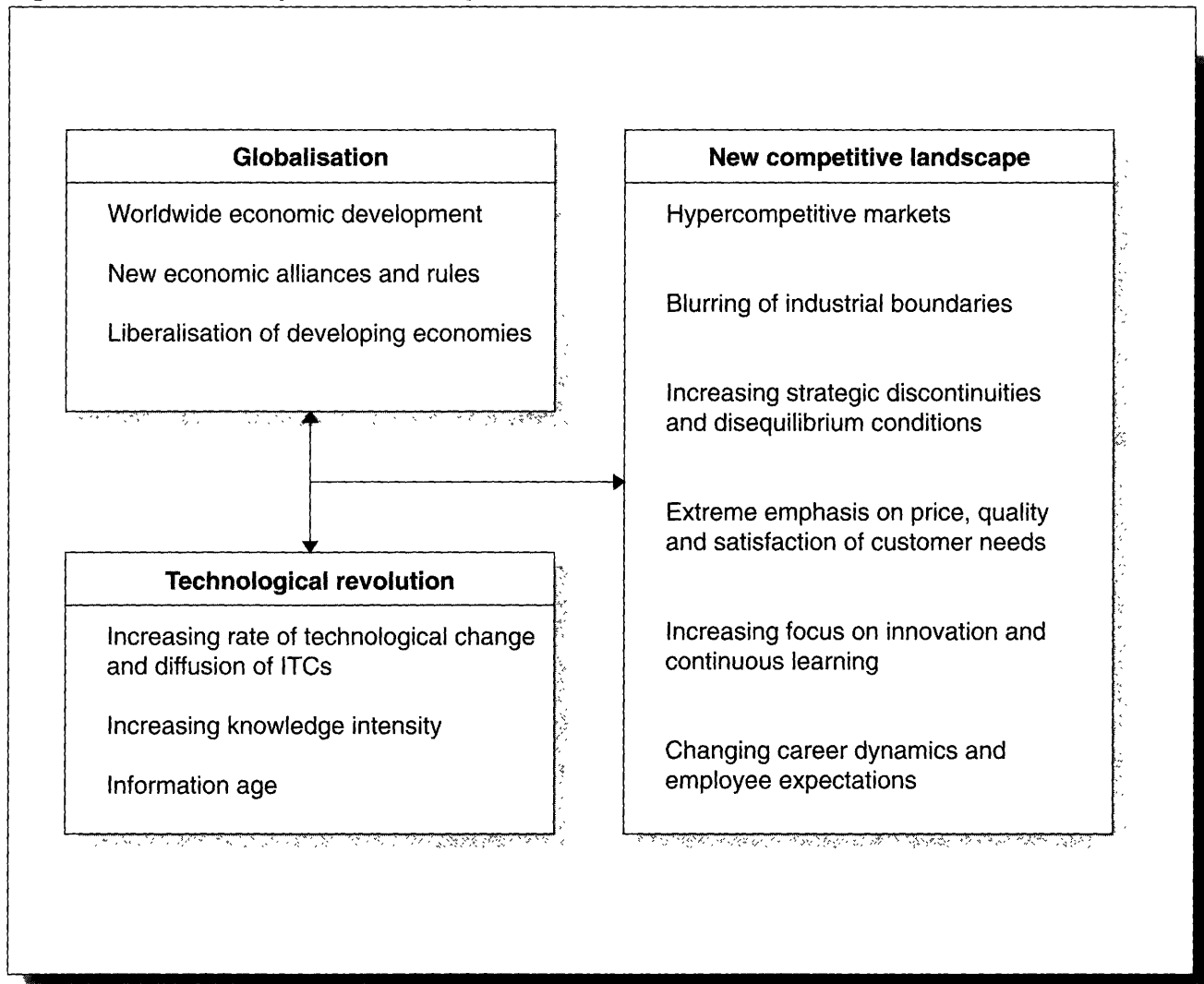
1.3.1 From globalisation to innovations in the field of ICTs

The international motto ‘act global, think local’ (Parker 1996, p. 485) puts a heavy burden on the information processing capacity of companies. Literature has long recognised the complex *information processing needs* associated with conducting business operations on a global scale. Managing interdependencies between nations is inherently more complex than managing activities within a single nation, resulting in huge demands for coordination and communication. ICTs can help meet these demands. Information processing needs, resulting from globalisation, speeded up the development of new ICTs. The global economy has proven to be an ideal environment for enhancing innovations in the field of ICTs. At the same time, the growing application of modern ICTs throughout the economy is a main factor in supporting and accelerating the process of globalisation.

1.3.2 From ICTs to increased globalisation

There is little doubt that modern ICTs have speeded up the process of globalisation. Boudreau et al. (1998) go one step further. They argue in favour of an active role for information technologies in creating competitive advantages under business configurations, rather than a passive adaptation to changing processing needs. ICTs not only *enhance* the process of globalisation, but strategic use of ICTs also allows companies to create *competitive advantages*. First, modern ICTs can overcome spatial and temporal dispersion that accompanies an increased global reach. This characteristic is extremely important for a transnational firm, operating more effectively if it can transcend geographical boundaries. Further, ICTs facilitate setting up networks of alliances and partnerships with other organisations. Electronic networking has almost become a prerequisite

Figure 1: The new competitive landscape



Source: Based on Hitt et al. 1998, p. 24.

for survival in global competition. The authors consider flexibility to be a decisive advantage of modern ICTs. Parts of (virtual) organisational networks may be formed, disbanded and reformed to respond rapidly to changing business needs. Flexibility is an important asset for transnational companies because opportunities in global markets are constantly shifting (Boudreau et al. 1998).

The arguments above indicate why ICTs can have a stimulating effect on globalisation in general. We now take a closer look at developments in the service sector. Services are often characterised as activities in which output is essentially consumed when produced (Quinn 1986). Due to modern ICTs, however,

for many services this direct relationship between production and consumption can be broken up. As Soete (1996) puts it: 'Information and communication technologies, almost by definition, allow for the *increased tradability of service activities*, particularly those which have been most constrained by the geographical or time proximity of production and consumption. By bringing in a space or time/storage dimension, information technology will make possible the separation of production from consumption of such activities, hence increasing the possibility of such activities' (p. 48). We can therefore conclude that ICTs not only enhance globalisation in industrial activities, but also and especially allow for globalisation of service activities.

1.3.3 Conclusion

We conclude by arguing that technological development and globalisation mutually reinforce each other. Modern ICTs create better opportunities for conducting business operations on a global scale. Globalisation creates special needs enhancing technological development. This is also the conclusion of a study devoted to the introduction of the ICT application e-mail (Van den Hooff 1997). The introduction of e-mail enables processes to change, but at the same time, the changing nature of these processes creates additional demands on the system. Technological developments change the application possibilities, while developments in application change demands on the technology in hand.

Thus, the development of new ICTs and globalisation becomes increasingly interwoven. The two concepts are frequently associated with each other in literature. It therefore becomes difficult, if not impossible, to attribute certain evolutions to one or the other. It is the *dynamic interaction* between technological revolution and globalisation that is expected to cause changes in the competitive landscape (and by consequence in organisational restructuring, skill and training needs; cf. infra). The following scheme illustrates this interrelationship between globalisation and the technological revolution. It also recaptures the link with (some of) the above-mentioned changing competitive criteria.

1.4 Some basic characteristics of the global economy

In this paragraph, we give some important characteristics of the process of globalisation. In our opinion, the most important aspect of globalisation is the far-reaching spatial *disconnection between production and consumption*. Economic goods are no longer created where or close to where they are consumed, but where they can be created most efficiently. An increasing part of activities becomes subject to the 'make it or buy it' decision.

These tendencies are not new at all. They have been around for a long time at regional

or national levels. But in recent years, economic logic has been extended in two ways:

- a) the disconnection between production and consumption and the logic of the 'make or buy' decision increasingly takes place in a *mondial*, rather than a regional or national perspective. Companies have a growing international choice of locations for each of their activities. It is no longer enough for a would-be host country to create a competitive macroeconomic landscape. It must also provide the right conditions to attract or keep individual business activities. The closure of the Belgian Renault plant (in Vilvoorde) illustrates this. Renault-Vilvoorde was perfectly cost-effective and delivered high quality products. For years, the plant had been Renault's number one in the field of flexibility. Still, the plant had to disappear a couple of years ago. There was overcapacity in the sector and Renault wanted greater concentration of its activities. In Vilvoorde, there was no place for such a concentration movement. Further, other Renault plants had gradually eliminated their 'flexibility gap' with Vilvoorde. The plant, locally seen a well performing company, obviously no longer fitted in with the global strategy of Renault;
- b) the disconnection between production and consumption no longer limits itself to industrial activities. Modern ICTs make it possible to disconnect the production and consumption of *services* too. Services therefore become tradable, and the creation of them unlinked to location. The increased use of remote call centres for the handling of customer queries illustrates this tendency very well. In Belgium, for example some companies recently decided to close down their internal customer departments and relocate the handling of customer queries to countries like Ireland, Canada, etc.

To put it in terms of Williamson's transaction cost approach (1981), the impact of the *site asset specificity* of economic transactions seems to decrease. Due to the application of new communication techniques and changing transport patterns, production processes become more mobile. The undermining of the

site-specificity of economic transactions is enhanced by the implementation of new logistical systems, overcoming disadvantages in the field of storage and transshipment which are inherent to delocalisation (Van Hootegem 1999). In the services sector, site-specificity tends to decrease too, due to the increasing informatisation of work and digitalisation of information (Schiestock et al. 1999). The following quotation (Huws 1999, p. 50) proclaims 'the death of site specificity' very well:

'No longer constrained to have most of their information processing activities on one site, corporations are now free to seek out the best location on an activity by activity basis, with the whole world to choose from. Thus a company might decide to get its manufacturing done in Mexico, its R&D in California, its data entry in the Philippines, its software development in India and establish two call centres, one in Canada and one in the Netherlands. In each case, the site would be selected on the basis of availability of skills and the advantageousness of other local labour market conditions, tax regime, etc. If the market became more competitive, or local workers started demanding higher wages or better conditions, or the local tax regime changed, it might switch: it might, for instance, go to Indonesia for manufacturing, to the Dominican Republic for data entry, to Russia for programming or start using homeworkers for some of the more routine call centre functions'.

Research has shown that companies anticipate more success in regaining global competitiveness if they benefit from the specific advantages of their regional environment. Those companies that have reacted specifically to different environments have been more successful than others who believed in a 'one best way' of organising business (Kern 1994). Due to intensive global competition, companies are forced to look for the most supportive environment for specific functions or products worldwide.

As cost leadership has to be combined with high quality, quick delivery and product differentiation, companies break down their value chain into discrete functions and locate them where they can be performed most ef-

fectively wherever companies can *take advantage of the local environment* (Ernst and Lundvall 1997). Cost-sensitive production is transferred to those regions with cheap labour while knowledge-intensive production and services will be located in regions with highly qualified labour and a well-developed information infrastructure, as illustrated in the quotation above.

Up to now, we focused on theoretical arguments regarding the process of globalisation. In the following paragraph, we submit a theoretical approach to an empirical test.

1.5 How global is our economy? Rhetoric versus reality

1.5.1 The globalisation thesis

More than a decade ago, Porter (1986; cf. supra) talked about the 'integration of activities on a worldwide basis' and 'firm whose competitive position in one country is significantly influenced by its position in other countries'. Nowadays, this situation is thought to be applicable to an increasing amount of companies:

- 'There is little doubt that the competitive landscape has changed dramatically over the past dozen years. [...] Organisations have extended their activities around the world' (Boudrau et al. 1998, p. 120).
- 'Organisations and their executives are deeply involved in one of the greatest transformations of all time. The geographic boundaries, psychic distances, and politically imposed national borders that have defined our concepts of space and time have been substantially altered' (Zahra 1998, p. 10).
- 'The market has become the credo and globalisation has become the master concept of our time. [...] No country today appears to be immune to the pressures emanating from the globalisation trend' (Lee 1999, p. 23).

The quotations above can serve as illustrations of how the topic of globalisation is usu-

ally dealt with in literature. It has become almost axiomatic that business success depends on expanding the global reach of the organisation and that this evolution is accelerated by innovations in the field of ICTs. According to the new orthodoxy, we have entered a new phase in world history in which cross-border flows in goods and services, investment, finance and technology are creating a world market where the law of one price prevails. 'Globalists assume that the world economy is now so integrated that the constraints of location and of institutional frameworks are increasingly irrelevant; that corporations can simply take a «random walk» in the world market, escaping the confines of any nation-state' (Weiss 1998, p. 185). Some authors, however, dare to question this so-called '*globalisation thesis*'. In the next paragraph, we gather some criticism of the mainstream literature on globalisation.

1.5.2 Criticism of the globalisation thesis

One of the authors seriously questioning tendencies prevailing in literature is U. Huws (1999): 'Perhaps one of the most dangerous illusions is the notion that the new information technologies mean that anything can now be done by anyone, anywhere and that the entire population of the globe has become a potential workforce. [...] Although it is full of euphemistic descriptions of the «death of distance» or the «end of geography», the literature on globalisation is surprisingly *short on empirical evidence*' (p. 47).

The author continues by arguing that far from all human activities are delocalisable. On the contrary, the majority of jobs are still, and seem likely to remain, firmly anchored to a given spot because they involve the extraction of raw materials, their processing, the manufacture of material commodities, transport, construction or the delivery of physical services. The so-called '*dematerialisation thesis*' does not apply to a whole range of activities, and the author speaks of the '*myth of the weightless economy*' (Huws 1999). In the same line, Waters (1998) argues that the impact of globalisation will be greatest where products are mobile and fluid and lowest where prod-

ucts are concrete and material. Materialised activities remain very important in our economy and allocation of them continues to be influenced by site asset specificity. For an example of the persisting importance of the 'site' or location, we return to the Renault concern. A few months after the closure of the plant in Belgium, a new plant was opened in Russia, aimed at conquering the East-European market. Apparently, proximity to the market is still highly appreciated by a 'global' concern such as Renault. It is often argued that labour costs and regulations force enterprises to relocate their production in other countries. Several empirical studies have shown, however, that this is not true on the whole: labour costs are relatively low in automatised plants like automotive industry; many of these relocations are done to enter new markets (e.g. eastern Europe) and not to replace existing production in 'old' markets.

Hirst and Thompson (1996) question the globalisation thesis on the grounds that its supporters can only offer evidence of the *internationalisation* of the economy and not its *globalisation* – the difference between these concepts being explained earlier on. The empirical centrepiece of Hirst and Thompson's book entitled *Globalisation in question* (1996), shows that multinational corporations remain predominantly grounded in the national economies from which they originate, conducting most of their activities there and repatriating profits. 'Thus Unilever and Shell are really still Dutch companies, GM and AT&T are American and Toyota and Sony Japanese companies. There are still very few true TNCs. The main logic remains the MNC-pattern, characterising an international rather than a global economy' (Waters 1998, p. 11). This is also the conclusion of the investigation of the 100 largest companies in the world by Ruigrok and Van Tulder (1995b). While laying claim to being 'global' is seen as a mark of respectability for the modern company, the number of genuinely transnational companies still seems to be rather small.

Lane (1995) gives more or less the same criticism by arguing that 'there has been a notable increase in world trade and an escalation in foreign direct investment, accompanied by

new forms of international integration and by some weakening of national institutions. But globalisation, however defined, is as yet only an emergent rather than a completed process, which has resulted in various geographical blocs rather than in one global sphere' (p. 99).

Other critics even doubt whether the process of *economic internationalisation* has accelerated so much or is such a new phenomenon as suggested in literature. They do so on the basis of empirical data on international trade and direct foreign investment. Proportionally, the most important industrial countries did not conduct more international trade in 1994 than in 1914 (Ruigrok and Van Tulder 1995a). The ratio between the world supply of foreign direct investment and the total world production was even lower in 1991 than in 1913 (Cuyvers 1994). Based on these indicators, it seems hard to disagree that the present period is by no means unprecedented (Weiss 1998). Furthermore, we can point to three additional trends inconsistent with the globalisation thesis (Wade 1996; Weiss 1998, p. 156):

- a) *the national bases of production*. Even if we accept that national economies are increasingly integrated through trade and investment flows, it nevertheless remains the case that in all but the smallest economies, international trade constitutes quite a small share of GDP. For example, exports account for 12% or less of GDP in Japan, the US and a single Europe, meaning that around 90% of production is still undertaken for the domestic market;
- b) *north-south divisions*. Whereas globalisation predicts more even distribution between north and south, world trade, production and investment remain highly concentrated in the wealthy northern countries of the OECD;
- c) *regionalisation*. Finally, this predominantly northern trade and investment is itself becoming more geographically concentrated in intra-regional patterns. Intra-European trade, for example, now accounts for some 62% of Europe's total export trade.

The importance of intra-regional trade now extends well beyond Europe. In the period from 1986 to 1992, for example, intra-Asian trade rose from 32.4 to 47.7%, reversing the traditional dominance of trade with the US (Weiss 1998).

1.5.3 Conclusion

Mainstream literature takes it for granted that the competitive landscape has changed dramatically in recent years, that geographic boundaries and physical distances have disappeared, that economic activity becomes dematerialised, that business success depends on expanding the global reach of the organisation, etc. A small but growing number of sceptics question these claims by pointing to the lack of empirical evidence, the enduring importance of site specificity, the increasing regionalisation instead of globalisation, the small quantitative importance of transnational strategy in relation to the attention it receives in literature, etc. In the eyes of the critics, globalisation is a 'vogue word of modern marketing literature' (Vandenbroucke 1996, p. 8), that entered the popular lexicon as 'the new buzz-word for the 1990s' (Weiss 1998, p. 167).

We agree with the critics that tendencies prevailing in mainstream literature should be taken with a pinch of salt. But, the fact that globalisation should be considered as an emergent rather than a completed process (Lane 1995) is no reason to brush aside or postpone the debate on the consequences of globalisation. On the contrary, discussion on future consequences should start today. In the next paragraph, we start this discussion by investigating the consequences of globalisation on work and the division of labour.

2. Globalisation and changes in the division of labour

There is widespread agreement that the emerging global economy, together with widespread use of modern ICTs, will bring with it new ways of organising production (Schienstock et al. 1999). Studies proclaim the end of both Taylorism and Fordism and talk about

'the new organisation logic'. This new logic is based upon a new division of labour. In this chapter, we will try to characterise the *new division of labour* and establish the link with globalisation. Before we can do so, we have to describe the logic shaping the traditional Taylorist/Fordist organisation model and reach a conceptual framework for understanding what is actually meant by 'division of labour'. This is a necessary step towards assessing changes in the division of labour, due to globalisation. In the following paragraphs we examine whether globalisation has changed traditional organisation logic and contributed to new ways of organising work and dividing labour.

2.1 The four meanings of Fordism

The term Fordism has been operationalised in countless ways in literature. These operationalisations can be grouped into four categories, covering various levels of analysis. We first take a look at the relationship between mass production and mass consumption at macro-level (2.1.1). We then descend to the interorganisational (2.1.2) and organisational (2.1.3) levels and investigate in detail the traditional division of labour *between* and *in* organisations. Finally (2.1.4), we focus on the employment relationship corresponding to this division of labour. The training aspect of the relationship will then lead us into the next chapter.

2.1.1 The Fordist compromise

This approach, stemming from the so-called French Régulation-school, places capital accumulation in the spotlight. By applying Tayloristic principles (cf. *infra*) in large-scale production processes, mass production of standardised products gradually became possible. Mass production led to productivity gains, which were partly used to augment employee wages. This resulted in a significant increase in employee purchasing power, supporting the demand for durable consumer goods. This, again, forced up employers' demands for capital goods and their investments, enhancing productivity and wages. In this way, mass consumption became the complement of mass production (Van Hootegem

1999). A stable distribution of productivity gains between labour and capital was achieved, as well as a stable relationship between consumption and investments (Dancet 1985). Beyond that, a social security system was developed, safeguarding employees from social exclusion. Of course, the transfer of productivity gains to the employee side did not occur automatically. It was part of the so-called *Fordist compromise*: in exchange for recognition and profit sharing, employees and their representatives had to hand over all control in the field of the organisation of work. Employees had to accept new production processes and leave their introduction to the employer (Dancet 1985).

The resulting Fordist production model was based on two important principles, namely 'functional specialisation and vertical integration' (Schienstock et al. 1999, p. 59). In the following, we further elaborate on these two principles. Before we can go to functional specialisation and division of labour within companies, we first have to figure out which activities of the production chain are grouped within one company. We call that the interorganisational division of labour.

2.1.2 Vertical integration

The second meaning of Fordism relates to large-scale organisations, resulting from the internalisation of upstream process parts: from commodities to final products. Fordist companies indeed tried to produce as many of their final products and components as possible in house. The following quotation from *Ford Times* (July 1908) illustrates this logic very well: 'In this plant, everything from screws to upholstery that enters into Ford cars will be manufactured' (Williams et al. 1992). In doing so, Ford was obviously *maximising the hierarchical or vertical integration* of the production process. This even resulted in the acquisition of rubber plantations and iron mines.

The logic of vertical integration can be explained by *transaction cost theory*. The argument is that vertical integration will reduce companies' control expenses (Schienstock et al. 1999). Internalising upstream segments

of production processes allows companies to overcome market failures and to realise economies of scale.

Since Ford, the vertically integrated company model stood for many other industrial (and even service) companies (Van Hootegem 1999). Today, however, the principle of vertical integration is increasingly questioned: company borders become more fluid and the interorganisational division of labour less evident. We will return to that later on. First, we focus on the best known, but perhaps also the most contested, meaning of Fordism, i.e. the application of Tayloristic production principles.

2.1.3 The Tayloristic division of labour

In this paragraph, we look at the division of labour within Fordist companies. We try to do so in a coherent way using a conceptual framework that takes the 'structure of the division of labour' as its focal point.² Before we can apply it, we first have to introduce the language of the framework.

2.1.3.1 What do we mean by 'division of labour'?

The final goal of a company consists of producing certain goods or services. We call that the company's *execution* function. To be able to produce goods or services, some adjacent activities are indispensable. Production has to be *prepared* (think of design, R&D, etc.), *supported* (e.g. quality control, maintenance) and *organised* (e.g. regulation, coordination). Therefore, companies can be reduced to clusters carrying out preparatory, executive, supportive and organising operations. When we

look at the division of labour within companies, we focus on the way in which these operations are divided, grouped and linked to each other, i.e. the *structure of the division of labour*. The division of labour is the process of splitting up the operations to be performed, so that each job ultimately performs only a (small) portion of the total production process. The division of labour can vary across the following three dimensions (Huys et al. 1995, p. 13-18):

1. *Production organisation*. This is the result of the specific grouping and clustering of the functions of preparation, execution, support and organisation over various company divisions or production groups. There are several possibilities open up for a company:

The structuring of execution can be '*operation-oriented*' (identical operations are grouped into production groups or departments; each group or department specialises in one or a few operations); '*flow-oriented*' (more or less the same, but the sequence of operations is fixed: the products go through all the necessary processes in a fixed and sequential order); or '*product oriented*' (one product, product family or product-market combination, is largely finished off in a clearly demarcated processing phase; each group makes one type of product).

Supporting and preparatory operations can be *concentrated* as much as possible in separate staff divisions, giving rise to such classic divisions as maintenance, quality assurance, logistics, training, etc. However, an organisation can also chose to *deconcentrate* these operations, i.e. closely link or even incorporate them into the production departments. Each department is then responsible for its own maintenance, quality assurance, and so on.

With respect to organisational operations, finally, firms may choose to *centralise* decision-making as much as possible at the pinnacle of the organisation, or to *decentralise* authority by devolving it to the production units. A decentralised organisation

² The conceptual framework, largely based on the socio-technical approach, was used in the so-called Belgian 'trend study'. This study aimed at answering the question whether the Tayloristic division of labour is a thing of the past or not. The description and further application of the framework is widely based upon Huys et al. (1995), Sels and Van Hootegem (1998), Huys et al. (1999) and Van Hootegem (1999). These are also the studies we refer to for a more detailed exploration of the framework and its practical application.

is characterised by greater horizontal co-ordination, whereas a centralised organisation implies a form of vertical (in most instances top-down) coordination or indirect coordination via a higher management level.

2. *Production technology.* The 'production organisation' indicates the division of operations between departments or production groups. Part of the operations, however, can be executed automatically. In production segments, machines, computers, robots, etc. are taking over an increasing number of operations from workers. Variable 'production technology' says something about the division of operations between capital and labour within departments or production groups.

In this context, a distinction can be made between *rigid* technology – i.e. technology that is fixed by the mechanical structure of the machine itself – and *flexible* technology, which in the first instance refers to programmability. Flexible machines (e.g. robots, CNC-machine tools, flexible manufacturing systems) are functional for a large variety of purposes, problems and situations.

Most studies assessing the impact of technological advancement limit themselves to the *execution* function or manufacturing cycle. Automation, of course, can also have an impact on preparation and support as well as on execution. In fact, some forms of flexible automation make it possible and some forms of modern ICTs possess the capacity to blur the traditional dividing lines between the operations to be performed. We call those *integrated* technologies.

3. *Work organisation.* A portion of all operations attributed to a department can be taken over by technical systems. Since automation is seldom complete, a number of residual tasks remain. Automation can also create new tasks. 'Work organisation' describes how residual and new tasks are grouped together into work places. With these work places correspond functions:

overall packages of preparatory, executive, supportive and organising operations tasks.

Concerning execution tasks, a company can roughly choose between very *narrow* functions – i.e. those in which the employee specialises in one single execution task or part of a task. *Broad* tasks on the other hand consist of multiple execution tasks. The characteristics 'narrow' and 'broad' indicate the 'width' of the functions. Also the 'composition' of a function can vary. *Segregated* functions consist exclusively of execution tasks, whereas *integrated* jobs also include preparatory and/or supportive tasks.

Decisions in the field of the production organisation, production technology and work organisation, yield into a specific '*production concept*'. This term covers the entire range of options related to the production process. The various dimensions can be assembled to form a multidimensional analytical framework to describe the traditional Fordist or Tayloristic production concept and to discover the dimensions of new production concepts.

2.1.3.2 *Division of labour in the Fordist production concepts*

It is clear that Taylorism – and its practical application in the Fordist production concept – involves systematic analysis of labour process and a far-reaching division of labour, in accordance with several principles (e.g. the divorce of planning and doing, of direct and indirect work, etc.) (Huys et al. 1999). Central to the traditional production concept is the idea that experts outside production ought to design the job and the methods and tools for carrying out tasks (Taylor 1972). These principles typically result in a staff-line organisation, in which preparatory and supportive staff divisions operate alongside traditional production departments (concentration and centralisation). The production departments group that we have called segregated and narrow production jobs, consists of highly specialised, short-cycle and repetitive tasks. These are organised in a flow or operation-oriented structure, in which rigid mechanisation is applied. The major characteristics

Table 1: Traditional versus new production concept

Dimensions of the division of labour	Traditional production concept	New production concept
<i>1. Production organisation</i>		
Execution operations	Flow or operation-oriented	Product or process-oriented
Preparation and support	Concentration	Deconcentration
Organising operations	Centralisation	Decentralisation
<i>2. Production technique</i>		
Nature of technology	Rigid mechanisation	Flexible mechanisation
Integration of company functions	Execution	Integration
<i>3. Labour organisation</i>		
Width of the function	Narrow	Broad
Composition of the function	Segregated	Integrated

Source: Based on Huys et al. 1999, p. 74.

of the traditional production concept are summarised in Table 1.

The consequent application of the *traditional production concept* leads to a situation in which the *division of labour* can be *maximised*. As Table 1 indicates, the framework can also be used to describe the ideal antithesis of the traditional production concept (Huys et al. 1995). This antithesis is the *new production concept*, in which the most optimal *division of labour* is estimated to be much more *restricted*.

In the following section, we briefly summarise the Fordist employment relationship, corresponding to the traditional production concept. We again explain the antithesis in the form of a new employment relationship.

2.1.4 The Fordist employment relationship

The introduction of Taylorist forms of division of labour implied a loss of craftsmanship and

autonomy. Employees saw their work split into routine repetitive tasks. Workers were pinned down to one job. Horizontal mobility was kept to a minimum, and required qualifications were kept at a low level. Even training could be minimised. Actual production workers generally had a short period of on-the-job training. Thus, very little attention was paid to what is called nowadays ‘vocational education and training’, let alone ‘lifelong learning’. Labour was viewed as an article of consumption, not tied to the specific skills and characteristics of the employee, at the risk of seriously undermining employee involvement and commitment (Huys et al. 1995). Ford attempted to change the conditions of employment to encourage greater commitment on the part of the worker. His plants not only had to be ‘a place to be’, but also ‘a place to stay’ (Van Hootegem 1999). The permanent employment contract therefore became the symbol of the Fordist employment relationship. The introduction of higher wages and stable wage systems had an analogous function: increasing stability and cohe-

Table 2: Traditional versus new employment relationship

	Traditional employment relationship	New employment relationship
Contractual flexibility	Stability	Core-periphery
Temporal flexibility	Traditional (e.g. overtime)	New forms of temporal flexibility
Vertical mobility	High	Low
Horizontal mobility	Low	High (e.g. polyvalency)
Remuneration	Determined, based on hierarchy of functions	Flexible
Educational profile organisation	Low profile	Intensive and continuous learning
Recruitment	Low profile	Strong profile, focus on potential development

Source: Based on Huys et al. 1999, p. 74.

sion. Company-specific training ensured that employees in Tayloristic-Fordist companies were able to perform their fragmented functions adequately. The other characteristics of the Fordist employment relationship are listed in Table 2.

2.1.5 Summary

To assess the impact of globalisation, we turned the clock back and went to the area where companies were not yet confronted with current globalisation pressures. We looked at the gradual development of Fordism and focused on the inter- and intra-organisational division of labour. It became clear that Fordist companies simultaneously try to minimise inter-organisational dependency by means of vertical integration and maximise intra-organisational division of labour by means of the Tayloristic production concept. This also appears in the overview in Table 3.

The following paragraphs focus on the question mark in the last column. We will go

through the different levels of analysis once again – thereby focusing on inter- and intra-organisational division of labour – and ask ourselves what is left of the Fordist principles in the global environment at the end of the 20th century. At first (2.2), we take a rather theoretical point of view and try answering the question on the basis of mainstream literature. In paragraph 2.3, we submit theoretically expected changes to an empirical test.


2.2 Globalisation and the end of Fordism: theory

2.2.1 The end of mass production and consumption

2.2.1.1 The undermining of the traditional Fordist assumptions

The *basic assumption of the traditional Fordist model* was the existence of more or less unlimited demand for highly standardised consumer goods. At the same time, due

Table 3: The traditional organisational logic and division of labour

Level of analysis	The traditional model	The impact of globalisation
1. Macro level	The Fordist compromise between mass production and consumption	
2. Inter-organisational division of labour	Vertical integration	
3. Intra-organisational division of labour	Maximal division of labour Tayloristic production concept	
4. Personnel strategy (+ VET implications)	Fordist employment relationship Low level of required qualifications and little attention to VET	

to national monopolies or oligopolies, companies were not confronted with competitors from abroad. We can characterise the environmental situation as complacent, secure and simple (Schienstock et al. 1999). As it was possible to anticipate market trends for a longer period of time, the production process could be organised in a highly standardised, fragmented and formalised way. That is mass production. We have already explained its mutually enforcing relationship with mass consumption.

Nowadays, the basic assumptions of Fordism are seriously put into question. It is widely acknowledged that globalisation has contributed to *the undermining of traditional assumptions*. The following quotation illustrates this very well: ‘In a globalising economy, where innovation competition dominates and customers no longer accept standardised mass products or services, but ask for individual solutions, markets become unstable, insecure and complex’ (Schienstock et al. 1999, p. 59). The Fordist key words gradually disappeared

from mainstream literature and had to make way for their post-Fordist counterparts: standardisation has been replaced by customisation, differentiation or individualisation; cost efficiency by innovativity and creativity; simplicity by complexity; stability by flexibility; etc. The global landscape can obviously no longer be characterised as a simple compromise between mass production and consumption. This can be related to the growing importance of service activities, which are inherently more difficult to create in mass in advance (although modern ICTs can create opportunities in that direction – see Chapter 1: increased tradability of services).

2.2.1.2 The growing importance of service activities and changing priorities within the company value chain³

Future society, it is often argued, will be a *service society* – if current society is not al-

³ This paragraph is to a great extent based upon Schienstock et al. (1999, Section 6, pp. 50-53).

ready one. Structural changes in work are characterised by a growing share of services. Not only the service sector, but also so-called 'secondary services' are gaining importance (Parmentier et al. 1993). These do not service the immediate demand of end users, but they are defined as those services which improve the production through increased support and use of human capital. 'Secondary services' are generally characterised as 'knowledge-intensive business services'. They not only include indirect work processes but also management processes.

Quicker innovation, imposed by globalisation, means that a far greater proportion of the production process than before must be accounted for by a knowledge-intensive 'design process', and a smaller proportion by the 'material process'. To a certain extent, we can see similar trends in the service sector. We argued above that modern ICTs, in close interaction with globalisation, make it possible to disconnect the production and consumption of services. If services are tradable, their attraction for customers very much depends on their contents. Therefore, the design of such services becomes increasingly important. Moreover, when services are no longer immediately consumed, doing research to improve existing or developing new services becomes worthwhile.

The fact that an increasing amount of work is going into *design and research processes* is only one aspect of the changes in the structure of work caused by the globalisation process. As customisation becomes increasingly important, more work will also go into *marketing*. First of all, it is becoming important to know more about customers' needs to provide products or services that can be sold. Further, as customers no longer accept standardised solutions for their problems, but look for specialised solutions they are sometimes not even able to define clearly, it becomes necessary to develop new products or services in close cooperation with them. The globalisation process also places high demands on *management*. Planning is becoming more difficult under conditions of increasing uncertainty. The same is true for the organisation function, since the design of production and serv-

ice processes is becoming a process of learning and continuous improvement.

2.2.1.3 Conclusions

From the argumentation above, it becomes clear that globalisation has contributed to the undermining of mass production and consumption. Globalisation, in close interaction with technological revolution, has given rise to a new competitive landscape, imposing new competitive criteria and priorities on companies (see 1.2). If the economic context and challenges have changed, so will the organisational answers. Companies are expected to restructure themselves to survive in global competition and meet new competitive criteria. Staudt (1994), calls this challenge to company management the 'management of non-routine processes' which, more than ever today, covers *organisational and personnel development* in addition to corporate and technological development (Dybowski 1998).

The discussion on personnel development is postponed to the next chapter. In the following, we focus on the organisational development and the 'new organisational logic' due to global competition. It is often argued that this new organisational logic is turning the traditional division of labour upside down (Schienstock et al. 1999). As in the previous paragraph, we let the division of labour *between* companies precede the division of labour *within* companies. We do so because we can only investigate the intra-organisational division of labour, once we know which operations are executed within the company and which are no longer. This is important since globalisation is expected to change traditional company boundaries.

2.2.2 Towards vertical deintegration⁴

2.2.2.1 Downsizing and outsourcing: make it or buy it?

The strategy of vertical deintegration can be associated with *downsizing and outsourcing*.

⁴ This paragraph is to a great extent based upon Schienstock et al. (1999, Section 7.2, pp. 57-64).

The main reason for big companies to reduce their size, is to become leaner to get the same entrepreneurial dynamism, innovativeness and informalism as small companies often have and to be able to react as quickly and flexibly as they do (Schienstock et al. 1999).

Nowadays, as companies reflect on their core activities and concentrate on these, an increasing number of functions is becoming subject to *'make or buy' decisions*. Globalisation has changed the nature and increased the importance of these decisions. The number of *'buy'*-opportunities drastically increased in the global market. If units cannot compete with offers from all over the world, they are at risk of being outsourced. All functions and processes that do not belong to the core of the business can be subcontracted to other companies specialising in these activities. But not only peripheral functions are outsourced, sometimes even functions that can be considered as core business processes, such as design, become legally independent through outsourcing.

This logic of downsizing and outsourcing is expected to bring about smaller organisations with a more simple structure, which are supplied more frequently in smaller batches and therefore become more dependent on other companies. However, formal organisational relationships do not automatically turn into market relationships; instead, many outsourced parts are still linked very closely with and are economically controlled by the core company, based on long-term exchange agreements. In the end, a company might develop that subcontracts almost all activities and is only concerned with the management of all activities in the chain conducted by other companies. This can be called a *'hollow company'*, because it is not completely, but almost empty (Van Hootegem 1999). Electronic networks make such partnerships possible, since they reduce the costs of coordination and transaction.

2.2.2.2 Cost and profit centres

The establishment of *'cost and profit centres'* is another strategy to reduce vertical integration. In this strategy, more autonomy is given

to the firm's divisions, while at the same time they become fully responsible for costs and profit. The tasks and responsibilities of headquarters, on the other hand, are reduced quite significantly. According to Hedlund and Rolander (1990), in so-called *'heterarchically'* organised companies responsibility for product groups, functions and specific territories can be decentralised in such a way that many parts have a say in the company's decision-making process. Loose coupling and direct negotiation among subunits, particularly concerning transfer prices, is typical for a *'profit centre organisation'*.

The restructuring of service functions within companies is also part of the organisational renewal process. Finance, purchasing, personnel, accounting, long-term planning controlling and logistics are integrated in service or advice centres, to deliver necessary services within the company and to external agencies, to take responsibility for corporate development, and to ensure the organisation's goals are attained. These centres are also responsible for costs, time and the quality of their services (Schienstock et al. 1999).

The strategy of vertical deintegration brings along drastic changes compared to the Fordist area. We could argue that on the hand, market mechanisms are brought into the company by means of cost and profit centres, *'make or buy'*-decisions, etc. But at the same time, organisational mechanism seems to have entered the global market, e.g. in the form of the establishment of long-term relationships between companies, organisational networks, etc. The resulting changes in traditional company borders will have their implications on the splitting up of operations to be performed in one company. We now focus on changes within this intra-organisational division of labour.

2.2.3 The end of traditional division of labour and employment relationships

2.2.3.1 The emergence of new production concepts

The consequent application of the Tayloristic principles leads to a situation in which the

division of labour can be maximised. It has already been said that emergence of a new organising principle is being suggested in literature. A principle that entails not more, but *less division of labour*. It is in this climate that Kern and Schumann's (1984) *Das Ende der Arbeitsteilung?* has to be situated. These authors' observations in the chemical, automotive and machine tool industries led them to report developments which would threaten the dominant position of Taylorism and Fordism as production concepts. They observed the rise of new production concepts which they perceived to be the result of a rationalisation process that the companies in question were being forced to accept to keep their heads above water in the competitive international arena.

The crucial feature of Kern and Schumann's *new production concept* is a shift from concentrated planning and support towards deconcentration and decentralisation (see Table 1). This is expected to benefit a company's sensory capacity, the capacity for adequate action selection and innovative capacity (Sels and Van Hoote gem 1998). Moreover, once preparatory and supportive operations are deconcentrated and integrated into production divisions, there would be more room for integrated production jobs not only consisting of direct production tasks. In a product-oriented structure, all operations and tools required for the production of a single product can be brought together. Since activities are then performed together that were traditionally spread all over the organisation, the structure can be called 'process-oriented', the focus no longer being on individual (parts of) tasks, but on the process of creating a complete product. In grouping together non-similar operations and tasks, this structure can pave the way for job enlargement (Huys et al. 1999).

Within the new production concept, importance should be given to the emergence of a new type of worker: the 'system regulator', who – instead of performing standardised tasks – is more engaged in *problem-solving processes*. Products are increasingly made by machines, but because of the limits to which processes can be controlled by technology,

human working activity remains essential to secure process continuity and the effective use of capital-intensive production technology. System regulators can be called upon to confront unforeseen circumstances. They should be granted autonomy to select the action which they deem to be the most adequate based on their 'feeling' in the daily running of the process. Tessaring (1998) already made this point in the first Cedefop background report: 'The human element becomes increasingly important for the smooth running of technical plants' (p. 283).

This 'rehabilitation' of human labour requires an appropriate employment relationship. The characteristics of the so-called *new employment relationship*, corresponding to new production concepts, were enumerated in Table 2. In this relationship, vertical is being replaced by horizontal mobility, stability by flexibility, etc. Important in the context of this contribution is attention being paid to an 'intensive and continuous learning organisation' and focus on the 'potential development intensive and continuous learning activities'. Later on, we return in more detail to changes in the training of employees and VET systems. First, we want to elaborate on the relationship between globalisation and expected changes in the division of labour. In doing so, we bring together some of the arguments raised up to now.

2.2.3.2 Globalisation and changes in the traditional division of labour

Globalisation is considered as one of the main *reasons or causes* of the emergence of new production concepts, and by consequence, a reduction in the division of labour. We already cited Kern and Schumann, and their belief new production concepts are necessary to keep heads above water in the competitive international arena. According to this view, increased international competition and globalisation are held responsible for the new organisation logic. The literature survey of Schienstock et al. (1999) also revealed that a lot of authors point to global competition as an important factor causing organisational transformation. 'Production and service processes are altering in response to global com-

Table 4: The traditional division of labour and the expected impact of globalisation

Level of analysis	The traditional model	The impact of globalisation?
1. Macro level	Standardisation: mass production and consumption	Differentiation, customisation individualisation
	Stability and simplicity	Flexibility and complexity
2. Inter-organisational division of labour	Vertical integration downsizing and outsourcing	Vertical de-integration:
	'The bigger, the better'	'Small is beautiful'
3. Intra-organisational division of labour	Maximal division of labour	Minimal division of labour
	Tayloristic production concept	New production concept
4. Personnel strategy	Fordist employment relationship	New employment relationship
(+ VET implications)	Low level of required qualifications and little attention to VET	High level of qualifications and major challenges for VET

petition' (Lammont 1999, p. 5), or as it was stated in the first Cedefop background report: 'What is characteristic of these changes [...] is the efforts of the companies to encounter the demands and problems arising from changing global markets, fierce international competition and the need for more innovations' (Dybowski 1998, p. 117).

Obviously, the Fordist production model is thought no longer to be suitable to meet the 'demands and problems arising from the changing global markets'. The traditional model is linked to a specific form of information flow: it contains channels in which only a vertical flow of information is possible and through which the action of hierarchically arranged units is controlled. Actually, this model includes built-in mechanisms to block information flows. Due to its bureaucratic structure and far-reaching division of labour, the

model produces too many interfaces, which become a hindrance to communication and information exchange (Van Hootegeem 1999). Globalisation therefore exerts a need for restructuring the division of labour, which facilitates *information exchange and learning processes* instead of blocking them.

It is widely acknowledged that *ICTs* will play an important role in organisation restructuring. We have already pointed to the mutually reinforcing relationship between technological development and globalisation (see above: Section 1.3). However, the exact role of *ICTs* in organisation restructuring is highly controversial. In a research area mainly concerned with new technologies, there is always a danger of falling into technological determinism. Others, such as Schienstock et al. (1999), explicitly avoid such determinism: '*ICTs* will have an important role to play in

the development of new organisation forms, but they are not seen as a determining factor. They open up «occasions» for organising production processes, but as to technology applications and organisation forms, both are open to other drivers of change [...]’ (p. 59).

In conclusion, the central argument is that the basic criteria in achieving global competitiveness – innovativity, flexibility, customer orientation – can only be achieved through organisation restructuring and changes in the policy of labour deployment. Labour can no longer be considered as a risk factor, something to be kept in line by means of a maximum division of labour. On the contrary, *division of labour should to be reduced to survive in global competition*. This also appears from the following table, giving an overview of the expected impact of globalisation on the traditional Fordist logic.

In the next paragraph, we question whether the new organisation logic is really spreading itself at the pace suggested in literature. We do so because ‘in literature, there is much rhetoric on the need for strategic change [...], but there are still a lot of questions to be answered concerning the rate of diffusion of these transformations’ (Sels and Van Hootegem 1998, p. 542).

2.3 Globalisation and the end of the Fordism: rhetoric versus reality?

2.3.1 Empirical research on new production concepts

In view of the all the assertions above, it is very surprising that *empirical research* on organisational restructuring sometimes tells a different story. Several sector-wide studies (chemical, automobile, machine tool and clothing industry) have investigated the transformation from a traditional Tayloristic division of labour to a new sociotechnical division of labour (Huys et al. 1995). Although in some respects changes in the organisational structure do take place, the effects on the work content of production workers remain limited, with a continuing domination of merely implementational and small jobs. ‘The changes taking place have in common the fact

that they do not change the fundamental nature of the Fordist-Taylorist production system’ (Huys et al. 1999, p. 86).

Van Hootegem (1999), further extended the empirical basis of this so-called Belgian *Trend-study* – aimed at answering the question whether the Tayloristic division of labour is a thing of the past or not – on the basis of 20 longitudinal in-depth case studies on changing patterns in the division of labour. He concludes that contemporary organisations do work on their division of labour, but one can rarely speak of a drastic or fundamental organisational renewal or restructuring: ‘In general, the Tayloristic body of thought is still predominant’ (Van Hootegem 1999).

Not only in Belgium, have widespread surveys on organisational restructuring been organised. The German SOFI team executed a similar *Trendreport* in the automotive, machine tool and chemical industry in Germany in the beginning of the 1990s. Schumann et al. (1994) came to the following conclusion: ‘These new types of organisation are spreading in manufacturing sectors, too, and are gaining ground against the «old fashioned» ones. Nevertheless, due to missed opportunities in the 1980s the dynamic development in the past decade can be characterised more as «pilgrim steps»: two forward, one back, than as purposeful modernisation. These deficiencies are becoming very visible in the current structural crisis’ (p. 648).

We finally refer to two research results on transforming work systems in the United States (Appelbaum and Batt 1994). A large-scale survey, in which 476 of the largest 1000 firms participated, reported that only one quarter had made significant changes in the organisation and management of work and in human resource practices that support the developments suggested in literature. But even in these firms, the changes usually affected no more than 20% of employees. ‘This has led some observers to conclude that between 5 and 10% of the work force in large firms is affected by major organisational changes’ (Appelbaum and Batt 1994). Based on research of the American Society for Train-

ing and Development, Carnevale (1992, p. 53) estimates that 'only 13 percent of American employers have organised employees in high performance work systems that deemphasise hierarchy and emphasise collaboration and teamwork. Those systems encompass a meagre 2 percent of US workers'.

2.3.2 In search of explanations

The above research findings do not say that nothing is changing at all. But the least we can say is that the empirically assessed changes do not allow (yet?) for a general breakthrough of new production concepts. In the first Cedefop report, Dybowksi (1998) also stipulated that 'There is no analytically or empirically substantiated basis on which to answer the question of the extent to which new production or organisational concepts have been implemented and disseminated [...]' (p. 148). This discrepancy between expectations surrounding the new production concept in literature and the empirical observations of the same, ask for an explanation. In general, there are two possibilities (Fruytier 1994):

A first possibility is that the *starting point is wrong*: changes which are assumed to be taking place in the market and which were supposed to impede the continuation of the Taylorist production concept have not materialised or are only present to a limited extent (Huys et al. 1999). Mainstream literature puts globalisation in front as a driving force behind organisational restructuring. Without denying its prevalence, we have already critically questioned the pace of evolution of globalisation pressure as it is suggested in literature (see Chapter 1, Section 1.5). Almost without exception, new performance criteria – such as innovativeness, creativity, customisation, extreme quality-orientation, flexibility, etc. – are given a determining role in the necessity of organisational change. On the basis of empirical research, Van Hootegem (1999) concludes that these are only tendencies, very rarely taking place together. Thus, the assessment of changing performance criteria in the global market can at least bear some nuance. However, one cannot deny organisations being confronted with new challenges.

This brings us to a *second possible explanation* of the discrepancy between theory and practice.

The starting point is right, but there are *alternative possibilities*, compatible with Tayloristic and Fordist methods, to meet the demands of changing market circumstances (Fruytier 1994). The authors of the Belgian *Trend-study* support this idea and argue that traditional organisation principles are much more adaptable to current developments than expected. 'According to our data, it is beginning to look more and more as though improvements in flexibility and quality of production can in fact be achieved without departing from the structuring principles of traditional concepts' (Huys et al. 1999, p. 87).

Modern ICTs play an important role in this process of adaptation: 'Anyone visiting a car assembly will notice that the amazing production flexibility is achieved not by some system of autonomous teams, but rather through the more intensive control of the overall production flow made possible by information technology, in which all parts have to switch simultaneously like cogs in a cogwheel. [...] This kind of flexibility in no way requires a return to 'craft production' in which plants are increasingly engaged in the manufacture of specialised goods tailored to the needs of particular consumers and produced by broadly skilled workers using capital equipment that can make various models' (Huys et al. 1999, p. 87). The authors therefore conclude that *the quantitative importance of the new types of (division of) labour is still small and bears no relationship to the attention it receives in literature*.

Van Hootegem (1999) takes a more or less similar perspective and further elaborates on the specific format of the 'alternative possibilities compatible with the Tayloristic production concept'. His empirical research makes him conclude that we cannot speak of a far-reaching 'detaylorisation'. Companies tend to stick to traditional structures of execution, being flow or operation, rather than process oriented. But simultaneously, companies try to integrate some ingredients of the new production concept (e.g. de-concentration of maintenance

tasks, limitation of the number of hierarchical levels, etc.). In fact, some of the disfunctions of Taylorism are tackled and refined, leading to an optimisation of the classic model. These tendencies, however, do not alter the width and composition of functions drastically. They do not imply a clean break with the past and therefore, the author prefers the prefix 'neo'-rather than 'post'-Taylorism/Fordism (Van Hootegem 1999).

2.3.3 Empirical research on outsourcing

Furthermore, Van Hootegem (1999) submitted literature on downsizing and outsourcing (see above: Section 2.2.2) to an empirical test. Several critical remarks can be addressed to so-called 'small is beautiful' literature.

Once again, the fastness of organisational change suggested in literature contrasts heavily with the *slowness of empiricism*. Of course, there is no use in denying some activities are more frequently handed over to other companies than previously (e.g. cleaning), and some companies subcontract large parts of their production process (e.g. complete subassembly divisions). In general, however, the process of outsourcing is taking off rather slowly and few organisations feel influenced by a heavy 'centrifugal force', making them focus on their core activities alone whilst outsourcing the rest.

Empirical research shows that companies do not decide themselves without taking on board universally supposed environmental influences. Empirical data make us favour the '*organisational choice* approach', in which a degree of freedom is given to cope with (changing) challenges in the company environment. How else can we explain that some organisations outsource certain activities, while others, operating in exactly the same environment, keep the same activities in house (Van Hootegem 1999)?

Thirdly, companies not only engage in outsourcing, but also in 'insourcing' activities. An increasing amount of activities even become subject to *two-way traffic*. Organisations can perfectly outsource some activities, while simultaneously attracting new ones. In other words, outsourcing does not necessarily lead

to scaling down or to 'small and beautiful' companies.

This is also the conclusion when looking at what happens with activities being outsourced – a not so common perspective in literature. Companies taking over activities of others obviously increase, rather than decrease, their scale. Very often, outsourced activities of different, sometimes competing, companies become integrated in one company. This is, for example, the case in the automotive industry. This tendency contrasts with the frequently mentioned process of 'SME-isation' in literature. It leads to *scaling up* or *increasing scale* rather than scaling down or decreasing scale, on the component level. We sometimes observe reintegration of formerly outsourced divisions. In addition, companies try to get financial control of outsourced units and then act as 'shareholders' with a somewhat different philosophy.

2.4 Summary and conclusion

In this second chapter, we looked in detail at organisational restructuring and changing patterns within the division of labour. Before we could assess the impact of globalisation on the division of labour, we took a step back in the first paragraph and looked at the *traditional Fordist organisation logic and the associated far-reaching Tayloristic division of labour*. The remainder of this chapter was devoted to a critical examination of the impact of globalisation on the traditional organisational logic. We asked ourselves whether globalisation really seals the fate of Fordist compromise and pushes organisations more in the direction of new production concepts with less division of labour, and a corresponding new employment relationship.

In the second paragraph, we tried answering this question based upon arguments found in literature. On the basis of *mainstream literature*, we had to answer the questions positively: globalisation has drastically changed the competitive landscape; it has imposed new performance criteria on companies and to meet the new challenges, companies are restructuring themselves; they want to get rid of Fordist and Tayloristic principles and pre-

fer drastic reduction of the division of labour to make optimal advantage of human capital. It soon became obvious that very few tendencies proclaimed in literature are based on true empirical evidence. Rather, they are based on extrapolation of trends emerging in specific company settings or niche markets.

Therefore, we took a closer look at the *empirical data* in hand in the third paragraph. These data tell us a somewhat different story than the one suggested by literature. They suggest a transition to 'neo'- rather than 'post'-Taylorism or Fordism. The ground principles of Fordism and Taylorism survive, be it adapted to meet current challenges of, for example, globalisation.

Of course, the empirical research findings we have presented are strongly *limited*. The greatest disadvantage is that they are almost exclusively production and industry oriented, whereas 'the future society is expected to be a service society' (Parmentier 1993). However, there are good reasons to expect organisational changes in the first instance in industrial sectors. After all, these sectors were the first being confronted heavily with competition from newly industrialising countries and with globalisation pressures. The saturation of classical mass consumption was primarily felt on the product markets. In other words, the crisis of the Fordist compromise mainly affected industrial organisations (Van Hootegem 1999).

A second limitation of the presented research results is the very limited set of industrial sectors (e.g. automotive industry, chemical industry, etc.). Because of the limitations of the empirical research available, we have to be extremely careful in extrapolating its results (and thereby falling into the same trap as a considerable portion of literature).

On the basis of the data, we cannot conclude that traditional organisation principles remain dominant anywhere and anytime. But, taking Popper's falsification theory into account – examples have no probative value but counter-examples do –, we can at least conclude that empirical data *reject the idea of a general paradigm shift* towards a new organi-

sational logic, new production concepts and a new division of labour.


The data also reject the idea of *environmental determinism*, in which changes in the company environment (e.g. related to globalisation) force organisations to react in a specific direction (e.g. restructuring towards less division of labour). While going through literature, we found a lot of implicit or explicit adherents of this theory. We believe more in a degree of *organisational choice*, in which organisations are seen as non-determined social systems and in which the same challenge can give rise to different answers or equivalent solution strategies (Van Hootegem 1999). According to this view, the environment only forces companies to make a selection from a whole range of possible reactions. Not reacting is one possibility, as is e.g. working on the inter- or intra-organisational division of labour. Thus, we see the transition to new production concepts and a significant reduction in the division of labour as an option, rather than an inevitable process to react to globalisation pressures.

Table 5 summarises the argumentation raised in this chapter. In the next chapter, we elaborate further on the question of the impact of globalisation on employee skill needs, company training needs and VET systems.

3. Globalisation and challenges to employee skills and company training needs

The content of jobs – and their inherent qualification and training needs – is influenced by the kind of division of labour implemented in the organisation. Up to now, we pointed at potential changes in the division of labour and content of jobs due to increased globalisation. Think of the integration of previously separated operations in one job, the transformation of work as a problem-solving process, the increased importance of information work, etc. These tendencies – although we have critically questioned the pace of their evolution and emasculated their unavoidability – can seriously influence required skills, the need

Table 5: The impact of globalisation on the traditional organisation model

Level of analysis	The traditional model	The impact of globalisation?	
		Mainstream literature	Empirical research ...
1. Macro level	Standardisation: mass production and consumption	Differentiation, customisation individualisation	... nuances the assessment of changing performance criteria in the global market
	Stability and simplicity	Flexibility and complexity	
2. Inter-organisational division of labour	Vertical integration	Vertical deintegration: downsizing and outsourcing	... indicates slowness of outsourcing process ... allows for scaling-up as an alternative to scaling down
	'The bigger, the better'	'Small is beautiful'	'Organisational choice'
3. Intra-organisational division of labour	Tayloristic production concept	New production concept	... supports the idea of 'neo' rather than 'post' Taylorism
	Maximal division of labour	Minimal division of labour	'Organisational choice'
4. Personnel strategy (+ VET implications)	Fordist employment relationship	New employment relationship	... supports the idea of 'neo'- rather than 'post'-Fordism
	Low level of required qualifications and little attention to VET	High level of required qualifications and major challenges for VET	

for learning and company training needs. This becomes clear from the following citations:

'Continuous learning has become an essential prerequisite for achieving global competitiveness' (Hitt et al. 1998, p. 22). Zahra and O'Neill (1998) highlight organisational learning as an important means for organisational transformation and successful adaptation in a global context. Inkpen (1998) stresses the importance of knowledge as the source of sustainable advantage in global markets. Also Roberts et al. (1998) view knowledge as the cornerstone of competitive superiority in global markets. Ac-

ording to the authors, 'the major challenges to managing a global workforce are:

- ❑ skill deployment: getting the right skills to where they are needed in the organisation regardless of geographical location;
- ❑ knowledge and innovation dissemination: spreading knowledge and practices throughout the organisation, regardless of where they originate;
- ❑ identifying and developing talent on a global basis: identifying who has the ability

to function effectively in a global organisation and developing those abilities' (Roberts et al. 1998, p. 94).

The citations and quotations above all support the idea of a general '*rehabilitation of human capital*' and *upskilling of the workforce in the global context*. Since globalisation is considered to be a major reason behind organisational restructuring and changing nature of work, it is thought to impose major changes on required skills and training needs. In this way, globalisation is expected to create a lot of challenges for vocational and educational training in general.

Several of these arguments have already been put forward in other Cedefop contributions. For example, Tessaring (1998, p. 271-317) elaborated on the future of skills and competencies in general, and made an explicit link with the changing nature of work. Dybowski (1998, p. 115-156) investigated the impact of new technologies and work organisation on VET. The impact of ICTs – closely linked to the process of globalisation – on VET has already been studied by Straka and Stöckl (1998, p. 183-214).

We see no use in repeating the arguments made in these contributions. We would rather try to position the separate discussions in the framework of our contribution and focus on critical extensions of what has already been said repeatedly in literature. In this chapter, we want to go further than the idea of 'a general trend towards higher qualifications and more training to survive in global competition'. Instead, we want to specify *which* new qualifications are seen as becoming indispensable in the global economy and *how* they can be achieved. But first, we have to specify what we mean by 'human capital' to be able to assess the impact of globalisation.

3.1 What do we mean by 'human capital'?

No generally accepted definition of human capital and skills exists. In the OECD report (1998) on '*Human Capital Investment*' the following meaning of human capital is adopted: it comprises 'the knowledge, skills, competen-

cies and other attributes, embodied in individuals which are relevant to economic activities' (p. 9). This definition indicates that human capital is a *multidimensional concept*. In line with Schienstock et al. (1999), we will mainly follow the definition of human capital proposed by the OECD, differentiating between knowledge and skills or competencies. But instead of talking about 'other attributes', we will speak about work orientations.

Although *knowledge* is a contested concept, some important categories of knowledge have been established. In this respect, we can differentiate between theoretical or abstract knowledge, content knowledge, technical knowledge and practical knowledge. Within the second aspect of qualification, the *skill aspect*, we differentiate between professional, managerial, social and international skills. The concept of skills, however, is gradually shifting towards the broader concept of *competence*, which stresses particularly the ability to handle complex and unclear situations. In the *orientation aspect*, quality consciousness and reliability on the one hand, and creativity, innovativeness and entrepreneurial spirit on the other hand, are seen as important qualifications, which have to be cultivated to really gain the advantage of new organisation forms (Schienstock et al. 1999, p. 75).

3.2 The need for human capital in the global economy⁵

3.2.1 Knowledge

Due to the increased importance of problem-solving activities, workers can be confronted with new and unfamiliar tasks for which no solutions are as yet available. We repeat that in literature, globalisation and the resulting needs to innovate more rapidly and to take customer preferences into account more carefully, are seen as driving forces behind the transformation of work into a process of problem-solving. Another reason is the increasing amount of activities becoming automated,

⁵ This paragraph follows the structure of Schienstock et al. (1999, §10, pp. 72-84).

with the paradoxical consequence of the greater dependency on human intervention if technology refuses to work (Huys et al. 1995). In such situations, workers can draw only to a limited extent on their content knowledge of the job. Instead, they need more *theoretical or abstract knowledge* (Schienstock et al. 1999): 'To find solutions to new problems, workers should have the ability to ask the right questions, find the information needed, and select the most suitable aids and tools. They must be able to conceptualise new problems in such a way that they can search for solutions by proceeding in the appropriate systemic and methodological way' (p. 76).

It should be noted that the advanced use of modern ICTs can erode the importance of abstract-theoretical qualifications, because ICTs allow for a worldwide exchange of solutions. It is a quite common company strategy to input solutions to all kinds of potential problems in a standardised database, accessible from all over the world. By continuously updating and extending the database with newly emerging problems and their corresponding solutions, a lot of so-called problem-solving work is limited to looking up the most suitable action in the database. In this sense, ICTs and globalisation allow for a continuing codification of formerly uncodified knowledge. However, extensive use of modern ICTs will demand a new kind of knowledge from employees.

The advanced use of modern ICTs in the global economy is fundamentally influencing the demand for new qualifications. Modern ICTs make the exchange of information and knowledge between different actors much easier, as they bridge both time and space (Fulk and DeSantis 1995). It is expected that, due to easy access to technological databases, vastly expanded connectivity and a sharp rise in communication bandwidth, modern ICTs will speed up innovation processes within and/or between firms significantly. Those advantages, however, can only be realised if all employees know how to use modern ICTs in a creative way. *Technical knowledge*, therefore, is becoming a key qualification. One can also speak about *digital knowledge* (Schienstock et al. 1999) or *production intelligence*.

For a more detailed investigation of the changing competence needs due to the increasing informatisation of work, we refer to the contribution of Brodahl in this background report. We want to add that, together with some other critiques, we dare questioning the popular view that 'almost every job involves regular contact with modern ICTs'. Many companies, particularly small ones, still operate with little technology and if ICTs are used in a company, the share of the total workforce actually doing so can vary considerably. In many jobs, it seems that the actual level of IT skills needed is still fairly low (Dench et al. 1998). These things are undoubtedly changing very fast, but it is not (yet) clear to what extent.

Concerning the knowledge aspect, we want to identify a third trend emerging in literature. To be able to handle complex technical systems, not only abstract and technical, but also *practical knowledge* is expected to grow in importance. We already referred to the increased importance of problem-solving activities, and the role of modern ICTs in exchanging solutions on a global basis. It is obvious that ICTs can reduce the quantitative importance of doing real problem-solving work. But company dependence on problem-solving qualifications for (exceptional) problems, for which no solutions are (yet) available, might even increase. In such situations, uncertainties cannot be solved on the strength of theoretical knowledge and a systematic way of thinking alone; a kind of knowledge is needed which enables people to react immediately to new and uncertain situations.

Practical knowledge can be characterised in different ways: 'Someone has a right feeling for a material, an ability to detect pitch changes in the sound of technical systems or the ability to make decisions without reflection, to use their intuition and improvise. Practical knowledge can be seen as the particular contribution of human labour to the production process' (Schienstock et al. 1999, p. 78). To make this contribution, one should obviously understand the overall production and work process. We can call that *work process knowledge*. An understanding of the work process is much broader than an understand-

ing of the worker's individual task (Lammont 1999). Acquiring work process knowledge would mean 'breaking out of the narrow experience of the worker's own task and appreciating that there is a variety of alternative work processes, that work processes are rooted in historical processes and that the current work process in the organisation is not fixed and may change' (Kruse 1996).

3.2.2 Skills and competencies

The process of organising a business globally calls for a range of new skills, which can be classified as *international skills* (Dertouzos et al. 1989). Today, an increasing amount of companies more frequently deal with foreign clients, suppliers, subsidiaries, 'sister companies', etc. In these international relationships, it is not only crucial to have the ability to speak foreign languages and, more in general, to have the necessary *communicative skills*. Cooperation is much easier if one also knows about the culture, tastes, customs, institutions, etc. of the partner's country. In literature (see e.g. Roberts et al. 1998), a lot of alternatives are suggested to acquire international skills (e.g. aspatial careers in different countries), sometimes including the use of modern ICTs (e.g. virtual teamwork with international partners).

Apart from the questions how many companies are truly global and how many employees within these companies really need international skills and get involved in programmes aimed at stimulating them, globalisation obviously has a direct influence on the need for international skills. We now look at skills and competencies, only indirectly influenced by the process of globalisation.

When it comes to *professional skills*, globalisation is expected to speed up the need for multiskilling, defined as the possession of skills that exceed the boundaries of one specific profession (Schienstock et al. 1999). This expectation is based upon the assumption that globalisation forces companies to restructure themselves in the direction of less division of labour, deconcentration of preparatory and supportive operations and decentralisation of decision-making (see Chapter 2). The result

is broad and integrated functions, asking for a wide spectrum of skills in the sense of *multiskilling*.

If an organisation engages in far-reaching decentralisation of decision-making – in Chapter 2, we critically questioned the pace of this evolution –, workers should be able to plan, organise and also control their work autonomously or together with colleagues in a team. All these tasks – planning, organising, negotiating, control, etc. – are seen as typical management functions, which means that new forms of organisation can only function well if the workers acquire the necessary *managerial competencies*. To this, we could add the need for being able to manage information flows.

Due to deconcentration and decentralisation tendencies, workers would also have more direct contact with members of other work groups. *Social skills and competencies* would therefore become extremely important. These are often related to the ability to take part in teamwork processes in such a way that all participants are satisfied and that the outcome of the group work will be seen as a collective achievement. Another reason why social competencies can become important is that, together with higher levels of autonomy, workers would more often speak directly to suppliers and customers (Schienstock et al. 1999).

3.2.3 Work orientations

Since price, quality and time can be seen as entrance barriers to the global market (see above; Section 1.2), orientations such as *quality consciousness, precision, accuracy, etc.* have not lost their importance. Another factor is *immediacy*. Modern ICTs, such as e-mail, mean that documents arrive almost immediately, and people expect immediate replies. This not only creates new pressures on workers but also diminishes the time available to consult with colleagues or supervisors about the right way to respond; the knowledge must be immediately at hand.

In line with the in international business device widely known as 'innovate or die' (Hitt

Table 6: Qualifications needed in the global economy

Qualifications	Underlying cause
<i>Knowledge</i> Theoretical knowledge Technical (digital) knowledge Practical, work process knowledge	Work as a process of problem-solving Introduction of modern ICTs Increased uncertainty, risk situations caused by technical integration
<i>Skills and competencies</i> Professional skills, multiskilling International skills Social skills	Integration of tasks, despecialisation, group work Globalisation of markets and production Direct interaction within and between work groups, customisation, direct interaction with suppliers
Management skills	Flat hierarchies, decentralisation, increased information exchange
<i>Work orientations</i> Quality consciousness, reliability Creativity, entrepreneurship Leadership New work virtues	Quality and time as key aspects of global competition Innovativeness as key element of global competition Coordination of autonomous work groups Commitment, trust, industrial citizenship

Source: Schienstock et al. 1999, p. 83.

et al. 1998, p. 36), *creativity and entrepreneurial spirit* are considered to become crucially important virtues. The transformation of such abstract concepts as 'continuous improvement' or a 'constantly learning organisation' into a reality inside a company very much depends on a creative workforce. Sometimes it is argued that a '*new way of thinking*' for all members of the company is needed to develop an innovative and constantly learning organisation. *Commitment and trust* are seen as important aspects of such a new way of thinking. It must be based on an understanding that only a joint effort of management and workers to improve innovativeness can lead to success in global competition.

3.2.4 Globalisation and upskilling: some training aspects

Table 6 summarises the arguments elaborated so far, concerning future qualification needs in the global economy. The table obvi-

ously supports the *upskilling thesis*, the idea of a general tendency towards higher qualification needs. If human capital becomes increasingly important in the global economy, so will the necessity to invest in it. The main argumentation says that, «without investing in human capital, companies will neither be able to manage the fundamental restructuring of their production processes and business organisation necessary for them to stay competitive in global markets, nor will they be capable of deriving the maximum benefit from the new organisation forms that have been established».

The question is now how acquisition of the qualifications listed in Table 6 can be stimulated. Certain qualifications, such as theoretical or abstract knowledge, technical knowledge or international skills can, at least partly, be taught in specific educational settings. It is, however, obvious that a great number of other qualifications cannot be acquired in an

education process separated from the production process. Instead, they have to be developed continuously in *learning processes taking place within day-to-day business*. Some examples of qualifications that workers would acquire mainly while going about their day-to-day business and cooperating with other people are social skills, practical and work process knowledge, etc.

Practical knowledge and work process knowledge can be considered as examples of 'tacit knowledge' as they cannot easily be codified. Instead, they should be accumulated by processes of *'learning by doing'* or *'learning by using'* (Schienstock et al. 1999, p. 78). Within this context, Tessaring (1998) stresses the importance of *'training for experience-led working'*. He links the growing importance for human work with concrete business processes becoming more unpredictable. The required qualifications to prevent and manage those unpredictabilities come from experience-led working. According to Tessaring (1998), 'new forms of training, including «experience making» thus gain in importance in vocational training and further training, but also require new learning arrangements' (p. 283-284).

In general, we found a lot of arguments in literature for the reorientation of VET *from teaching to learning* and the integration of *working and learning*. 'The traditional path followed in vocational education in Europe of defining vocational training and working on the job as two distinct areas with only external contacts and a separate organisation of learning and working, is leading to a dead end. Growing competitiveness requirements in the form of cost economies, higher quality and shorter timing, are at present compelling companies to undertake permanent learning, adaptation and innovation processes in order to remain on the market' (Dybowski 1998, p. 144-145).

This quotation from the first Cedefop background report also reestablishes the link between the need for learning on the one hand and globalisation and the resulting market pressures on the other. The global economy and global competition are considered to be major reasons for *lifelong learning* becoming

increasingly important around the world (Lammont 1999).

3.3 Once again: rhetoric versus reality?

At first sight, globalisation is expected to result in an extremely high-skilled workforce, in which everybody should simultaneously possess the knowledge, skills and work orientations enumerated in Table 6 and in which everybody has the ability and willingness to learn continuously for the rest of his/her life. It is hard to believe this is a representative picture of today's average workforce. Obviously, a lot of things have to be put into perspective. Some nuance was already given in the enumeration of the requirements: ICTs can reduce the demand for problem-solving qualifications, it is an illusion that 'every job involves a lot of information work', few companies are yet truly global, not all employees within global companies need international skills, etc. We now draw attention to some other opinions deviating from the upskilling thesis.

3.3.1 Globalisation and deskilling

Doug Henwood, for example, heavily criticises the upskilling thesis and upgrading of workers in the global economy of the US. He investigated the widespread idea that 'the most rapidly growing job categories in the global economy are knowledge-intensive – so-called «symbolic analysts» – and that the problem is that many people don't have the right skills' (Henwood 1998, p. 17). He did so on the basis of projections of the Bureau of Labour Studies of the fastest growing occupations between 1996 and 2006: 'Of the top 30, those that look like symbolic analysts account for only 9% of employment now and 16% of projected growth. Most look quite mundane. It's hard to see from this how «the problem is that many people don't have the right skills». It is, however, easy to see the polarising tendencies in today's labour market [...]' (Henwood 1998, p. 18).

Livingstone (1998) engaged in a more detailed discussion of employees 'having the right skills' or not. The author concludes that around 20% of the (American and Canadian) labour force is underemployed, in the sense that they accept jobs with lower diploma and

qualification requirements than the ones they actually dispose of. We see the same tendencies in Europe. In Belgium and the Netherlands for example, in about one third of all vacancies, a person is recruited having a higher diploma than the one actually asked for (Pollet et al. 1999). Beyond that, organisations are likely to ask higher diploma and qualification requirements than what is actually needed to do the job in hand. These tendencies give rise to the emergence of what Livingstone calls a 'performance gap', i.e. a situation in which the employee is overqualified to perform his/her tasks. In view of the upskilling thesis (see above), it is striking to see that the phenomenon of overqualification has significantly increased in recent years (Livingstone, 1998).

Schienstock et al. (1999) also warn us not to conflate the increasing transmission of data between remote people with the acquisition of knowledge and a general upskilling movement. A number of recent studies on call centres in particular cast serious doubt on the argument that there is a general trend towards knowledge-intensive work. On the contrary, they suggest that these new forms of work, enhanced by the process of globalisation, exhibit an extreme case of repetitive, tightly controlled, machine-paced, and less knowledge-intensive Taylorised work (Ferne and Metcalfe 1987; Reardon 1996). O'Siochru and Jordan (1999) even talk about 'the new sweatshops of the millennium'. That is also the tenor of the following quotation: 'The use of computer-generated scripts which pop up on the screen to be read verbatim by the operator can reduce the skill requirements to a minimum. This sort of work is also amenable to a high degree of remote monitoring and control. Studies of call centre workers in the UK have found that the work is highly controlled, relatively low-paid, frequently involves round-the-clock shift-working and produces a very rapid rate of staff turnover, with «burn-out» typically occurring after 12 to 20 months on the job. The evidence suggests that, far from constituting some new kind of knowledge workers, formerly unknown to economics, these are the Taylorised, deskilled descendants of earlier forms of office worker, even though the work may be taking place at dif-

ferent locations and under different conditions of employment' (Huws 1999, p. 39-40).

The examples above mainly refer to skills associated with the use of ICTs in a global context. Schienstock et al. (1999) also suggests looking at the concept of innovation more critically. Very often diversification and innovation are based on the standardisation of parts of the whole product. Despite the widely supported tendency of higher qualification or reskilling in literature, it is important to see that globalisation does not always require higher qualifications from the entire workforce. In fact, globalisation can sometimes result in new kinds of work reducing the skill requirements to a minimum. To put it in other words, 'routine work will survive' (Schienstock et al. 1999, p. 49).

3.3.2 Upskilling versus deskilling: organisational choice

From the examples given by the upskilling and deskilling adherents, it has become clear that globalisation *can*, but does not necessarily *have* to yield into more knowledge, higher skill requirements and renewed work orientations. How can we reconcile this with the enumeration of new qualifications in Table 6? Some of these qualifications were a direct consequence of the process of globalisation (e.g. the need for international skills, a creative and entrepreneurial mindset aimed at achieving innovativeness). Others were only indirectly influenced through the underlying assumptions of the concurrence of globalisation with the use of modern ICTs (e.g. digital knowledge), other technologies (e.g. practical knowledge), organisational restructuring (e.g. multiskilling), decentralisation of decision-making (e.g. managerial skills), etc. These assumptions, obviously, constitute the weak element of the argument. If the assumptions do not hold, neither will the consequences drawn from them.

In general, we can say that the elaboration of a lot of newly required skills is based upon the premise of globalisation resulting in less division of labour and a new organisation logic. In the first chapter of this contribution, we critically examined the concept of globali-

sation itself. In the second chapter, it has become clear that the new logic is far from widespread and should be considered as one option out of a whole range of possibilities. If the organisation logic is subject to *organisational choice*, so are the qualification requirements needed to occupy the functions resulting from the choice. We therefore prefer talking about upskilling as a possibility, rather than a general rule. Much will depend upon the organisational choices in the field of the division of labour. Since these choices will determine the learning opportunities for workers, they will also have important consequences on the possibilities for on-the-job learning (Lammont 1999).

We will now briefly point to some challenges VET faces due to the process of globalisation. Out of necessity, we limit ourselves to some general trends. After all, the specific training needs of individual companies will be influenced to a great extent by organisational choices regarding the division of labour and the use of human capital. Of course, the causality can also be turned around, in the sense that VET programmes can (should) anticipate and facilitate the process of organisational restructuring and thus might influence the process of globalisation.

3.4 Globalisation and challenges to VET

- ❑ Schienstock et al. (1999) argue that 'there is no general trend towards knowledge-based work. Instead, we can expect some kind of *polarisation* with increasingly knowledge-based jobs on the one hand and more repetitive and less information and knowledge-intensive work on the other' (p. 50). We already quoted Henwood (1998) and his reference to the 'polarising tendencies in the labour market' (see above). Henwood fears that globalisation might even speed up the process of polarisation. In our opinion, this contains a major challenge for vocational and educational training systems. VET should try to avoid the exclusion of those falling out of the upper segment of highly qualified personnel.
- ❑ Due to globalisation, local labour markets can suffer from large 'shocks'. Think of the

situation in which a large company decides to move or close down one of its plants. As lifelong employment and job security are gradually fading and more and more employees have to accept precarious jobs, *employability* gains in importance. VET systems should be adapted such that individual employees and the local labour market are able to get over possible shocks caused by globalisation. In our opinion, VET should try to enhance employability such that employees are less vulnerable to the negative consequences of globalisation.

- ❑ Within the vocational training system, *ICT applications* and the resulting *qualification needs* should get major attention. That is because ICTs become important in an increasing amount of sectors and functions. Furthermore, the ICT sector itself faces quantitative as well as qualitative labour market shortages. Vocational training should contribute to reducing the qualitative ones. Finally, due to globalisation, ICT applications can occur anywhere on the globe. It is important for a region to develop the necessary skills before activities get outsourced abroad.
- ❑ We also want to mention that the widespread use of modern ICTs not only creates additional qualification but also training needs. At the same time, ICTs can impact on the *delivery of training* too. Many employers already utilise IT to deliver training, through the provision of open learning centres, computer packages which personnel can work through in their own free time, etc. There has also been a growth in distance learning and experimentation with the delivery of learning to people who are unable to attend classes regularly, or who want to learn in their own free time (Schienstock et al. 1999). Multimedia, hypermedia, Internet and the World Wide Web have led to an almost boundless optimism concerning the optimising of both teaching and learning (Lammont 1999). The new media can give rise to new learning formats and venues in general and especially in vocational training. They allow for a transition from instructional to constructive learning-teaching concepts as

well as from other to self-direction in learning (see Straka and Stöckl 1998, p. 183-214 for a further discussion).

4. Globalisation and challenges to VET: some policy recommendations

1. The observation that few tendencies prevailing in literature are based on empirical evidence, does not mean they do not exist; neither is it a reason to postpone debate. However it is an urgent reason to emphasise the *need for a greater empirical underpinning of the theory*. Since (a lack of) learning opportunities are undeniably anchored in organisational structures, more specifically in the division of labour (cf. also infra), we argue in favour of the introduction of *permanent observatories in the field of work organisation*. These should log common practices and trace change processes with regard to the usage of technology, division of labour and employment relationships within different industrial and service sectors. This information will allow us to formulate the challenges faced by VET more precisely. We now elaborate further on some of these challenges.

2. Within the vocational training system, *ICT applications* and resulting *qualification needs* should get major attention because ICTs are becoming important in an increasing amount of sectors and functions. Further, the ICT sector faces quantitative as well as qualitative labour market shortages. Vocational training should contribute to reducing the qualitative ones. Finally, due to globalisation, ICT applications can occur anywhere on the globe. It is important for every region to develop necessary skills before activities get outsourced abroad.

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4. Schienstock et al. (1999) argue that 'there is no general trend towards knowledge-based work. Instead, we can expect some kind of *polarisation* with increasingly knowledge-based jobs on the one hand and more repetitive and less information and knowledge-intensive work on the other' (p. 50). We already quoted Henwood (1998) and his reference to the 'polarising tendencies in the labour market'. Henwood fears that globalisation might even speed up the process of polarisation. In our opinion, this contains a major challenge for vocational and educational training systems. VET should try to avoid the exclusion of those falling out of the upper segment of highly qualified personnel.

5. Due to globalisation, local labour markets can suffer from large 'shocks'. Think of the situation in which a large company decides to move or close down one of its plants. As lifelong employment and job security are gradually fading and more and more employees have to accept precarious jobs, *employability* gains in importance. VET systems should be adapted so that individual employees and the local labour market are able to get over possible shocks caused by globalisation. In our opinion, VET should try to enhance employability so that employees are less vulnerable to the nefast consequences of globalisation. However, it is often forgotten that enhancing employability heavily relies on the learning possibilities offered by work organisation.

6. Learning opportunities not only presuppose varied work, with different and new challenges (task requirements), but equally autonomy to deal with task requirements, the possibility to develop own strategies and to improve and change them (control capacity). VET policy often takes these presuppositions for granted, whereas empirical research shows that the conditions are far from always fulfilled. In our opinion, there is no use in *pushing* employees to expand their competences through further training and education, without asking the question whether there is enough *pull* in the work organisation to assimilate the competences in hand. Increasing learning opportunities for workers has to go hand in hand with organisational restructuring towards less division of labour. Up to now, decisions regarding the division of labour have remained the absolute prerogative of the employer side, as if VET policy stops at the gateway of the organisation. VET policy should go further; *more attention should be given to the demand side of the debate*, i.e. the division of labour within companies.

7. The question is now how organisations can be stimulated to engage in organisational reorientation facilitating employee, and thereby organisational, learning. We are convinced that VET policy can make an additional effort, e.g. through active *promotion* and *distribution of information* on the advantages of a new organisational logic, better use of human capital, organisational learning, etc. Quite often, companies are willing to introduce teamwork or reduce their division of labour, but they lack the know-how to do it adequately. It is very important to disseminate *good practice examples* to a wider public, thereby taking optimal advantage of available experience. If necessary, *counsellors* or *consultants* can be placed at companies' disposal. Furthermore, sharp competition can prevent companies from experimenting with new

learning programmes, where only the costs and not the benefits can be calculated beforehand. It might be useful to develop programmes aimed at *subsidising* innovative training programmes and learning initiatives.

5. Summary

This contribution focused on the relationship between globalisation, division of labour and company training needs. At first sight, no clear or simple relationship emerged between these three concepts. They seemed to be randomly chosen. Yet, a lot of authors have tried to connect or relate the concepts in one way or another. Emerging changes in the division of labour have been attributed to the process of globalisation. Globalisation, as well as changes in the division of labour, are expected to require new skills, competencies and work attitudes from employees. On the one hand, this imposes major challenges on vocational and educational training (VET) programmes. On the other hand, competencies acquired in a renewed VET philosophy will further influence the process of globalisation and changing division of labour.

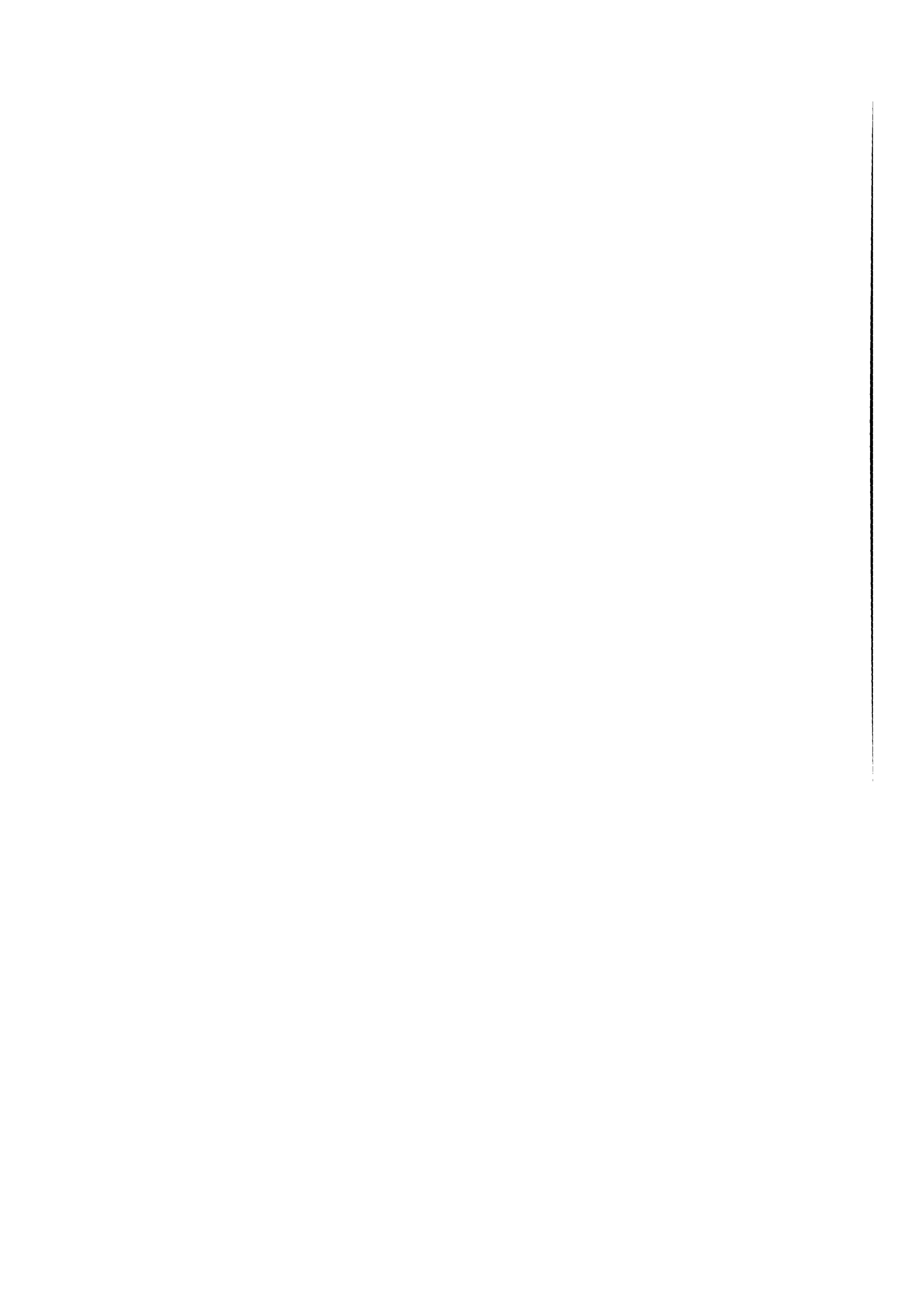
On the basis of extrapolation of emerging trends, the 'artificial triangle' between globalisation, division of labour and company training needs has been disentangled. In this contribution, we have given an overview of how this is done. It has become clear that little tendencies prevailing in literature are based on true empirical evidence. We have critically questioned the pace of evolution of tendencies and tried to formulate alternative hypotheses. But even if things are changing much more slowly than suggested in literature, there is no harm in already looking at potential consequences of future changes. It is useful to take into account the consequences of globalisation on the division of labour and company training needs.

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Training, mobility and regulation of the wage relationship: specific and transversal forms

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With the assistance of Philippe Méhaut

Abstract

Debates on the role of training within economic growth and labour markets touch upon public policies and the roles of enterprises and individuals concerning the formation and accumulation of human capital. This paper discusses the main trends in current research devoted to an economic analysis of the wage-labour link. This refers to questions linked to the structure and mode of functioning of internal and external labour markets as well as to the difficulties of empirical verification of the theories of dual labour markets and segmentation.

The paper examines the crisis of internal labour markets in France and new configurations of its system of mobility. The characteristics of other forms of the wage-labour link are also discussed, focusing on the functioning, transformation and/or on the crisis of occupational labour markets in Germany and Great Britain compared to France. The paper concludes by indicating new relationships these countries have established in vocational training to understand better the principal evolutions of the current wage-labour link.

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Introduction

For a long time now there has been some debate about the role of training, in relation both to the European growth model and to the functioning of the labour market. This debate affects both public policies and the role of enterprises and individuals in the formation and accumulation of 'human capital'. The main European theses, clearly summarised in the European Commission's White Paper (1995) on the learning society, emphasise two aspects:

- With globalisation and the advent of the 'information society' Europe must embark on high added value production systems, in which knowledge plays a central role. So the level of employee qualification needs to be upgraded in the long term. This kind of strategy depends on the quality of the initial training and of the life-long acquisition of knowledge, which is the responsibility of the individual and enterprises in the way that they manage their human resources.
- The trend in means of acquiring knowledge (the place of the new information and communication technologies) on the one hand and the labour market trend on the other (towards greater flexibility) should lead to substantial changes to the prevailing rules, in regard both to training systems (new forms of training, changes in means of acquiring certificates) and to the labour markets themselves (deregulation or new regulations).

In view of this situation, a number of proposals have been put forward for 'a strategy for Europe'. At the same time, many studies on the way enterprises manage their human resources, on how these link up with national training systems and on the role of (initial and continuing) training in the labour market emphasise the contingent nature of these methods of human resources management in relation to the national situations. For instance, they draw attention to the fact that although the labour markets of some European countries are increasingly closing their doors to poorly trained individuals and young

people, this is not a universal trend (Steedmann 1999, forthcoming). They emphasise that the position and rate of return of continuing training differ (Aventur and Möbus 1999) depending on whether the training is pursued at the initiative of the individual or the enterprise. Similar trends emerge in methods of mobilising the employees and improving their skills, but they are reflected in actual practices, in relation for example to recruitment or continuing training, that are consistent with national models which may be in the process of change yet retain certain strong, long-term structural features.

The identification of these structural features, and of what makes them dynamic, thus becomes a central factor in the adjustment of Community or national policies.

But it is extremely difficult to identify them: the theoretical references are heterogeneous; a number of clearly identified national models predominate, but there is some doubt whether they can be transposed to the 15 EU countries (or there is simply a lack of data) and it is difficult to introduce any dynamism into analyses that emphasise the stylised facts that are characteristic of each country.

By focusing on the three large countries in which these kinds of analyses prevail (we will discuss the limitations of this option in our conclusions), we shall try, first of all, to identify the main trends of current research relating to the economic analysis of the wage relationship. We shall look in depth at issues raised in the debates on the structure and operation of the labour market and at the difficulties of analysing them in empirical terms; we will take dualism as an illustration of this (Part I).

We will then summarise the conclusion relating to France and make a detailed analysis of the crisis in the French internal labour markets and the new patterns of its mobility system (Part II).

Part III will look more openly at the features of other forms of organising the wage relationship. We will describe the principles governing the operation, transformation and/or

crisis in the occupational labour markets in Germany and the United Kingdom (drawing a comparison with the situation in France throughout this study).

Part IV will take a more direct look at these three countries' new approach to vocational training, as a means of identifying more closely the main trends of the wage relationship today.

In our conclusion, we shall come back to the questions raised by this type of work, in order both to determine the prospects for research and further study and to identify the 'new practices' of human resources management and the new public training and employment policies.

1. Theoretical and empirical foundations of the wage relationship

1.1 Specific features of the wage relationship

In economic policy, economists realised from the outset that the wage relationship was a special feature of other market relationships. A purely neo-classical market analysis cannot produce any relevant analysis of the wage relationship. Inflexibility and institutional rules (wage grids, rules on mobility, on access to continuing training, performance incentives, early retirement and retirement) are not directly controlled by the market or, more generally, by the kind of coordination proposed by Walras.

However important Adam Smith (1776) considered his theory of compensatory differences as a means of constructing a competitive mechanism for analysing the labour market, he clearly recognised that the competitive wage theory remained incomplete if it did not take account of the balance of power between the partners to the wage relationship¹. Aside

¹ The author points to this difficulty in Chapter 8; for a more detailed analysis see Cahuc and Zylberberg (1996; p.8)

from arguing that wage differentials were justified on the basis of compensatory differences, Adam Smith believed that certain institutional constraints could lead to unequal treatment between equally qualified individuals. The way the apprenticeship system operated and corporate practices were, in his view, obstacles to mobility and therefore reduced the pressure of competition to level out wage differentials.

This caveat is echoed in later works, which regard this as the main principle for regulating the wage relationship and go on to establish the theory of the 'segmentation of the labour market'. In the following we shall emphasise the change in economic thinking about the operation of the labour market, to help us analyse recent works on the subject and describe certain stylised facts more precisely.

To begin with, we have to refer back to what was a very important historical approach and one supported by, among others, Cairnes and Mill (see Marsden 1989 for more details), relating to non-competitive groups. According to this way of thinking, the segmentation of the labour market stems from the existence of social groups seeking to protect their activity, their source of income, from competition. They restrict access to these so-called 'non-competitive' activities by tying it to a costly investment in education. Social class and education are also determining factors in the early segmentation of the market insofar as the market is segmented well before an individual enters into working life. Wage inequalities are not primarily determined by the principle of compensation that Adam Smith presents as the dominant law of payment for work. The existence of these non-competing groups is an obstacle to competition and to equalising the rates of return of the various investments in education.

At that time the aim was simply to reduce the inequalities in access to education in order to reduce the power of the more fortunate and therefore, implicitly, more educated groups. It is worth noting that the consequences of the education-based solution in France as in other European countries tend

to undermine this approach. We must not forget that the phenomenon of downgrading at the moment of recruitment has been worsening since the early 1990s, although the objective of bringing 80% of a same age group up to baccalaureat level has been enshrined in French law since 1989.

Pigou (1945) justifies the non-competitive nature of the wage relationship by referring to the phenomenon of union coalitions or the heterogeneous nature of the labour factor, while also regarding the specificity of the latter, depending on the production centres, as the fundamental cause of the segmentation of the labour market. This specificity can be explained by factors linked to the type of technology, its localisation and the characteristics of the employment field that, in the end, make the labour factor less mobile.

These findings were examined in rather more depth from the 1950s onwards, leading to the formulation of what is regarded as the modern version of the segmentation theory. The new approach focused on the complexity of modern capitalism and on the stronger role of the institutions in western society. The existence of coalitions (unions of employees, branches, industrial groups, etc.) and the many forms of state intervention in the market (by legislation or by the employer) are real factors that need to be integrated explicitly in any analysis of the labour market. It shows that there are a great many levels involved in the negotiation of the employment relationship and that they reach beyond the framework of the two players strictly involved in the wage relationship. In the view of Kerr (1954), the institutional rules of the labour market create frontiers between the labour markets and make those frontiers that already exist even clearer and more difficult to cross. They specify the points of competition, the groups that have access to this competition and the conditions under which they take part (op. cit.). Kerr identifies five sources of barriers that divide the labour market into distinct compartments: the employees' individual preferences, the employers' preferences, the activities of the body of workers as a community, those of the community of employers and, lastly, the activities of the state.

This has produced a 'balkanised' labour market in which a set of institutional rules defines the limits between the internal and external components of the market. Because of this balkanisation, neo-classical theory cannot accurately describe the entire labour market. It can only describe its external component. The theory of market unicity is no longer tenable and Kerr (1954) distinguishes three types of labour market: competitive markets without union organisation, trade markets and enterprise markets.

There are certain barriers to access to the latter two markets: the need to have obtained a certificate of completed training or the employer's decision to hire the employee². From the outset, there are certain questions about the obstacles to entry to these markets and the original hypothesis of segmentation in the few empirical works we refer to below. Kerr (1954) emphasises that there is little chance of mobility between them. The administrative rules and their management take precedence over the technical characteristics of the qualification (Marsden 1989, Ch. 5). That reduces the career opportunities of workers who have the necessary capacities but find themselves excluded from these markets. Kerr (op. cit.) describes them as 'non-citizens without rights'.

The trade and enterprise markets are internal labour markets. Kerr (op. cit.) and Dunlop (1958) give a definition of the internal labour markets that was then also adopted by Doeringer and Piore (1971) on the basis of entirely different objectives, as we shall see later. The internal labour market is an administrative entity within which the allocation of labour and the fixing of prices are governed by a body of rules and administrative procedures. Conversely, on what is called the external market, the price and allocation of labour are determined by the play of labour supply and demand. For Kerr, the main outcome of the institutional rules is a separation

² Contrary to the theory of non-competing groups, individuals who are already in the labour market find their access to the market restricted at the point of entry to these markets; access is no longer decided even before they enter working life.

between the labour market, in the sense of a process of allocating employees to jobs, and the method of determining wages.

In the view of Marsden (1989), one of the main attractions of the concept of 'balkanisation' is that it makes it possible to reconcile the influence of market forces and of institutional and social forces.

This overview shows that the analysis of the wage relationship must be more broadly based than it is in the traditional hypotheses of economic science, which concentrate on the scarcity of resources or the rationality of behaviour.

Compared with other market relationships, the wage relationship is marked by a tension between two perspectives: the first is the market perspective, the second focuses on the special features of transactions involving labour services. The great difficulty of labour economics was and still is how to find a synthesis between these two perspectives, which have long seemed antagonistic (Cahuc and Zylberberg 1996). The wage relationship is in effect marked by three special features:

1. Firstly, the wage relationship can be regarded as one governed by a principle of informational asymmetry, to the benefit of the employer. The employer is regarded as the holder of information who wishes to impose a certain behaviour on the employee; that entails the risk of compromising his objectives, for he may come up against the classical problem of moral uncertainty or adverse selection. So at the heart of this approach lies the idea of the employer's power of command, insofar as he is hiring the labour services. Labour law and all the institutional characteristics of an economy therefore play an important role in regulating the wage relationship.
2. Secondly, economists all agree that the wage relationship can only be assessed over the long term, given the non-fulfilment of the employment contract. This particular feature derives from the nature of the object exchanged and the time devoted to the work and the way it is organ-

ised. Rules on promotion by seniority and external mobility can only be looked at over time and may be specific to the enterprise or be the more general characteristics of a type of social organisation.

3. Thirdly, the wage relationship is a collective relationship. The production of goods and services requires methods of enterprise and employee organisation that vary from one society to another and one era to another.

Given these special features, it would be premature at this point to speak of a predominant form of wage relationship, evaluate its effectiveness or assume it was irreversible.

In fact, there is a substantial body of international research today that looks at the crisis of employment in western societies and emphasises the specific national features of systems of education, training and labour market operation.

Our own earlier research work and the small number of international comparisons carried out in this field have shown that the influence of the institutions and of the rules on the functioning of the labour market in France, in Germany and also in the United Kingdom is the determining factor for explaining the mobility mechanisms at the start of working life and those relating to medium-term careers more generally. For example it is becoming increasingly legitimate to speak of 'integration à la française', of the French internal labour market, the English occupational labour market, the German qualification model or even of the Japanese model of skills (Marsden 1998).

In a more extreme and general fashion, Marsden (1998) very recently concluded that the societal effect remains one the most important findings of multidisciplinary and comparative research in the social sciences.

In the second edition of their work, Doeringer and Piore (1985) return to the attack and try to show that the conceptual specificity of internal labour markets in relation to all the developments to which it has given rise since

1971 when their work first appeared, developments which reflect a neo-classical trend. The authors emphasise that the findings of international comparisons seems to point to the important role of institutions and social relations in the emergence of internal labour markets.

1.2 Segmentation of the labour market and mobility mechanisms: from a complex concept to the problem of empirical tests

The empirical literature (whether econometric or descriptive) looks at the concept of internal labour markets and, in particular, questions the dualist vision of segmentation. Recent findings, based largely on international comparisons and a number of econometric tests, show that the description of the labour market cannot be reduced to two segments and even less to a supposedly universal concept such as that of the internal labour market.

In the following we will present the results of the research on which our questions are based.

1.2.1 Why do internal labour markets exist? Preliminary concepts

According to Doeringer and Piore (1971), the segmentation of the labour market results from the existence of markets in the form of administrative entities whose mode of coordination cannot be explained by competition theory. These entities are 'internal labour markets' and the authors try to explain their existence by constructing a synthesis between the theory of specific human capital posited by Becker (1993) and the institutionalist theory (Ballot 1996; Marsden 1989; Taubman and Wachter 1986; Wachter and Wright 1990). These markets exist because of the mutual advantage offered to the workers and the employers when there is a need for specific forms of training. They result from the behaviour of enterprises, which minimise the costs of investment in training in order to adapt to the introduction of a specific technology. That specific technology results in specific jobs and qualifications, within a given enterprise, and guarantees job stability.

The two authors regard job stability as the predominant feature of the internal labour market. This long-term commitment in regard to the wage relationship is founded on the theory of specific training investment (Becker 1993). A particular feature of this kind of investment is that it raises productivity only in the investing enterprise. This mechanism explains why the wage relationship is then more stable. It runs counter to what is called general training, which finds outlets in many enterprises.

In their second chapter Doeringer and Piore (1971) therefore discuss the specific investment theory posited by Becker (1993) as one of the options that would encourage enterprises and employees to maintain a durable relationship. Indeed the tendency to look to investment returns may be reduced if the two parties share the costs of specific investment in training. For example, the employees may finance their own training if their wages are below those offered on the external market. For their part, the enterprises will invest in training if there is a disparity between the employees' marginal productivity and their wage levels. Under these circumstances, employees are dissuaded from leaving the enterprise while the enterprise is dissuaded from laying them off. As a result, the optimal wage profile will grow with seniority if the investment is repeated. This corresponds to the practice of paying bonuses or promoting on the basis of seniority. It has led to some authors to put forward the idea of an econometric test of dualism. In the primary sector, where the internal labour markets are situated, the function of earnings will be consistent with the human capital model, while in the secondary sector wages are not affected by the accumulation of human capital. This observation was to be translated by the definition of two segments, which merely represent a simplified version of the theory of Doeringer and Piore (1971) for the secondary sector or Piore (1975) for the primary. From a strictly econometric point of view, this approach basically led to a consideration of two functions of earnings, with or without methodological precautions, which were believed to reflect the organisation of the labour market around two forms of the wage relationship.

The justification put forward by Doeringer and Piore (1971) for the existence of internal labour markets may seem a little perplexing in the face of enterprise training policies, where it is always difficult to posit a dichotomy between the general and the specific. Furthermore, some recent versions of the human capital theory show that it may be in the enterprise's interest to finance general training (Katz and Ziderman 1990; Stankiewicz 1995). Ballot (1996) puts forward an interesting argument. Western societies are characterised by innovation, which produces quasi-monopoly returns. The general training of employees promotes innovation and access to these quasi-returns, which is an incentive to the enterprise to finance it provided the manpower turnover rate is not too high.

Moreover, we must draw a distinction, as Watcher and Wright (1990) do, between the investment in human capital and another specific investment, involving the match between the employee and the enterprise. This second investment relates to the situation where the employee and the employer are 'well-matched'. That implies a larger anticipated surplus than the surplus that would result from the random allocation of an employee to a job. The scale of this surplus can be determined by the employees and the enterprises of the internal labour market via the intermediary of the external market. This market is in fact described as the point where enterprises and employees invest little in the employment relationship. Firms can lay off employees and employees can leave the enterprise at little cost. In the extreme case, the irrecoverable costs characteristic of internal labour markets do not exist. The two parties have little to lose when the contract between them comes to an end. At that point the external market offers external opportunities for the internal labour market employees and therefore defines the limit below which their 'internal' wages cannot fall. For enterprises, the external market represents a reservoir of manpower and the extent to which they draw on it determines the scale of the surplus. In fact, if enterprises recruit external employees rather than turning to employees already integrated in the internal labour market, they

will lose in productivity since the internal labour market depends on specific investment in matching the two sides.

In addition to specific qualifications, Doeringer and Piore (1971, Ch.2) also identify other factors that contribute to generating internal labour markets, factors that also derive from the specificity of the technology. They relate to on-the-job training and workplace habits.

On-the-job training forms part of the causal chain that Marsden (1989) deduces from the literature on internal labour markets: specificity of the technology → specificity of the job → advantages of on-the-job training → specificity of the qualification → type of internal mobility → structure of the internal labour market. Depending on the job for which the worker is hired, on-the-job training enables him either to acquire the skills required for that job or is a prerequisite for making use of his formal education. In every case, it is the production process that governs the training process. It is that which penalises mistakes and rewards the 'novices' progress and therefore acts as an impetus to training. The more specific the technology used within the enterprise, the more specific the jobs will be, and the training associated with these jobs will be more profitable if it is done on the job. In extreme cases, a worker can learn simply by observing more experienced workers. The cost of this training is even lower if it reflects the promotion steps: workers progress from job to job, with each job teaching them the skills needed for the next job. So on-the-job training is clearly the source of the specificity of the qualification. Transposed to the working environment, specificity discourages any standardised training. It renders the skills thus produced very specific to the context in which they were acquired.

In this context, minimising the loss of irrecoverable costs of specific investments (in the event that both parties bear them), encourages the employer and the employee to establish an enduring employment relationship. Aside from specific investment, therefore, what really promotes this enduring relationship is all the costs of manpower turnover (cost of adjustment to the working environ-

ment, to the co-workers, of acquiring the enterprise culture, ...anything relating to the non-formal training peculiar to the enterprise and usually acquired on the job).

The stability of the employment relationship or the desire to create and maintain that stability is one reason for the development of internal labour markets. Job stability does in fact promote the creation of social groups that tend to establish 'a body of unwritten rules that govern the actions of their members and relations between members and non-members' (Doeringer and Piore 1971, p.23). These are the rules that Doeringer and Piore call workplace custom.

They are based on past or repeated practices and govern many aspects of the employment relationship because of their stabilising influence and because wages, like the allocation of work within the internal labour market, are very much subject to the influence of custom. Promotion by seniority and redundancy rules, administrative wage structures, for example, form part of these rules and are therefore difficult to change. Even if these rules originally reflected economic forces, custom makes them rigid and difficult to adjust in response to the dynamic of economic forces (Doeringer and Piore 1971, p. 40). Stability also leads to rigid and irreversible administrative rules, which, de facto, consolidates the internal labour market structure. Employers are in favour of this consolidation because it reduces turnover costs while workers like it if their qualifications are specific to the enterprise.

Aside from arguments based on the specific nature of certain investments, other factors – relating to contract theory – also play a part in the maximisation of the surplus by the two parties and ensure a stable employment relationship. According to Wachter and Wright (1990), they suggest that internal labour markets came into being as a result of the combined effect of four factors: investment specifically related to matching, the risk aversion differential between employees and employers, the asymmetry between the information held by the two parties and the transaction costs.

Recent literature willingly acknowledges that there is no question today of a general theory of internal labour markets. In any case, the proliferation of manpower management rules, the dynamic of their development and their specific nature according to country suggest that any one-dimensional attempt to justify the existence of these markets would be a very reductionist approach. If we adopt the recommendation by Wachter and Wright (1990) who propose a general theory of internal labour markets we would have to study the four factors cited above at one and the same time. As it stands at present, the literature on these markets is still rather hybrid, which is our first general criticism of it.

1.2.2 The multidimensional justification of internal labour markets or the impasse of a general theory of internal labour markets

The presence of specific investments cannot by itself ensure the existence of internal labour markets. According to Wachter and Wright (1990) it is justified in the context of an integrated approach to several factors that fall within contract theory.

The first of these factors goes back to the implicit contracts concluded between employers and employees, directly linked to the existence of specific investments. If all that existed on the market were general qualifications (which are therefore transferable without loss from one enterprise to another), changes to the supply and demand of the goods produced would have repercussions on wages and jobs as a result of market forces. When the employer and the employee take responsibility for specific investment, such changes, unless anticipated, can produce losses for both parties. In this context, and because they are supposed to be more averse to risks than their employers, employees accept a lower wage rate provided their earnings are guaranteed. The employers, who can diversify their portfolio, agree to take the risk of a decline in activity in return for the reduction of wage costs. So the employer offers an insurance service against economic ups and downs. This transfer of the risk benefits both parties.

Risk aversion cannot in itself explain the stability of the wage relationship. But it is an argument explaining the durability of that relationship once it has been created and it is a factor that complements specific investments.

Following the same logic of the maximisation of the benefits to both parties of the employment relationship, the contract concluded between them must prevent any 'opportunistic' use of the information advantage each has over the other. In fact, only the employees have information on their own efforts and only the employers know the state of the market and the technology. The two parties cannot obtain this information at the same cost and the party that has more information can use it for 'opportunistic' purposes. In this context of asymmetrical information, if the contract is to be effective it must ensure that the information is provided by the party that can acquire it at the lowest cost and must discourage any strategic use of that information.

If both parties try to maximise the coalition surplus, they will also seek to reduce the transaction costs. Since the negotiation and formulation of the employer-employee contract tend to involve high transaction costs, the two parties agree only on the general principles. It is too difficult to anticipate every contingency. The contracts then become enforceable given that the enterprise has to protect its reputation on the labour market and therefore refrain from any strategic behaviour.

In other words, the individuals cannot effectively turn to the external market again because of the transaction costs and the costs of permanent wage contract bargaining, while the enterprise can reduce these costs by internalising them.

Finally, the segmentation of the labour market is perceived as a response to the uncertainty on a market that contains a particular production factor – the labour factor – and that turns this market into a point of 'idiosyncratic exchange' (Williamson, 1975).

'Idiosyncratic' jobs on the internal labour market relieve the pressures of competition

in relation to wages. Workers already employed in an enterprise have an advantage over outsiders, which gives them a certain monopoly power thanks either to the specific nature of the continuing training or to the rules based on the implicit employment contract (Taubman and Wachter 1986, p. 1189).

Doeringer and Piore (1971) believe that the minimisation of the costs of manpower turnover and more generally of the costs of specific investments are the main source of internal labour markets. Wachter and Wright (1990) believe that it is the combination of four factors – specific investment in matching, risk aversion, asymmetrical information and transaction costs – that lies at the source of internal labour markets and justifies their institutional operating rules. In other words, it is because of the uncertainty and the transaction costs that the employment contract, in which the two parties agree on the general principles of the employment relationship, becomes an adequate management instrument³. The employment contract is the solution to what Simon (1978) calls limited rationality, i.e. the fact that the human mind cannot provide for every contingency (reduce a complex and uncertain world to a manageable body of contingent contracts).

The internal labour market promotes joint investment in specific training by creating a climate of confidence, removes the fear of exploitation, guarantees wages, etc. It constitutes an effective system for encouraging cooperation and therefore triumphing over opportunism in the enterprise and reducing the costly bargaining on wages and employment (Doeringer and Piore 1971). Finally, by offering both parties mutual advantages, it makes the employment relationship more enduring.

The theoretical difficulties involved in formulating a sufficiently general approach to the internal labour markets explains why the

³ Conversely, the external labour market that operates according to neo-classical principles uses sales contracts, defined as 'the exchange of a fully specified commodity (labour) for wages' (B. Reynaud, 1992).

theory of segmentation was applied empirically to the dualist version.

1.2.3 Operation and justification of the dualist structure of the labour market

The concept of the dualism of the labour market was formulated on the basis of several theoretical and empirical options in order to describe stylised facts linked to forms of mobility, integration, unemployment and also to the effectiveness of certain assistance measures for youth training.

1.2.3.1 Early definitions of dualism

There are in fact few works that set out more complex labour market structures than those described by the simple dualist models. Piore (1975) draws a distinction within the primary sector between an inferior and a superior segment. The attributes of the internal labour market are plain to see in the first segment – rigid wages, promotion and training policies conducted by the firms and all the coordination rules that lead to a very stable workforce within the enterprise. The second segment, however, is marked by highly qualified jobs involving responsibility, where the absence of rules produces great mobility between firms, an aspect which brings this segment closer to the secondary sector. In the light of this, it seems excessive to represent the entire primary sector as being organised around internal labour markets.

With the introduction of alternative means of adjustment between employees and employers – dropping out or consultation – Cahuc and Zajdela (1991) also manage to reveal and justify the presence of a comparable dualism even within the primary sector. According to their model, it suffices for the enterprise or the employees to decide not to set up means of consultation through a collective organisation – the union – and to choose to drop out for them to come under the secondary sector. Yet this dualism is still distinct from the traditional definition in that it too reveals wage rigidity by operating on the basis of a model of efficiency wages. The difference between the two main sectors in fact lies in the level of the firms' manpower turnover costs.

The structure of the labour market becomes even more complex with the split Doeringer and Piore (1971) see within the secondary sector. In fact the secondary market is made up of three groups of jobs. The first group consists of unstructured jobs with characteristics similar to those of jobs defined by competition theory. The second group consists of jobs which reflect the formal structure of internal labour markets but where there are multiple access pathways and difficult working conditions. They too are marked by low wages and very little upward promotion. The secondary sector jobs in the third group are marked by almost no chances at all of promotion and can occasionally be found in internal labour markets where primary sector jobs also exist.

Some econometric studies always regard the contract rules as a relevant criterion of segmentation (Cases and Lollivier 1994; Joutard and Werquin 1992). Aside from the problem of appointment a priori, according to this principle the distinction between the segments may be based on the intensity of manpower turnover or, quite simply, on the scale of external mobility. Yet these phenomena can sometimes be the mechanism by which optimum matching occurs in an economy without that being a strong or single characteristic of individuals with the least human capital.

1.2.3.2 An alternative use of dualism

The split of the labour market between these two segments widens even more with their use for alternative labour market theories. If they are neo-classical, these theories aim to give a better explanation of mobility phenomena; if they are post-Keynesian, they try to justify involuntary unemployment.

The phenomena of internal and external mobility may depend on a special matching process between employers and employees (Erikson 1991). At the time he enters working life, the individual's type of human capital is unknown; he is in an external market. Investment in human capital is assumed to be non-specific to a firm. Once the type of human capital has been identified, two alternatives emerge. If the individual joins an en-

terprise that matches his type, promotion is internal; if that is not the case, he has to turn to the external market to obtain that promotion. Certain economists have often interpreted the use of fixed-term contracts for integrating young people in working life as part of this kind of matching process.

Davis (1993) shows that the existence of job segments marked by a low level of human capital and little job security is the result of a particular kind of anticipation on the part of employees and enterprises⁴. The two parties may in effect anticipate a risk of undervaluing their investments during the bargaining process, which is reflected in a level of human capital and job quality (e.g. in terms of stability, training potential and wages) that is lower than it should be in an optimum social situation. Under these conditions, only jobs covered by a wage grid clarified ex-ante can lead to optimum matching and to quality jobs.

The allocation of an employee to a job, especially a promotion, acts as a signal sent to the external market about the evaluation of that employee by his superiors (Waldman 1984)⁵. Other enterprises may use this information to decide whether or not to hire a promoted employee. In extreme cases, one could argue that job stability and slow internal promotion are a signal of the employee's inability to upgrade his human capital even further on the market and/or in the enterprise hiring him. The most mobile individuals would be those whose qualifications are most sought after on the market. Moreover, enterprises may strategically reduce their promotion rates to discourage employees from leaving and to reduce their manpower turnover costs. That can,

⁴ Davis (1993) describes a process of random matching between employers and employees where the two sides make specific investments prior to encountering each other.

⁵ This approach is in fact based on a more competitive equilibrium than that of Davis (1993). Job-seekers may meet other employers at no cost, supposing that the latter have more information at their disposal to assess their employees' productive capacity and that the market only looks at jobs that are filled and at promotions.

however, lead to a sub-optimal situation in that the skills of some employees would be under-used. Where a fair wage system exists at the level of the entire market, the enterprise may find itself in a situation where it need no longer fear its employees will leave. That could slow down promotions and, once again, lead to a sub-optimal use of the employees' experience for higher-qualified jobs within or outside the enterprise.

More generally, assuming that an employee's productivity depends more on the specific match between the employee and his employer, the matching models propose, for example, an alternative concept of mobility and consider that there is no such thing as a good or bad employee in absolute terms. In that case, the external market is the result of all the matches that have not proved very profitable for the employees and the enterprises. It is the means by which a convergence occurs towards the optimum matches (Ballot 1996; Wachter and Wright 1990). More specifically, according to the model of Jovanovic (1979), the productivity of a match becomes clear gradually, through experience. The employer will never dismiss an employee but will lower his wages if the productivity observed in the course of employment proves lower than he expected. This is an incentive to the employee to leave since he can obtain better wages elsewhere.

On the basis of these theoretical examples, it might seem misleading to describe a labour market structure based on a dualist view of segmentation. The two forms of mobility (internal and external) and the special case of stability within an enterprise and a job, may derive from strategies that are far more complex than a simple differentiation of jobs by the level of human capital required. In other words the human capital can be upgraded (in terms of pay, maintenance and improvement through continuing training), but that does not necessarily reflect the intrinsic characteristics of the jobs but rather the particular strategies of the firms and employees. Whatever their forms of mobility, the employees can draw on the same stock of human capital. More surprisingly, stability in a job without promotion can be a sign that there is little

chance of upgrading the human capital and of the risks of unemployment in face of an external market constantly disturbed by employees who offer the most sought-after qualifications. Similarly, the differentiation between individuals who are mobile internally or externally would reflect not so much the level of human capital as the qualifications specific to different jobs.

1.2.3.3 Mobility mechanisms and their effects in the dualist version of segmentation: negative feedback effects

According to the dualist version of the segmentation theory (Doeringer and Piore 1971; Dickens and Lang 1985, 1987; Taubman and Wachter 1986), the way the labour market structure functions explains the barriers to entry to jobs in the primary sector, which lead to a segmentation of the market in the long term.

It is because the labour market operates in a manner that discriminates against young people and the most fragile social groups in western societies that the diagnoses that can be derived from the dualist version of segmentation become meaningful. Many economists and observers believe that the revival of sustained growth will not generate worthwhile jobs for the population group moving within a circle of insecurity (laid off, unemployed, low-skilled jobs, etc.). This group has not adequately maintained or applied its knowledge and skills over the long term, while the revival of growth will necessarily have to draw on workers with the appropriate skills and who can be mobilised immediately. Given this situation, the idea of introducing measures to help them enter working life has to be considered. These measures are aimed at limiting the destruction of the human capital of young people entering the labour market and adapting that capital, so as to avoid the risk of the revival of growth very quickly losing its momentum.

Yet these measures aimed at young people make up part of the complexity of the general pattern because they contribute to creating a multitude of intermediate positions on the labour market in which young people find

themselves, quite apart from the types of work that are a natural result of the employment crisis, such as part-time jobs and temporary and fixed-term contracts. If we add to that the fact that the rise in the general training level creates problems of downgrading at the moment of hiring and possibly difficulties in relation to career management and wage scales, it is easy to understand why, as far as we know at present, the benefits of these integration measures remain questionable.

The approach to the concept of dualism in terms of 'negative feedback effects' is original not so much in that it recognises the differentiations between types of jobs and categories of workers or that categories in an inferior position are mainly found in 'bad jobs', but because it recognises the existence of barriers that make it difficult for workers from the secondary sector to gain access to the internal labour markets of the primary sector. These barriers become stronger over time. This explains why the dualist structure of the market has recurred from one period to another. Hence the need to use longitudinal data to take account of wage movements on the labour market (Favereau et al. 1991). Yet, even if we share this view, we must note that to design a test based on longitudinal data that can show that these barriers exist poses delicate and at times insoluble problems of specification and assessment from the outset.

In general, we can list three approaches that help explain this dualism. They are radically different from the alternative proposals of, for instance, match models. The first consists of studying the method of operation of internal labour markets (Taubman and Wachter 1986; Wachter and Wright 1990). The second is to study the secondary sector and the permanent effects to which the individual is exposed as he moves through that sector: the negative feedback effects (Taubman and Wachter 1986). The third combines the first two. On the basis of the hypotheses about the *training-wages* relationship in the two segments, it sets up system transformation models to show that the wages-formation mechanisms are different; one is sensitive to the accumulation of human capital while the other is not.

In Annex 1 we summarise the main advances in research and the difficulties and ambiguities involved in testing the segmentation hypothesis.

The concept of negative feedback effects may help explain the ex-post allocation of the workforce and the phenomenon of barriers to entry to quality jobs. These feedback effects refer to the relationship between an individual's first experience on the labour market and his most recent observed behaviour. This theory is fundamentally empirico-deductive.

The existence of the barriers is a response to the argument put forward under the theory of human capital that secondary sector workers can gain access to stable and well-paid jobs by improving their stock of human capital. In the view of Berger and Piore (1980), the programmes of aid to integration are an inadequate means of removing these barriers. They believe a more effective solution would be to pursue policies of income support for secondary sector workers in order to stabilise the global demand of an economy and prevent its extension⁶.

The barriers in question are endogenous; they are created by the existence of the secondary sector and reflect the negative feedback effects on it. These effects relate to a causality whose mechanism operates in the sense of 'Bad jobs → Bad worker'⁷: unstable jobs are bound to lower the qualification of the workers. Since jobs are rationed in the primary sector, enterprises hire those workers in the queue who do not send out negative signals about their qualifications.

The secondary sector does not reward human capital and does not give the workers access to training or to occupational experience that can be transferred or is recognised on the la-

bour market. The wage level is low and not very sensitive to the acquisition of human capital. If an individual has begun by taking jobs offered in this sector, he is more likely to end up in an insecure work situation.

In the end, workers who are 'trapped' in jobs in this sector from the start of their working life can never catch up with workers in the primary sector, in terms of wages or qualifications.

Yet we have no model available for determining the level of occupational or wage mobility that is compatible with the hypothesis of the theory of human capital or that of segmentation. In most cases, we have to operate on the basis of approximations or 'common sense'.

In general, it is very difficult to test the feedback effects in a rigorous manner.

To understand this mechanism we must first assume that individuals change their utility function in line with the changes in their constraints.

Yet we can put forward a hypothesis that is much easier to test. It is based on the fact that an individual's utility function depends, at a later stage, on his experience on the labour market. In econometric terms, that means testing the existence of a state of dependence: the situation of an individual, at a given moment, can be explained by his past situations.

We then assume that experience has long-term effects. Adopting that point of view, Taubman and Wachter (1986) consider that the human capital model can be interpreted as a model of feedback effects. For like any other durable goods, the introduction of human capital in a model implies that past events influence present behaviour. Yet it remains very difficult to identify, on a separate basis, the effect of human capital as such, especially if it does not take a very explicit (e.g. exponential) form, and the feedback effects implied by the passage from job to job.

Very broadly speaking, we could regard a negative feedback effect as reflecting a situa-

⁶ We must not forget that according to this theory the existence of insecure jobs is explained by the instability of global economic demand.

⁷ Although the literature is fairly explicit about the play of the chain of cause and effect in the secondary system, that is less true of the causality of 'Good Jobs → Good Worker' in the primary sector.

tion in which an individual is considered to have accumulated human capital (an insecure job, an integration measure) which is, however, offset by a negative impact on his wages or worsens his chances of finding a 'good quality' job.

This makes it clear in the end that the object of the dualist approach to segmentation is to ask how occupational experience is built up over time, how it accompanies, improves and/or lowers the level of initial training. So from a strictly econometric point of view, we could say that this approach assumes a dependent state as opposed to individual heterogeneity. In this light, the appropriate longitudinal approach becomes an essential means of modelling⁸.

Yet very few empirical studies have been undertaken in this area to evaluate the validity of dualism and look at the origins and consequences of the mobility phenomena at the beginning of working life.

1.2.3.4 De facto dualism: selected findings from French data

Certain studies noting that young people have tended to have longer-term job stability in France in recent years adopt the approach described earlier. They posit that integration can be defined as a process that is explained by the complex two-way influence between the observed and non-observed initial human capital and the jobs performed on the labour market (Balsan et al. 1994; Balsan et al. 1996; Eckert and Hanchane 1997).

Certain findings, for example, show that 'investment' in an integration measure does not imply additional wage benefits. The integration aids cannot be distinguished from the other situations (unemployment, non-employment, national service) in terms of their effects on wages. They only enable a minority

of individuals to increase their wages: trainees and those who obtained higher pay than their reference wages. The only way to obtain higher wages is to return to studying. As a general rule, therefore, the end result probably conflicts with the objectives of youth employment policy. The measures create negative feedback effects and help strengthen the barriers to 'good jobs'. Lastly, they act as a second filter, underpinning the filter created by the educational system. So it is justified to ask about the real significance of these integration measures in the present French labour market situation. Some studies (Verdier 1996) ask whether state intervention has not simply been balanced out by the consolidation of a dualism whose victims are young people supported by integration aids, especially non-market measures.

Contrary to some findings in the early 1990s which tended to focus on the central role of real experience on the labour market rather than the initial diploma and specialised training in France, these studies show that the variables in relation to the initial conditions, i.e. in particular the training level and diploma and any specialised training, cannot be disregarded in favour of the variables of acquired experience as an explanation of having a job, even up to six years after leaving school.

The general conclusion is that adjusting the labour market or, inversely, adjusting young people to the labour market is not the only solution. Although this is not really surprising, the solution seems to lie in a compromise between initial training and job preparation.

2. Decline in the effect of seniority, new external market patterns or crisis in the French internal labour market

However interesting the above findings may seem, we must point out that another body of literature shows that the interpretation of a dualist labour market structure according to the general theory put forward by Doeringer and Piore (1971) is no longer self-evident and

⁸ In our view, an appropriate longitudinal approach is one based on individual and temporal data and that uses methods that can identify the effect of this dual dimension in order to identify more clearly the parameters of interest of a given model.

indeed seems totally fallacious. Let us briefly emphasise firstly that stability in a job without promotion can indicate that there is little chance of upgrading the human capital and that there is a risk of unemployment faced with an external market disturbed by the constant movement of employees offering the most sought-after qualifications. Secondly, this interpretation partly reflects the crisis in the French internal labour market, which is reflected by a fall in the returns for seniority.

Contrary to the views of Doeringer and Piore, who explained the existence of internal labour markets by emphasising that they were of mutual economic and social advantage to employees and enterprises, we can note that, in the case of France, this way of regulating the wage relationship resembles what Kerr regarded as the formation of monopolies that ought to be controlled by the public authorities for the greater benefit of society as a whole.

Contrary to the analyses by Doeringer and Piore (1971)⁹, the way the French internal labour market currently regulates the wage relationship is ineffectual to say the least. Verdier (1996) shows that the high rate of closure of enterprises that hire young people can be explained by the fact that the social partners share the desire to protect the 'insiders' who are vulnerable because their qualifications are often poor and too specific; they leave it to the state to combat youth unemployment, for instance through integration measures. Moreover, when French internal labour markets open up, it is largely to hire holders of higher education diplomas, while at the same time increasingly downgrading them, which reduces the promotion chances of employees with a lower level of qualification.

Recent econometric and comparative findings support this view.

Indeed the results of certain multi-sectoral models show that one of the first lessons one

⁹ See Marsden (1989) for detailed theoretical analyses to this effect.

can draw from this is that a dualist representation of the labour market (e.g. internal and external mobility) would not have managed adequately to control all the selection biases (Hanchane and Joutard 1998) and therefore drastically reduces the manifest heterogeneity of the labour market.

As a sign of the transformation of the French internal labour market, these works also show that we could admit a market segmentation totally opposed to the one proposed by the theories of Doeringer and Piore (1971) or Dickens and Lang (1985, 1987). The lowest returns on diplomas are situated in the segment that probably comes under what theory describes as the 'internal mobility and continuing training' internal labour market.

That would mean accepting a totally counter-intuitive segmentation: the job segment nearest to the secondary market (external mobility without continuing training) produces higher educational returns than the job segment close to an internal labour market (internal mobility and continuing training).

The most marked result is that even in systems characterised by internal mobility, seniority is no longer a significant factor. That is exactly the same result found by Beret (1992) and by Goux and Maurin (1994) based on different samples and without distinction between job segments¹⁰.

However fragile, these first results illustrate the consequences of certain changes and specific features of the French labour market compared with that of other industrialised countries.

After all, the hypotheses on which the tests are based are founded on institutional research that is limited in time and space. Some

¹⁰ The classical argument that the human capital variables are endogenous can be put forward to interpret this result. Non-observable characteristics can explain why some employees, in some segments, are both better paid and have seniority in their enterprises. That results in the effect of seniority being poorly measured and not identified (Goux and Maurin 1994).

French economists therefore consider it unjustified to discuss the way the French labour market works on the basis of Anglo-Saxon concepts of segmentation.

In fact, the empirical features noted in regard to the various segments of the French labour market and the decline in the effect of seniority in some of them confirm the relevance of analyses deriving from studies that lay emphasis on the complex reorganisation of the labour market. It is reflected by a blockage and a crisis in the internal labour markets on the one hand, together with an intensification of the movements and patterns emerging on the external market on the other (Beret 1992; Maurice et al. 1982; Silvestre 1986; Verdier 1996).

All these works, often based on international comparisons, show that the French qualificational space (or occupational space)¹¹ has been built around close links between the workers and their job. This structure is the result of systems of classification that mark out the pathways that are internal or external to the enterprises (Silvestre 1986). According to this pattern, the workforce was characterised more by a huge absence of training, in particular vocational training, which therefore gave more value to the skills produced by the enterprises themselves and acquired within them. Meanwhile the crisis was to 'disrupt' the way the labour market functions. That is reflected in the rigidity of the French internal labour markets, which do not have the institutional mechanisms or forms that would allow them to redeploy more effectively. Beret (1992) shows that in this new context, seniority will increase while its returns will fall, or become zero, in terms of access to the most qualified jobs and of wages, while the

external market seems to be becoming the site of the most efficient strategies for workers who have achieved a minimum investment at school. These trends suggest that the French labour market is going through a period of profound restructuring. Beret (1992) distinguishes three cases:

- the emergence of an external market that enhances the value of some individuals.
- the existence of an internal labour market that is positive in terms of wages and that requires experience and/or training according to the productive changes resulting from technical changes.
- an internal labour market that survives despite wages that are not improving. This type of segment was also identified by Silvestre (1986). He treats it as a body of fixed employees whose internal mobility and sustained efforts at continuing training have not yet fundamentally changed their behaviour.

So unlike the standard definitions of dualism, in the end and under these conditions external mobility appears as a specific characteristic of unqualified workers in a secondary segment of the French labour market. Wage rises based on seniority will tend to disappear in favour of rises related to external mobility (hiring experienced workers, recruitment of young trainees), in contrast to the way the internal labour markets were regulated during the 1960s and 1970s (Verdier, 1996). This trend will continue to mark occupational labour markets which, over and above initial training, will also attach more value to the individual's *acquis* in terms of experience and continuing training.

In that sense, this situation does not conflict with the predictions of models based on different basic assumptions and hypotheses. Long seniority in a given job may send out a bad signal about the promotion possibilities of employees outside their enterprises (Waldman 1984). In this model, the most externally mobile individuals are those whose qualifications are most sought after on the market. This analysis supports other results

¹¹ In these studies, the principles governing the progress of mobility (initial or continuing training; vocational or general training; changes of enterprise or rotation between tasks; progression from job to job or recognition of status, etc.) are based on a set of rules (written or not) which, when applied repeatedly, define the lines of force of what the authors propose calling the 'occupational space' or 'qualificational space'. This definition is taken from Silvestre (1986, p. 55).

obtained from French data (Balsan et al. 1996); Hanchane and Joutard 1998; Béret 1992).

Béret (1992) shows, in *Enquêtes Emploi* 1984-1987, that promotions are more frequent on the external than the internal labour market. Moreover, Balsan, Hanchane and Werquin (1996) draw on the same survey to show that higher wages are an incentive for employees already in work to seek another job.

Other observations fuel the debate surrounding the current poor performance of the French internal labour market.

In fact, regardless of the symbolic importance of a diploma in French society, the recent phenomenon of accentuated pursuit of higher education studies would have had a disastrous effect according to the analysis grid set out here. In using it, Verdier (1996) notes that the wish to protect employees who have little initial training and occupy jobs in traditional French internal labour markets explains why the adjustments that have occurred on the labour market in recent years could only be mechanical; they relate to the peripheral market area, namely young people. That makes it easy to understand the phenomenon of 'the selective exclusion' of young people, which gives rise to an accentuated pursuit of further studies to minimise the damage caused by downgrading on hiring, against which even young people leaving higher education are no longer protected.

3. Organisational principles of the wage relationship: specific institutional features, rules on manpower management, mobility and training

The literature incorporating international comparisons regards the forms taken by the wage relationship in given societies as generally based on rules, which are very rarely reversible and whose development dynamic is sensitive to the particular forms of the organisation of employment and training systems.

If they ignore that fact, public policies concerned with the training-employment relationship will often be less effective.

Thus Eyraud, Marsden and Silvestre (1990) rightly note that for a long time, and in a generally systematic manner, it was thought that the various countries' economic institutions would converge towards a common model when they faced analogous problems arising from economic development and technical change. In many cases and at precise moments in history, economic policies introduce intervention measures based on a quasi-universal view of the world which underestimates the specific institutional features of the societies in question.

An example in point is the French situation in the 1980s. During that period, the state hesitated between three policy lines which are difficult to reconcile (Verdier 1995) and took very little account of the specific patterns and developments of the internal/external markets or more generally of the training-employment relationship.

1. The first is the German approach, which seeks to enhance the value of vocational education and training and promote linked work and training schemes. In France, the possibility for holders of the CAP (vocational training certificate) and the BEP (technical school certificate) to extend their studies until they obtain a vocational baccalaureat enhances the value of vocational training while at the same time doing it a disservice by keeping it symbolically dependent vis à vis the more general courses.
2. The second is the Japanese policy of developing general training while leaving it up to the enterprises to adapt the workforce to technological and organisational changes. A typical objective under this approach is for 80% of a same age group to reach baccalaureat level.
3. The third is the British policy of lowering wage costs. Public aids and rules on recruitment specific to young people make it possible to reduce wage costs and contain only

limited undertakings on the part of the enterprises to provide vocational training.

Moreover, important reforms such as the greater focus on vocational secondary education (introduction of vocational baccalaureats) have not in the end affected or transformed the structure of the training-employment relationship in some countries, for the reasons set out above. Looking at the situation in France in the same context as that in the USA, Buechteman and Soloff (1995) consider that in this respect vocational baccalaureats were introduced partly with the aim of making up for the shortage of intermediate skills, on the basis of a sound hypothesis about the structural organisational and technological changes during the 1980s. But they point out that the persistence of internal training and promotion structures has led employers to continue giving preference to the traditional diplomas rather than to vocational certificates under their recruitment and promotion policy. This approach devalued the vocational skills and qualifications obtained under these new programmes. Before pursuing this discussion, we must specify the foundations of the thesis we will be putting forward as a grid for interpreting the different national situations. This approach, inspired by Silvestre's work, consists in abandoning the idea of the chronological priority of the act of education and training in relation to the act of production. Instead, we should build a 'circular causality' between the construction of jobs and qualifications on the one hand and the structuring of the educational and training system on the other. This theoretical assumption helped underline the diversity of the European countries' labour market responses to the crisis in the 1980s and more recently (Freyssinet 1990).

In the following we will focus our discussion on three aspects in order to describe the situation in Germany, France and the United Kingdom. We believe it is essential to give a detailed definition of the dominant forms of the wage relationship in these three societies, namely the internal labour markets and the occupational labour markets. Secondly, we will describe the organisation and promotion of initial vocational training and continuing

training and indicate the demarcation lines. That will then enable us to discuss in detail the principles governing the systems of mobility, recruitment or integration at the beginning of working life in these three countries.

3.1 Institutions and labour markets: between occupational labour markets and internal labour markets

3.1.1 Comparison between France and Germany

Among the early research work on which the two current models of the labour market are based, we can cite the research undertaken by Maurice, Sellier and Silvestre (1982) on the societal effect (Lallement 1999; Marsden 1989; Verdier 1996). The authors point out that in France the ratio of managerial staff is relatively higher than in Germany, while the wage gaps in industry between unskilled workers and managerial staff are much wider. This situation conflicts with the elementary rules of liberal economic theory. The scarcity of German managerial staff should in fact lead to higher wages.

In an attempt to clarify this paradox, the authors move away from the sociology of organisations and neo-classical economic analysis to show that the management of the wage relationship is determined more by institutional factors that vary by country and are closely linked to the system of vocational training, the organisation of qualified work, the collective rules governing the workplace and the structure of authority within the enterprise.

They then identify two forms of labour market – the internal and the occupational labour market – which they see as supporting their interpretation of the observed phenomena.

The existence of internal labour markets in France explains why the enterprises have so much influence on training and job management. That is the only justification for the decision to opt for a high ratio of managerial staff. To that must be added a second characteristic, to which we referred earlier and which is linked

to the organisation of work: the close link between the individual and his job.

The situation in Germany is different. Vocational training, in fact the dual system, is a channel used by many more employees in Germany than in France. Employment is defined on the basis of qualification and the wage relationship tends largely to be governed by the occupational labour market. Moreover, vocational training is a means of making the qualified workers more homogeneous. The result, therefore, is greater polyvalence than in France, which reduces the managerial staff's workload, promotes cooperation between employees and adequately explains the observed wage gap.

Two systems of recognition of qualifications could therefore be identified. The German system based predominantly on efficiency and performance differs from the French system which is based mainly on seniority. That means that in Germany, vocational training diplomas remain the essential criteria for qualification, whereas in France the duration of service in an enterprise determines promotion.

Earlier on we pointed out that the French system – the internal labour market – is currently being destabilised, largely because seniority is becoming a less determining factor, while the German system remains effective. In spite of the attempts to give a stronger vocational focus to higher education in France, some current research still shows that the German system is more able to reduce the level of uncertainty.

In a kind of extension to this approach, Möbus and Verdier (1999) take a new look at the debate and the findings. They compare France and Germany and consider the foundations of the policies for the development of vocational training in relation to the rules governing the operation of the labour market and the acquisition of qualifications in the two countries.

They base their arguments on the example of the vocational diploma. This diploma, the product of a social bargaining process and a basis for regulating the labour market, dif-

fers radically in nature from one side of the Rhine to the other: basically, it is a labour market organisation rule in Germany (Reynaud 1987), while in France it is a signal of enhanced labour market value. This difference helps explain the predominance on the two sides of the Rhine of two means of constructing the labour market and, more broadly, the training-employment relationship. In Germany the occupational labour market system is based on transferable qualifications (Marsden 1989), while in France it is marked by internal labour markets that are traditionally based on specific qualifications acquired over the long term through seniority (Eyraud et al. 1990). The reforms undertaken in France in the 1980s were indeed reflected in the creation of new initial training schemes, such as the vocational baccalauréats, and the development of higher-level technical training, such as the vocational training certificate (BTS) and the technical college diploma (DUT), but the impact of these changes depended very much on the structural situation in the country. Although youth training has acquired a more vocational focus in France, it tends to produce skills that are only potentially usable (Möbus and Sevestre 1991), while in Germany training remains directed at building up skills validated prior to entry into the enterprise as an ordinary worker. In short, this difference between a system of signals that govern the competition for access to employment (Thurow 1975) and a system of rules on the organisation of the (vocational) labour market applies across the board in any Franco-German comparison.

3.1.2 Comparison between France and the United Kingdom

The United Kingdom is another example of an occupational labour market. Many research works have identified the way the UK market works and studied the various means of regulating employment there (Eyraud et al. 1990; Freyssinet 1990; Garonna and Ryan 1989; Lefresne 1998; Marsden and Ryan 1990; Moncel 1998).

The UK system is described as making it possible to acquire a qualification at the begin-

ning of working life; the apprenticeship system is often described as an example. An apprenticeship gives the worker a qualification that is valid beyond the confines of the enterprise and explains why the British apprentice has greater chances of promotion than his French counterpart.

Surveys conducted in the 1980s and referred to by Eyraud, Marsden and Silvestre (1990) show that in the private sector of the manufacturing industry, three times as many qualified workers were recruited from the external sector as from within the enterprise.

During the same period, a totally different approach was taken in France, and one which became even more accentuated according to the findings of our earlier analyses. In France, educational training has to be accompanied by practical experience that is expensive and generally paid for by the employers. So the employers prefer to hire qualified young workers for low-paid jobs in small enterprises, rather than recruiting them, as adults, for less qualified jobs, but with the possibility of promotion at a later date (Germe 1986). And as we have seen, it is often difficult for enterprises in an internal labour market to recruit workers for qualified jobs directly from the external market while the existing workers have gained access to these jobs through internal mobility channels.

This makes it easier to identify the current procedures for recruiting young workers in France (Verdier 1996) and the national pathways of worker integration in the two countries (Freysinet 1990; Moncel 1999).

In the 1980s, as it still is to some extent today, France has been described as a country in which young people tended to be selected on the basis of their level of diploma, obtained through a school education system with little focus on the vocational aspect but strongly marked by the principles of mobility imposed by the internal labour markets system: advancement towards seniority.

The United Kingdom has been described as a country where young people have easier access to the various levels of qualification

through apprenticeship and can then rise within the occupational labour markets thanks to their vocational certificates.

We should not forget that the British apprenticeship system and rules on the wage relationship have changed radically since the break in 1979. In 1980 the government introduced the youth training scheme (YTS) – a vocational integration system – open to all young school-leavers at the age of 16. In 1990 Freysinet wondered whether the apprenticeship system was in danger of coming to an end in the UK. This scheme is a radical break with the earlier system. In the main, it reduces the opportunities for long-term training leading to recognised qualifications, replacing them by short-term modular training schemes that vary according to the individual and lead to no recognised qualification (Freysinet, 1990).

In the following we will discuss the recent changes in the labour markets of the three countries following the various reforms introduced by the public authorities and the way the players involved have reacted to the crisis.

After these examples that clarify the specific features of the wage relationship, we will conclude by defining the concept of the occupational labour market and broadly outline the features that demarcate it from the internal labour market discussed above.

3.1.3 The concept of the occupational labour market

In view of the above developments, it is clear that the occupational labour market contains certain features that make it a kind of public good (Marsden 1989).

We can list at least two of these features. The first is the establishment of quality standards in relation to the combination of acquired abilities and the level achieved by individuals trained for a given occupation. The second is that there is a certain uniformity of job content from one enterprise to another. These are the two features that ensure that qualifications are transferable.

Table 1: Distinctive features of the occupational labour market and the internal labour market

Function	Occupational labour market	Internal labour market
Training	Apprenticeship	Experience gained in the enterprise
Nature of continuing training	Standardised according to the rules of the trade	Non-standardised, specific to the enterprise concerned
Transferability of qualification	At trade level	At enterprise level
Seniority	No recognised role in the acquisition of the qualification or the level of pay	Strong influence on the acquisition of the qualification and the level of pay
Level of qualification in the event of change of enterprise	Maintenance of the qualification level	Downgrading
Control over the content of the work	Based on protection of the trade	Based on a system of rules applicable to all employees of the enterprise (e.g. system of classification)
Organisation of the workers	Based on the trade	Based on the enterprise and the branch of activity
Main object of the negotiations on flexibility	Demarcation rules between jobs	General rules applicable to the entire workforce

Source: Eyraud, Marsden and Silvestre 1990.

Consequently, unlike the situation in internal labour markets, the two parties in the wage relationship are less likely to face the risk of informational asymmetry or the adverse effects of non-fulfilment of the employment contract.

Employers wanting to recruit qualified workers from occupational labour markets must generally offer jobs whose content complies with the norm, so that these new recruits can integrate with the other workers. If enterprises offer jobs whose content is not consistent with the qualification of the recruited worker, they will have to provide additional training or under-use the worker's knowledge. But thanks to the fact that it is now easier to transfer qualifications and given that workers now have more chance of keeping up their knowledge through occupational practice, they are more likely to find the kind of jobs for which they were trained.

A new market, the occupational labour market, is now replacing the complex mechanisms of constant arbitration between recourse to the internal and/or external markets. The enterprises can now directly recruit the

workforce that corresponds to the qualifications they need from that market. Moreover, the employees can find the training they need in order to gain access to that market, even if certain recent events suggest that the observed barriers to access to the internal labour markets, in France for example, can be as great as those observed in the case of access to apprenticeship and therefore to the occupational labour markets. These markets are considered to be stronger in the United Kingdom than in Germany.

All these features would justify adopting the concept of a public good to define these occupational labour markets. In a society where the workers have the right to change employer, the adoption of a qualification standard means that it is difficult to prevent a given enterprise from having access to the market. In the long term, the standardisation of the system of qualification leads to a better distribution of the fixed costs of regulating the wage relationship. As we saw earlier, the scale of the fixed costs, the irrecoverable costs, is a constant of internal labour markets and could in many ways explain why there are certain blockages in these markets in France.

The reader may refer to Marsden (1989) or to Eyraud, Marsden and Silvestre (1990) for a more detailed description of the other characteristics of occupational labour markets and the features that distinguish them from internal labour markets (Table 1).

Lastly, we may note that the dominant type of labour market tends to have two central characteristics, which we shall describe and analyse below on the basis of their recent configurations in the three countries. These are the systems of training and mobility.

4. The new relationship with vocational training in the internal labour markets and the occupational labour markets

Vocational training, which forms the basis of mobility systems in the three countries, has undergone changes that are likely to modify the broad principles of workforce management in the three countries. There is a body of research to support this argument, of which we shall present the main lines.

In his endeavour to classify and identify the training systems that exist today, Greinert (1997) draws attention to the fact that these systems are variants and/or combinations that are difficult to pinpoint in any pure form.

Referring back to Max Weber's sociology of power, the author identifies three models of regulating vocational training: tradition, the market, and bureaucratic rationalism based on law. That enables him to define three types of training. The United Kingdom, like Japan and the USA, come under the first model (the market); France, together with Italy and Sweden come under the third (bureaucracy).

Germany comes under a mixed form of organisation, subject to both the market and bureaucracy; here we find a cooperative organisational model: the dual system. This model of a market controlled by the state applies only to the German-speaking countries.

Linked work and training forms part of the cooperative model, of which France is as an example.

On a global basis, therefore, there are three main methods of organising vocational training and promoting and managing its relationship with the labour market.

4.1 Definition of vocational training systems

In the case of the United Kingdom (the market model), vocational training derives directly from the factor of labour and the qualification signals emanating from the labour market. Its development and organisation are left in the hands of the partners directly involved in the wage relationship. The enterprises propose and provide training geared to their direct needs.

The threats hanging over means of acquiring qualifications in the United Kingdom (Freyssinet 1990) destabilised the apprenticeship system there and thus also the occupational labour markets. Faced with the employment crisis, the latter opted for policy lines totally opposed to their German counterpart. The very large-scale development of youth training schemes and training credits resulted in integration formulas devoid of any real training content (Moncel 1998).

In the case of France (bureaucratic model), vocational training is regulated by the state or the bureaucracy. This is a college-based training model. Its specificity resides in the fact that a tiered system of vocational training colleges is closely involved in the general educational system. This link-up between the two systems is also reflected in the direct links between school-leaving and vocational qualifications, which are closely correlated with wages and which often gives rise to dual qualifications: the baccalaureat certificate and the status of qualified worker. Because of its elitist organisation, this system leaves little margin for manoeuvre for successful linked work and training schemes; we described this situation in France above (Möbus and Verdier 1999).

Table 2: Trend in the distribution of manpower supply flows in the dual system (Germany)

Distribution in %	Origin of apprentices by course or earlier training measure				Educational origin of apprentices in 1996 by sector of specialisation	
	1970 (a)	1985 (a)	1990 (b)	1996 (c)	Industrial and commercial sector (c)	Crafts sector (c)
Secondary General School (Hauptschule) with or without certificate	79.8	39	30.5	34.5	24.7 of which 1.5% without certificate	50.9 of which 5.2 % without certificate
Intermediate School (Realschule)	18.9	32.7	34.0	35.3	36.2	30.5
Grammar School (Gymnasium) with leaving certificate (Abitur)	1.3	10.7	16.2	15.3	22.9	5.1
Vocational training at schools, basic voc. training year, pre-voc. training year (incl. not stated)	-	17.5	19.3	14.8	13.6	10.7

Sources: a: Grando and Möbus 1988; b: BMBW 1992/93 (Grund- und Strukturdaten); c: BMBF 1997 (Grund- und Strukturdaten; East and West Germany; only new entrants to apprenticeship training).

The German case is described as the cooperative type of training model. The state more or less precisely defines the overall conditions governing the vocational training provided by the enterprises and other private sector entities. So it is a model of a market controlled by the state. One important aspect of this kind of model is that vocational training is clearly demarcated from the general, public, school training system. Vocational qualifications are defined according to the qualification profiles sought by the enterprises.

Apart from them, the state and interested groups (unions, professional associations, etc.) also have a say in defining the training objectives. The enterprises are the host structures for implementing the training measures. Nonetheless the vocational training processes must observe the standards fixed by the state.

4.2 Crisis and recent changes in vocational training systems

It has often been noted that the crisis had a strong impact on the macro-economic and

macro-institutional regulatory instruments. Since they form part of these instruments, the vocational training systems have undergone changes in all three countries in recent years.

The relevant literature discusses:

- ❑ the collapse or bankruptcy of the English apprenticeship system and predicts the disappearance of the occupational labour market in the UK (Freyssinet 1990; Lefresne 1998, 1994; Moncel 1998; Campinos-Dubernet and Grando 1988);
- ❑ the crisis in the German dual system (Greinert 1997) and its confusion (Beret et al. 1997), after the period up to the mid-1980s when it exerted a strong attractive force (Möbus and Grando 1988), and the rising youth unemployment (Krais and Trommer 1995);
- ❑ the astonishing rise in France in the numbers leaving general education and in particular the development of vocational training and the appearance of new programmes in this context (the vocational

baccalaureats are often cited as an example) and the institutional inability to transform the crisis-hit internal labour markets into occupational labour markets (Beret 1992; Möbus and Verdier 1999; Hanchane and Joutard 1998; Verdier 1996).

Below, we shall briefly review the literature on the subject.

4.2.1 Crisis or confusion in the dual system?

The dual system continued to attract young Germans until the mid-1980s (Möbus and Grando 1988). This can be explained by the deterioration of the labour market in the early 1980s and the population growth in the late 1960s. The increased competition for entry to the labour market helped raise the apprentices' general level of skills, evaluated on the basis of the trend in manpower supply flows (Table 2). This trend in the level of the apprentices' general skills led to a redefinition of the duties assigned by the enterprises (Beret et al. 1997).

This first disruption was accompanied by worsening employment conditions for the holders of dual system certificates, who tended more and more to occupy non or semi-qualified posts; according to Tessaring (1993) the proportion rose from 25% to 30%. Moreover, the broader supply of training places, which was intended to contain the inflow of demand in the first half of the 1980s, was reflected in a fall in the wage returns of the dual certificate (Buttler and Tessaring 1995, quoted by Beret et al. 1997).

During the 1990s this situation resulted in what is now often termed the crisis in the dual system. The number of dual system diploma holders began to fall from 1987 (Table 3). The worsening labour market, the poor chances of occupational promotion and the growing number of higher education leavers (Table 4) are some of the factors that explain this situation.

The pursuit of long educational courses of study reflects a family's decision to give their

Table 3: Trend in the number of diploma holders leaving the dual system and rate of transition to unemployment (Germany)

Year	Number of diploma holders in December (in thousands)	Probability of certificate holders experiencing unemployment (%)
1986	675.0	14.0
1987	680.1	14.2
1988	643.1	13.6
1989	601.6	12.9
1990	531.6	11.8
1991	498.3	12.1
1992	453.6	12.6
1993	443.4	17.1
1994	436.5	•
1995	409.8	•
1996	390.2	•

Sources: 1986-1993: IAB (in Zedler 1994); 1994-96: BMBF 1997

Table 4: Trend in the flows of higher education leavers (Germany)

Original course	1960 (a)	1970 (b)	1985 (b)	1990 (a)
Hauptschule with or without certificate	73.0	62.6	37.9	31.2
Completion of Realschule	18.2	25.6	33.2	35.0
Gymnasium with Abitur	8.8	11.8	29.0	33.8

Sources: a: Grando and Möbus 1988; b: Drexel 1993.

children a wider choice and more options (Schober and Tessaring 1993, quoted by Beret et al. 1997).

So the dual diploma is perceived less and less as a final diploma. Instead it is becoming an asset for the pursuit of higher education studies while at the same time providing the reassurance of a qualification recognised on the labour market in the event of failure.

Greinert (1997) lists specific structural factors that lead enterprises to leave the dual system. The volume of production work is falling and the German labour market now contains an adequate number of candidates from higher education or vocational colleges whose adaptation to the world of work can be achieved at modest cost. We shall see how this opportunistic behaviour, at a time when training levels were rising, became increasingly widespread during the 1990s and produced one of the most marked phenomena in the wage relationship in France today, namely downgrading.

Another essential factor for understanding the crisis in the dual system is the greater focus on selection and competition (Möbus and Verdier 1999). This is reflected in the rising rate of disruption. Greinert (1997) believes that as the dual system lost its main function of qualifying the most talented young people, the internal processes of replacement and selection gained pace. For example, today baccalaureat holders tend to fill the interesting training jobs in the commercial sector and the services sector; the jobs they leave vacant are then filled by college leavers. These barriers are a source of frustration, which could explain the rate of disruption.

Perhaps it is a little soon at this point to assume that the occupational labour markets will resist this to a greater or lesser extent, but there have been enough observations pointing out that the German vocational training system will tend to be organised on the basis of merit. The risk of a shortage of qualified manpower may seriously damage the very foundations of the rules governing the wage relationship in Germany (Beret et al. 1997; Kraiss and Trommer 1995; Möbus and Verdier 1999; Greinert 1997).

Let us also point out that various research works (Lutz 1993; Streeck 1989), which are based on a very detailed analysis of the enterprises' human resources policies (Drexel 1992), underline the mutually reinforcing effect of the various training institutions and the labour market; that guarantees strong initial vocational training for young Germans, in which the enterprises are closely involved on a stable basis, together with open access to continuing training, based both on individual initiative and on support from the enterprises. The relative stability of the dual system could therefore be explained partly by the strength of the 'German style' system of professional, the density and coherence of the professional organisations of employers and the role of the employees' organisations. An examination of the 'critical periods', when severe staffing cuts go hand in hand with rising unemployment, shows that a compromise was often found, without resorting to binding public rules, to guarantee that new trainees could enter the market. The social compromise would in some way involve maintaining this system for young people and would shift the unemployment risk to other categories. Kern (1993) puts forward the same type of argument regarding the importance of institutional factors: the characteristics of the vocational training system, the role of industrial relations, the scale and density of the networks interlinking the firms (e.g. contractor/subcontractor). To that list he adds the regulatory role played by the German state.

Yet two important questions must be considered.

The first (Lutz and Boyer 1992; Kern and Schumann 1984) concerns the internal segmentation, during the apprenticeship and on the labour market. The 'internalised vocational' markets are mainly responsible for defining the policies of German enterprises, but secondary forms of segmentation exist. The apprenticeship is in fact divided into several segments that do not all have the same social value. A part of this apprenticeship (especially in small enterprises) also provides poorly or averagely qualified manpower for the large enterprises. So secondary markets do exist, side by side with highly institution-

alised forms of 'primary' markets. An examination of enterprise reorganisation policies (Kern and Schumann 1984) would speak in favour of certain 'primary' sectors moving in a flexible and positive direction (but probably at the price of losing some of the characteristics of the trade in question) but also of the maintenance or development of certain 'secondary' sectors. If the gap between these two sectors widened, that could weaken the internal coherence of the apprenticeship system, by encouraging a more open division by levels (of training), which would accentuate family strategies of seeking a better apprenticeship or longer studies for their children.

The second question, posed in particular by Lutz (1993), concerns the adaptation/adjustment of the internal labour markets system to the new requirements of flexibility. He believes we should not confine ourselves to the opposition between supposedly rigid internal labour markets (ILMs) and deregulated markets. Instead the problem is how to adapt the rules of these labour markets (and the enterprises' methods of human resources management that obey these rules) to the new conditions of work organisation and internal flexibility within enterprises. This relates to the organisation 'by trades' of the apprenticeship and to the division of labour. If more emphasis is put on multi-disciplinary skills, if the trade loses some of its identity, other forms of division must then be invented within the apprenticeship. Moreover, if mobility becomes transversal rather than vertical (Drexel 1992), this may interfere with the traditional vertical promotion pathways and make the dual system less attractive. That would create a need for internal adaptations (to the apprenticeship policies, to the firms' continuing training policies and the recognition of that training) in order to encourage the system to move towards 'flexible regulation'.

4.2.2 The failure of apprenticeship in the United Kingdom and the disappearance of the occupational labour market

In the course of German history, apprenticeship has appeared as an institution based on

consensus, whereas in the United Kingdom it is one of the instruments on which the trade unions depended in order to strengthen their position vis à vis the employers; in its traditional form it enabled them to control the transmission of professional skills, access to the labour market as well as the division and organisation of work in the workshop (Freyssinet 1990).

By the beginning of the 1980s this system was no longer viable because of internal tensions, which worsened with the employment crisis (Lefresne 1994). There is now very good reason to believe that the occupational labour market has suffered serious damage. The introduction of new vocational training programmes for young people, launched by public authorities whose objective until recently was to marginalise the unions, runs entirely counter to the principles for regulating the occupational labour markets in the UK (Lefresne 1998).

Although the wage relationship was based on entirely different rules at least until the early 1980s, Lefresne (1998) repeats the hypothesis he put forward in 1992 regarding the convergence of the pathways for entry into working life in France and in the United Kingdom.

Under the impact of the crisis in youth employment and with a view to setting up competition rules, the government intervened directly in the field of training and launched the Youth Training Scheme (YTS) (Balchin et Ashton 1995; Lefresne 1994, 1998; Moncel 1999).

The programme is addressed to all 16-year-old school leavers. It offers one year of linked work and training with a minimum of 13 weeks of courses outside the enterprise. In 1986 the scheme was opened to 17-year-old school leavers and also offered the possibility of a second year of training.

Side by side with this scheme the state has set up a National Vocational Qualification (NVQ) system, in line with the move towards the European harmonisation of diplomas and its decision to break with the earlier apprenticeship system, which was characterised by

the acquisition of a collective occupational identity (Lefresne 1994).

By 1990 the shortage of qualifications became abundantly clear and it was to become a striking feature of the employment and training crisis in the United Kingdom. A survey found that only 33% of British workers had a recognised qualification, against 66% in Germany and 50% in France.

The government attempted to make up for this backwardness by setting up the Training Enterprises Councils (TECs) and Local Enterprise Companies (LECs)¹². The enterprises have no financial obligation to provide continuing training and therefore de facto can more or less directly control the supply of training in order to respond to what are often short-term needs.

Because of the contradiction between setting up a national system of codified qualifications and fragmented training schemes with no long-term aims, the NVQs and SVQs are used by only a tiny number of enterprises (Lefresne 1994). Moreover, even turning the YTS into the YT (Youth Training) in 1990 in order to attract more young people to the Level II qualification proved a failure. The poor success of this measure to produce qualifications can be explained in part by the increased pursuit of further studies.

Unlike the situation in France, the youth strategy in the UK can be interpreted more as a choice between participation in education and participation in these schemes. That explains why the entry age for these schemes is lower than in France.

According to Lefresne (1998), the introduction of the Modern Apprenticeship¹³ programme

¹² These are independent structures tied by commercial contract to the ministry of employment and made up two thirds of representatives of enterprises, in particular of the largest firms, and one third of representatives from the teaching world, associations and unions.

¹³ This programme makes the employment contract compulsory, unlike Youth Training, and includes an undertaking to complete the apprenticeship.

to train qualified workers and technicians at Level III in the NVQ system could change the way young people use these schemes and bring the system closer to the French system of linked work and training schemes.

Today it is being asked whether a process of school-based vocational training could emerge in the United Kingdom. Indeed the subject of one of the debates currently taking place in the UK is whether the development of full-time vocational training schemes, the GNVQs (General National Vocational Qualifications), would lead to the creation of genuine broadly-based vocational courses within the educational system and to the production of intermediate qualifications. Lefresne (1998) refers to the work of Ryan (1995) and Gospel (1997), who doubt whether that is likely. On the one hand there is a shortage of human and technical resources, on the other these schemes represent too radical a break with the usual means of acquiring qualifications at the workplace in the UK.

Moreover, spurred on by the process of extending the duration of initial training, manpower recruitment strategies have changed considerably, as can also be noted in France (Forgeot and Gautié 1997, or Hanchane 1998). Unlike the old apprenticeship system, the pursuit of further studies disadvantages leavers with a low level of initial training. It can be argued that a signalling system emerges in relation to recruitment behaviour. That would reduce any chances of the survival of a occupational labour market. The NVQs and the GNVQs would act more as a filter instead of as genuine programmes to build up transferable qualifications.

More generally, the controversial question (Marsden 1989) of the collapse of the 'British style' apprenticeship system is considered from a different angle by Finegold and Soskice (1988), Soskice (1991) and in other studies of the 'low skill equilibrium' thesis. On the question of enterprise recruitment and training strategies, they contrast countries (Japan, Germany...), where good links are emerging between continuing training and retraining consistent with a high added value production, with others (United Kingdom) where the

reverse is true. Political reasons (notably the dismantling of the apprenticeship system), institutional reasons (poor coherence and organisation of British employers), reasons connected with the financial system (e.g. the nature of relations with the banking system which gives British firms shorter-term financial profitability prospects compared with their German counterparts) tend to lead to shorter-term strategies of human resources management. These institutional determining factors lead in a sense to initial training being organised in a manner that leaves (left?) little room for vocational training, with the majority of young people leaving school very early (aged between 16 and 18) to work in poorly qualified jobs. This abundant source of cheap labour enables enterprises to compete, although mainly in medium or lower-range products and services, provided they adapt rapidly as they go along. Moreover the authors consider that the core number of firms that would like to follow different strategies is too small. That means that enterprises that would like to actively train their workforce risk seeing their workers poached, a risk they will not take.

Overall, the policies of human resources management are therefore most likely to be short term, leaving little room for the systematic development of continuing training. The findings of the CVTS surveys seem to contradict these assertions to some extent. They show the United Kingdom as a country where firms invest quite heavily in training. However, the nature of this investment tends more towards adaptation on the job (which is generally the practice for new job entrants) than towards the long-term development of transferable qualifications, which would in fact not conflict with Soskice's views. Current developments in the initial training policy in the UK, the attempts to create a system of transferable certifications based on experience, through the NVQs, could then modify the model. However, here too, Steedmann (1999) shows that in terms both of stock and of flow (young people), the characteristics of workforce training, as of recruitment policies (low discrimination in regard to the low-skilled) mean that the United Kingdom is still closer to the southern countries (e.g. Portugal) than

the northern ones (see Boyd Black 1994, for a criticism of these theses, in particular on employees' commitment to their enterprise).

4.2.3 The trend in vocational training in France

In the 1960s there was little initial vocational training in France. As we have said, the internal labour markets were structured round a poorly trained workforce and the building up of qualifications and the whole machinery governing promotion was very sensitive to the build-up of experience and seniority. The 1980s saw a redirection of public training policy that could be described as quasi-structural.

After falling in the 1980s, the proportion of the GDP (gross domestic product) allocated to school and higher education rose strongly from 1989 on; it reached 4 % in 1993 and has stayed around the same level since then (3,9% in 1983, 3,4% in 1989). In 1993 this expenditure accounted for more than 20% of the national budget for the first time, to reach 21% in 1997 (DEP – Evaluation and Long-range Planning Directorate – 1997).

Over a period of less than 15 years, the proportion of a same generation reaching baccalaureat level doubled: from 34% in 1980 to 70% in 1994. Nearly two thirds of a same age group now achieved the baccalaureat. As a result the proportion of students also rose strongly. For example, nearly 33% of students leaving training courses held higher education diplomas, which meant the figure had doubled in 20 years (Béret et al. 1997).

The main characteristic of the trend in the situation of young people under the age of 25 in France in the 1980s was a very rapid fall in their rate of working activity, less than 10% between 1983 and 1991, which represents the lowest level in any of the large industrialised countries.

From 1991 on, the proportion of 17-18-year-olds in full-time education remained one of the highest in the world, nearly as high as in Germany and considerably higher than in the United Kingdom.

The development of initial vocational training remains one of the major features of the trend in the French system. In particular, it is marked by the spread of higher technical training, the DUT (technical college diploma) and the BTS (higher vocational training certificate), and the introduction of vocational baccalaureats.

The reason for the growth in the number of young people completing vocational and technical training lies in the decision to enhance the value of this type of education in response to supposed structural changes within the productive system (organisational changes and technological innovation). Moreover, the reform of the diploma system that began in the 1980s proved a permanent process; a great many new specialised courses were set up while others disappeared (there were 744 of them in 1997). In 1987 alone, 89 specialised courses were introduced and 112 were dropped or reformed (Kirsch, 1998).

The vocational baccalaureat was the first diploma based on alternating periods of work within the enterprise and full-time education in a training establishment. Since then, training periods within the enterprise have formed part of the BEP (technical school certificate) and BTS (higher vocational training certificate) courses. The high number of applications to enterprises has given rise to a variety of organisational problems, especially for the enterprises, whose intake capacity and in particular guidance capacity have not increased at the same rate. Moreover, they have to provide linked work and training schemes and, in particular, apprenticeships under the employment contract. In recent years there has been a tangible growth in the inflow of apprentices, thanks in particular to major financial incentives (tax reliefs, exemption from social security contributions, exemption from the apprenticeship tax). While significant, the inflow of apprentices progressing to Levels IV and upwards, introduced by the 1987 law on apprenticeship as an integral training system, remains modest (Beret et al. 1997).

Nonetheless, initial vocational training has grown, as a result of being integrated in the system of general training levels. In that re-

spect, the large number of diploma levels in France for a same initial vocational training course (e.g. mechanical engineering) is highly symptomatic; de facto it implies that the holders of these very different levels of certificate have to compete on the labour market. The 'French style' selection method, based on school performance, still survives and constitutes a very powerful 'societal convention' whose legitimacy is rarely disputed. It guides individual and collective educational choices, with the recurrent risk of devaluing technical training, or at least a tendency to regard it as inadequate.

Accordingly, a sizeable number of young people continue to study after their technical training; the figure nearly doubled between 1984 and 1992 (from 33% to 60% for the DUT, from 20% to 39% for the BTS) with, it is true, especially in the second case, a large number of specialist training courses during a third year of study. The general trend, however, is still to reproduce the trend that emerged with the technical baccalaureat (85% continued with higher education studies towards a diploma originally designed to promote integration in the labour market), especially since the DUT, involving selective courses, attracts a great many general baccalaureat holders who want to continue their studies.

According to Béret et al. (1997), these changes virtually lead to the building up of transversal productive values – because they are based on a selectivity (signalling value) that is high enough thanks to the general level of training attained – and form part of an employment system that is largely based on the construction of productive values through the knowledge acquired in a succession of internal labour market jobs. Thus, even if recent studies have shown that the increase in education has spread to every occupation (Béduwé and Espinasse 1995), that does not imply that the rules for building up qualifications and the related wages have not changed.

Béret et al. (1997) identify three risks of the destabilisation of what used to be the prevailing link between training and the labour market:

- The French system attaches most value to abstract abilities, i.e. reflects an approach based on the level of schooling as a pathway to the baccalaureat, the first 'university' certificate that symbolises the mastery of these abilities. This level, attained by a minority (one in four) in the early 1970s, largely in non-vocational courses, could be regarded as fairly homogeneous, at least more so than the lower levels, from the point of view of the abilities it filtered. The development of vocational training, whether at baccalaureat level or in short-term higher education (together with the increasing vocational focus of second-year university studies) introduced a certain heterogeneity into general/vocational training with the emergence of transversal technical productive abilities linked to high abstract abilities.
- The differentiated use of general and technical courses, as a result of the educational options available under the system, also produces a relative heterogeneity in the type of abilities filtered for a given level (BEP → technical and vocational baccalaureats, DUT/BTS → second-year general or specialist university courses,...). In other words, students who had left the higher-value, general education system leading to the baccalaureat and therefore tended on average to have fewer recognised abilities, could in this way come back to that system whether or not their general abilities were structured to the productive values attached to possible subsequent or earlier technical training.

Given the value attached to this level in France, the marked rise in full-time baccalaureat-level education downgrades the lower levels, which tend to become 'residual' in terms of quality, while the higher levels reflect a complex kind of hierarchy which results from the variety of possible combinations of general/vocational education and training and the greater heterogeneity of the players' other abilities. This necessarily leads to wider disparities in skills between and within the different levels on the labour market.

5. Conclusion

Looking at this body of research work, two major groups of conclusions can be drawn, one relating to the scientific approach, the other to (public and private) training policies.

A) Limits and relevance of 'societal models'

This survey, originally meant to cover five countries, was then limited to three. That immediately brings up the question of whether these models can give an exhaustive account of the situation in all the EU countries. However controversial, the theory of societal models seems a fairly sound means of characterising the dominant methods of human resources management in the countries reviewed. But what is the position of the northern or southern European countries in terms of these models? Do they reflect a variant/adaptation of the types we have identified (e.g. should Austria and Denmark be regarded as special versions of occupational labour markets), or combinations of them, or are there other, radically different models? Several recent works, especially in the context of Leonardo (VTML 1998; CATEWE 2000, forthcoming publication) endeavour to widen our understanding of the institutional configurations of other countries, and even of the Europe of Fifteen as a whole, although focusing more on youth integration. Significant efforts will therefore have to be made in coming years to test the relevance of these approaches in a more exhaustive manner.

Another question is how to 'prove' the existence of these models. On the one hand, as we have seen, there is some controversy as to whether labour market segmentations exist. There is often little evidence of longitudinal data, within and outside the enterprises, that would make it possible to test these models reliably. In fact individual data would have to be matched with enterprise data, which is rarely feasible. Moreover, there are very few models that include stylised institutional features as variables. Most of them were developed in the field of industrial relations, but they rarely consider initial training systems or methods of continuing training.

A third question concerns the dynamic of these models. Because they try to establish ideal types and focus on the relationship between training systems, industrial relations systems and the management methods of enterprises, these models give priority to identifying structural characteristics. Most of them date back to the theories of the 1970s and their premises are based on a fairly stable world. After the series of upheavals caused by the opening up of Europe, globalisation, the major changes in training systems and the emergence of new organisational models, more emphasis should now be laid on the dynamic: the questions should now focus less on characterising the societal areas than on describing the ways in which they change (or resist).

B) In the context of training policies, what does this kind of analysis suggest?

The first suggestion relates to the current heterogeneity of the combinations between training and labour market rules. The relationship between training and mobility, training and wages, etc. takes a different form from one country to another. All the analyses emphasise the importance of a qualified workforce and therefore of training, in terms of competitiveness between firms, internal and external flexibility and combating exclusion from the labour market (Steedmann 1999, forthcoming). Moreover they all show that common trends are emerging, such as the search for greater flexibility on the internal labour markets or new training and work combinations (Delcourt and Méhaut 1995). This is consistent with some of the statements in the White Paper (European Commission 1995) (such as a new concept of the relation-

ship between training and work), but it is not true of others. The hypotheses about a European system of individual accreditation, for example, are difficult to accept in regard to national systems that are highly regulated by diplomas or other forms of certification that have a major structural impact on industrial relations (e.g. in Germany). Similarly, even though the emphasis on the role of the individual in maintaining his skills is understandable, there have to be incentives to do so on the labour market. In France, for example, the low wage advantages currently obtained from continuing training tend to be more of a disincentive. Training policies must therefore of necessity take account of societal conditions, possibly with a view to modifying and improving them. They must be modulated on a national basis so that they can take due account of these national societal conditions.

A second suggestion, following on from the first, concerns the coherence of the relationship between training, the firms' human resources policies and the dimensions of the labour market. If it is established that this coherent relationship exists in each national framework (which, as we saw above, remains to be proved), then training policies cannot simply be isolated policies. They must, for example, have structural links with policies affecting the organisation of work (improvement in working conditions, policies on working hours); they must be mainstreamed into industrial relations policies at both enterprise and national level. However effective their training dimension may be, it can only achieve its full effect through these links. That will probably mean these policies have to be formulated with the participation of all the players on the labour market.

Annex 1.

The problem of segmentation tests: the use of earnings functions to validate the dualist hypothesis

Although observed reality shows that the labour market is segmented, there is no explicit segmentation model on the basis of which we can clearly define ways of testing this theory. Indeed the literature on segmentation contains no testable empirical hypothesis for identifying the limits between the segments or determining the appropriate number of these segments. Most of the empirical works are based on the dual version of the theory. These analyses tend to relate to the features according to which the two labour market sectors can be characterised:

- the differences in the returns on education and occupational experience between the segments – with each segment having different mechanisms for fixing wages and the theory of human capital not applying to the secondary labour market¹⁴; and
- the absence of mobility between them, in other words the barriers to entry to the primary sector. The negative feedback effects which make the transition through the secondary sector into an obstacle to finding a job in the higher segment are interpreted as a check on mobility.

The empirical validation of these hypotheses faces two types of methodological difficulty: how to define and determine the segments and how to apply the appropriate statistical and econometric techniques. The various analyses in fact represent a fragile empirical basis given how difficult it is to demarcate between sectors that are 'econometrically' neutral from the point of view of the phenomena to be studied. It is difficult to define this demarcation econometrically because the se-

lection bias is another problem on top of those connected with non-observed individual heterogeneity, all of which makes the test findings even more ambiguous.

Segmentation a priori and selection bias

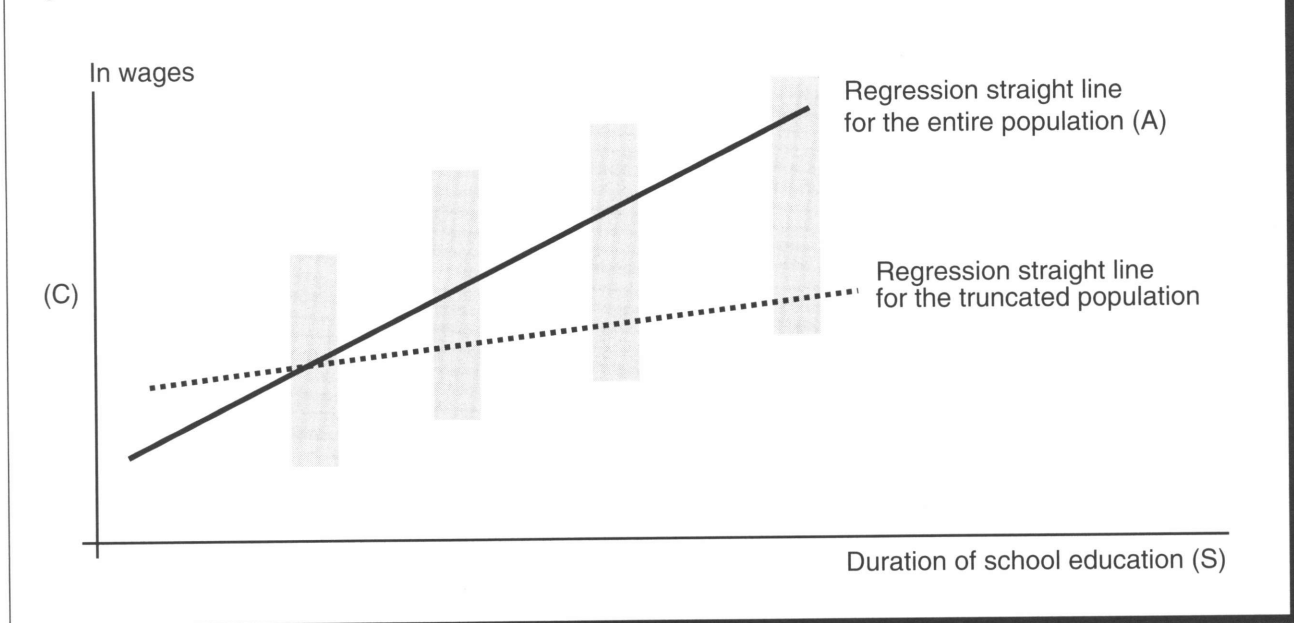
In the early empirical works¹⁵, the dual hypothesis was tested by comparing two equations of wages estimations for two sub-samples of a population. Different estimations would provide empirical proof that these two labour markets exist. However, the findings of this test are distorted by the bias in the sample selection.

Most of these works are in fact empirico-deductive by nature; the allocation of manpower between the primary and secondary sectors is explained ex-post. The procedure for delimiting the segments is based on a system of a priori classification and fails to take account of the endogenous nature of a segment. This criticism was advanced first by Cain (1976); splitting the labour force in two on the basis of wages received and an estimated earnings function for each of the sub-samples creates a selection bias. This bias emerges each time 'a selected sample from within a larger population is used to test behavioural relations' (Heckman, 1979). So it is not surprising that school education has less impact on earnings in the secondary segment since, by definition, it excludes the high values of the dependent variable of the regression equation.

In the view of Psacharopoulos (1978) a priori segmentation on the basis of the dependent variable is a tautological form of reasoning: if the segments are defined on the basis of the wage level, the correlation between earnings and this type of segment tends to produce a stronger gradient in the function of earnings in the primary sector. So the tests of the dual hypothesis are linked in a circular manner to the definitions of the segments.

¹⁴ In this sector, wages are not affected by the build-up of human capital.

¹⁵ See Dickens and Lang (1985), Heckman and Hotz (1986), Taubman and Wachter (1986) for a survey of these works.

Figure 1: Functions of earnings and selection bias

The selection bias results not only from the truncation of the data but also from the fact that the position of the individuals in the wages hierarchy, on which the design of the sample is based, is the result of individual choices that are not independent of non-observed characteristics.

More precisely, the separate regressions on the sub-samples can produce biased estimated coefficients if in fact only one earnings function, represented by straight line (A) in the figure below, characterises the entire population. Straight line (A) reflects the positive relationship between education and wages; to simplify matters, the function of earnings is reduced to the model of school education. The variability of the residues of this function is represented by the points around the straight line.

For low-waged individuals (below C in this figure), the relationship between job income and education is biased downwards because the residue of the function of earnings for this sub-population is correlated negatively with the level of school education S, even if this correlation is nil for the entire population. In fact, in the low-waged segment, we only find individuals who have high-level diplomas but

whose non-observed characteristics (abilities, talents, motivation...) are low, which situates their wages lower than they would have expected for their level of school education. The return on their years of studies will, consequently, be low for this group.

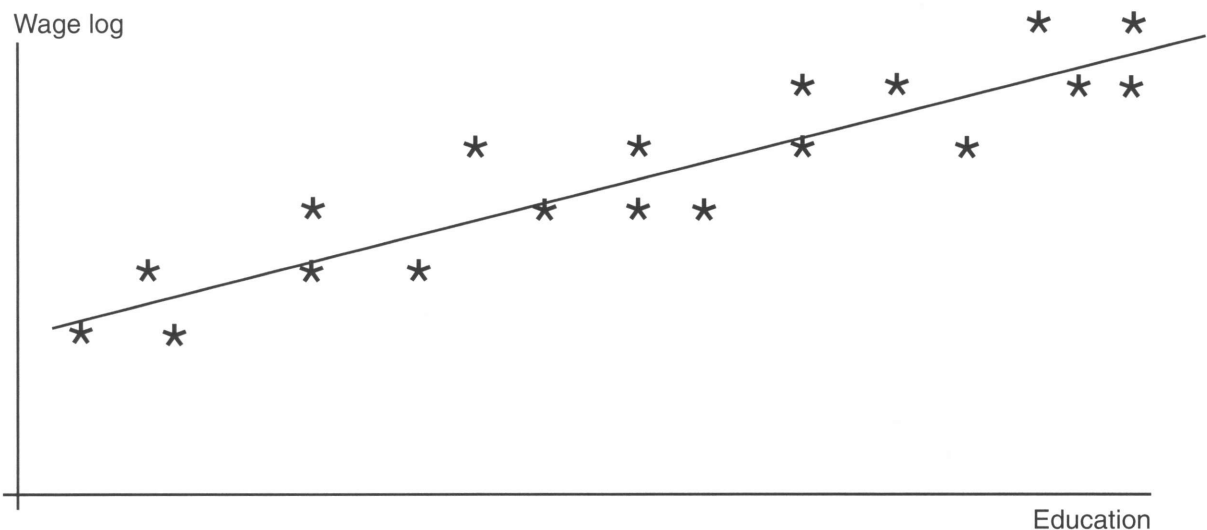
The dotted straight line shows the impact of the selection bias; even if regression straight line (A) correctly translates the individuals' behaviour whatever their wages, the single statistical method used here tends to differentiate them.

The aim of the empirical studies comparing two earnings functions is to test the validity of the dualist version of segmentation are open to two criticisms. The first derives from the fact that the results are subject to a selection bias and confer an artificial superiority on the dual hypothesis. The second is that no conclusions can be drawn without also testing whether barriers to entry to the primary sector actually exist.

Improved tests of the dualism of the labour market

The first improvement involves dividing the two segments in the same way and correct-

Figure 2: Theory of human capital



ing the selection bias on the basis of the approach developed by Heckman (1976 and 1979) and then comparing the estimated coefficients of the two earnings functions.

On the basis of this test conducted on a male Panamanian population, Heckman and Hotz (1986) conclude that a dual labour market exists.

However, it is only valid on the basis of restrictive hypotheses; the functional form of the earnings equation, assuming a nil hypothesis of a non-dual market, needs to be known for the population considered, the variable of the duration of studies must be exogenous and, lastly, given the selection rule, the conditional average of the residues of the earnings function must be estimated consistently (which means specifying the distribution of this term). In other words, if the test is to be reliable, the model must be specified correctly. But there is no evidence that, for example, the *education-wages* relationship is a linear one, even though the earnings functions on which the studies of dualism are based are linear. In fact there is nothing in economic theory to suggest that individuals with, for instance, five years of education are only half as productive as those who studied for ten

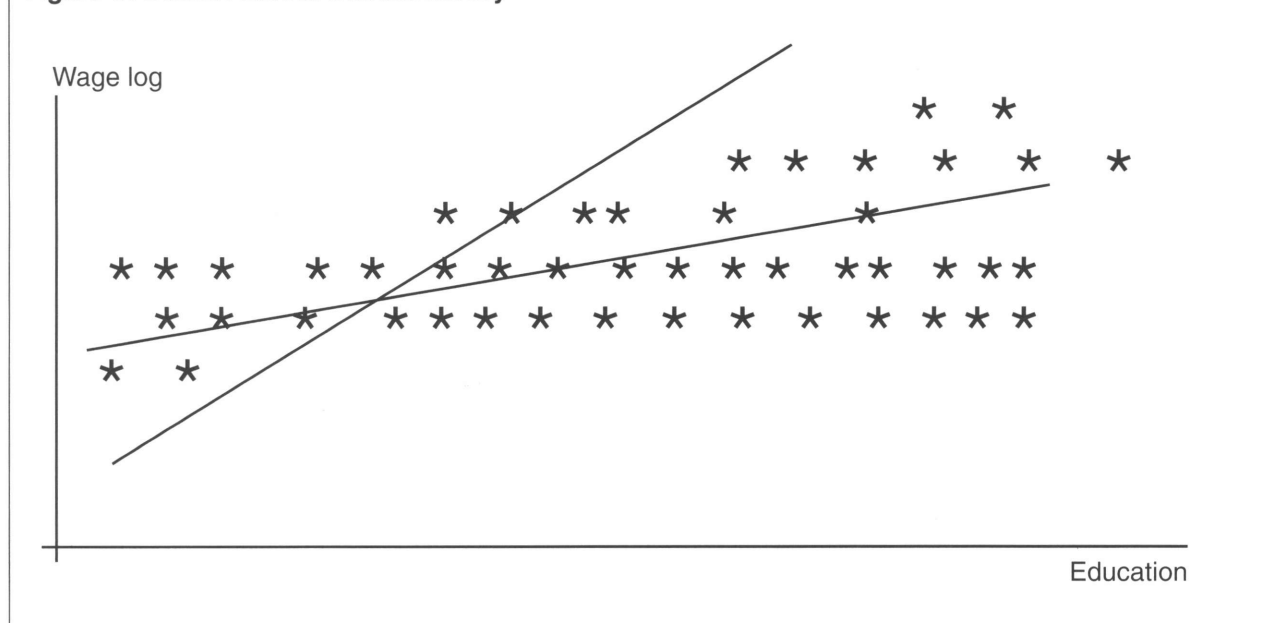
years. We have no a priori knowledge of the functional relationship between job returns and education, or of that between wages and any other productive attribute. Once the selection biases have been corrected, the conclusions that argue in favour of the dual hypothesis could quite simply be a misinterpretation resulting from an error in specification (such as the presence of non-linearity in the equations).

The graphs proposed by Dickens and Lang (1985) show the ambiguity of the test when it is based on a comparison between two wages equations that supposedly describe the dual hypothesis and a single equation that supposedly represents a single labour market.

It is assumed that the educational level achieved and the non-observed characteristics, which are not correlated with education, can in themselves explain the wage level. In that case, the log-linear regression shown below (figure 2) translates the functioning of a labour market compatible with the theory of human capital.

Assuming that the theory of a dual labour market is more descriptive of the labour mar-

Figure 3: Dualist labour market theory



ket than the theory of human capital, we obtain the following:

The question is not only whether, on the basis of the analysed data, it is easier to adjust two equations than one, but also whether, over the same time, these two regressions are consistent with the predicates of the dual theory. In fact, as pointed out by Dickens and Lang (1985, p. 795), the fact that the two equations prove more explanatory than a single regression can in no case constitute in itself a test of the dual hypothesis. Figure 4 illustrates this situation.

The two linear regressions adjust the data better than a single one, although that does not mean this validates the dualist theory: to do that, one of the two equations should have had a positive slope while the second was horizontal and situated below the first for most of the observations. So the dual hypothesis can be regarded as valid by implication if the true relationship between education and wages is non-linear.

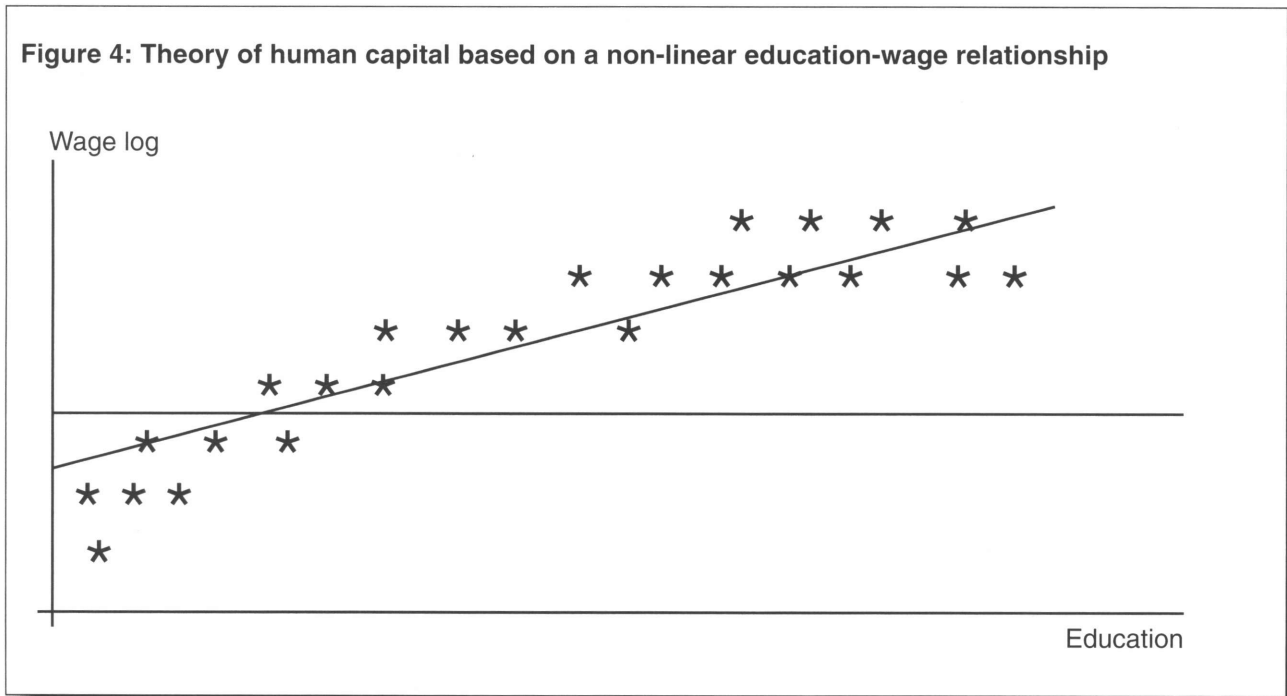
An alternative test of the same hypothesis is to check whether a single earnings function estimated for the entire population can predict the low-wages segment. The esti-

mated coefficients of this function of earnings must be proportional to the coefficients of a linear (or logistic) probability model that determines participation in the low-wages sector. The test can be formulated differently: if the corrected earnings function of the selection bias for the high-wages segment does not explain earnings in the low-wages sector, then a dual market exists. Once again, on the basis of this approach, Heckman and Hotz (1986) conclude that there is a dual labour market in Panama.

These tests for dualism are based on the hypothesis that the true functional form of the wages equation in the scenario of a competitive market is known. They also assume that threshold C of the figure illustrated above is the perfect criterion for defining the primary and secondary sectors, while the division of the population into two segments is based on an arbitrary selection criterion.

Taking it as their primary objective to avoid this *ad hoc* selection, Dickens and Lang (1985) estimate a model based on a change of endogenous regime with an unknown separation rule. They try to specify two wages equations and a third equation that predicts the allocation of the individuals to one or the other of

Figure 4: Theory of human capital based on a non-linear education-wage relationship



the segments, while at the same time estimating these three regressions. The individual probability of belonging to a particular sector is calculated a posteriori and is conditional on the information provided by the wages.

Despite these precautions, the empirical evidence of distinct wages equations still does not invalidate the hypothesis of the competitive functioning of the labour market: the presence of a highly heterogeneous workforce faced with a demand that is also differentiated can generate major wage disparities in a context that is nonetheless competitive. On the supply side, workers are distinguished among themselves by the abilities acquired during their education and/or employment. These abilities, described only in part by information such as the duration of school education or experience, result in an investment whose cost is correctly compensated by the differential of the wage obtained (theory of compensatory differences, Smith 1776; Rosen, 1986).

Similarly, if wages equations are regarded as functions of inverse demand (Lancaster 1971; Rosen and Willis 1979) it becomes possible to justify, in a competitive framework, coefficients/prices linked to the variables of human

capital that are mechanically higher in one of the two sectors. In fact, if we assume that one sector needs to recruit a high proportion of qualified employees, it will have to attract more workers with adequate abilities by attaching more value to the human capital and de facto pursuing a wage policy, which is a source of disparities with the other sector.

Lastly, wage disparities can reveal imperfections on the labour market only if non-compensatory wage differences – in the sense that these differences do more than compensate for the cost of investment in human capital – are exhibited.

Tests of barriers to entry to the primary sector

So far, the tests of the dual hypothesis based on a comparison of the earnings functions linked to the two segments do not lead to the conclusion that obtaining distinct earnings functions is compatible with the human capital theory. If individuals are free to choose their job segment, the returns from education and the implicit prices of the other characteristics can differ between the primary and the secondary sector without that necessarily being evidence of dualism.

Dickens and Lang (1985, 1987) propose a test. It relates to the crucial hypothesis of the dualist theory, namely the rationing of primary sector jobs (this hypothesis can be extended to the existence of negative feedback effects which make entry to the primary sector more difficult for secondary sector individuals who could potentially have had access to it). The existence of barriers to entry is the central hypothesis of the segmentation theory because the existence of intersectoral mobility would imply the equalisation of wages between sectors, leaving aside compensatory differences. It represents a major break with the theory of human capital (Dickens and Lang 1985, p. 793).

So the nil hypothesis of non-rationing has to be tested, while at the same time assuming that individuals maximise their earnings with no cost of mobility between the segments and that the distribution of the residues of the earnings functions is known. Under this nil hypothesis the coefficients of the equation of change of regime should be proportional to the difference between the coefficients of the corresponding variables in the two earnings functions. Rejection of proportionality is interpreted as acceptance of the segmentation hypothesis. Dickens and Lang (1985) show on the basis of American data that at least some secondary-sector workers (non-white workers) do face barriers to entry to the primary sector.

Once again, rejecting the hypothesis of non dualism is not informative. In fact the hypothesis of the absence of a cost of mobility between sectors is not pragmatically tenable and in consequence the deciding rule determining the allocation between the two sectors is not properly specified. The segmentation test proposed by Magnac (1991) makes it possible to move away from this hypothesis. It centres the individual's choice of employment sector on the conditions of entry to each of these sectors. While a neo-classical theory of the labour market – based on the model proposed by Roy (1951) – regards wages as the only factor of access to jobs, the model of the segmentation hypothesis takes account of the existence of barriers to entry to the primary sector through a queue. The cost of entry corresponds to the capacity of each individual to join this queue. A test of the segmented market hypothesis is

based on the estimation of these entry costs. This test of rationing, whose consequence is the existence of a more or less long queue to entry to the primary sector, was carried out by Magnac (1991) using Colombian data. Based on Roy's model, extended to correct the different selectivity biases, it does not lead to a rejection of the competition hypothesis. The analysis also shows the existence of comparative individual advantages between sectors; the wage disparity proves to be the result of a markedly heterogeneous workforce.

Since the test based on comparing two earnings functions in which the allocation of workers to the market segments is based on an arbitrary criterion, various improvements have been made:

- correction of the selection biases,
- endogenisation of the choice of sector and supplementing the analysis with a test of the rationing hypothesis with no cost of mobility between sectors,
- lastly, the endogenisation of the choice of sector, taking account of the effect of rationing on this choice (via an individual mobility cost).

Yet the results of the tests can still be biased. Heckman and Hotz (1986) set out the reasons for this bias. The first is that the labour market can comprise more than two segments. Dualism proves to be a very poor description of the market. So the conclusion drawn from the test is erroneous if one of the segments is itself heterogeneous which, in the view of Piore (1975) is the case for the primary sector. In that case, the sectoral choices are not rationed, the model is simply badly specified because it translates a uni-varied problem of choice where the real problem of choice is multi-varied. A second source of error lies in the poor specifications of the model's equations; the hypotheses that the residues are standard and the earnings functions are linear are wrong. Lastly, (non-monetary) arguments other than wages play their part in the choice of segment. The employees seek to maximise their utility and not their earnings¹⁶.

¹⁶ Note that Heckman and Sedlacek (1985) reject the hypothesis of income maximisation.

Nested employment structures or segmented labour market

This section takes stock of the advances in the most recent French empirical works to test the segmentation of the labour market from the point of view of the various difficulties we have set out. These advances consist in avoiding dualism and putting forward a description of the labour market that takes account of its complexity. This makes it possible to highlight the elements of specificity of segmentation 'à la française' and to offer empirical interpretations, for the case of France, that are in no way based on the analyses of Doeringer and Piore (1971).

Hanchane and Joutard (1998) adopt and set out an approach that can reveal the heterogeneous nature of the labour market by the interaction of two criteria: continuing vocational training and type of mobility, internal or external. This multi-sectoral approach leads to the definition of four segments: internal mobility without continuing training, internal mobility with continuing training, external mobility without continuing training, external mobility with continuing training. Aside from the fact that they identify a more varied segmentation, these criteria, in particular the type of mobility, lie at the heart of the theoretical thinking on the question of enhancing the value of human capital.

From a methodological point of view, this approach means estimating a model with several regimes. There are two stages to the approach. First, Hanchane et Joutard (1998) estimate selection equations drawn from discrete choice models to obtain initial information on the structure of the labour market. The analysis is supplemented by an estimation of the potential earnings function for each of the segments. Drawing on the approach of Lee (1983), the two authors specify four potential wages equations for each employee. When the employees have been situated on one of the segments under consideration, information is available for each of them on the 'choice' made and the wages; this information is extracted from a model that contains the equations of

choice and the earnings functions. To the extent that each employee is allocated to a segment, the observed wages are governed by mechanisms proper to the functioning of the segment. To disregard this allocation could lead to a selection bias and result in a non-convergent OLS (ordinary least square) method of estimation for each wages equation. So Hanchane and Joutard introduce a corrector term into these equations, based on probabilities of choice, which corrects any possible bias at the level of the parameters and the standard deviations.

However rigorous the estimation procedure, this approach is open to at least two criticisms, which Hanchane and Joutard (1998) endeavour to answer in their second work. These criticisms relate to the *ad hoc* nature of the criterion of allocating individuals to the various sectors and to the very questionable hypothesis of the independence of the non-appropriate alternatives (IAA), on which the first stage of estimation of the allocation model is based.

The approach proposed by Hanchane and Joutard offers two advantages: it allows them to suspend the IAA hypothesis and therefore to give a more varied description of the labour market while also resolving the problem of a priori allocation.

The authors start out from the idea that although it may be justified to distinguish between four market segments, some individuals may also possess characteristics that mean they can be allocated to several segments indiscriminately. So there would be segments that apparently differed according to the *ad hoc* criteria, but some of them would comprise jobs with common attributes, e.g. a type of human capital. To the extent that part of the human capital possessed by the employee and required for the job remains unobserved, one could envisage, without any a priori, several models of allocation to these segments. At that point, the method chosen by Hanchane and Joutard consists of estimating several *nested logit* models, based on the thinking of Ameyya and Shimono (1989). They discriminate between the various models using the test developed by Vuong (1989)

to identify the best structure for adjusting the data. Because it allows different empirical associations to be envisaged between seg-

ments, this method provides a highly flexible means of describing the functioning of the labour market.

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The employment and training practices of SMEs

Examination of research in five EU Member States

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Abstract

This contribution discusses the main driving forces of the employment and training behaviour of small and medium-sized enterprises in Germany, Spain, France, Italy and the UK. After an 'anatomy' of SMEs, the paper attempts to locate their place and evolution in the current changes of the production system: creation and substitution, determinants of the demography of SMEs, ambivalence of technological intensity and innovations. Investigations on entrepreneurship and its contribution to the economic dynamism and job creation are also discussed.

The second part deals with SMEs as actors on the labour market. Special attention is given to the utilisation of external labour force, to their recruitment behaviour and their role in the professional integration of young people.

The third part discusses the training behaviour of SMEs. Research dealing with the intervention of SMEs in the construction or development of professional competences and employability is presented. Experimentation of continuing vocational training in enterprise networks, at territorial level or in professional branches is also presented. The emergence of new more flexible training settings more adapted to SMEs and especially to small and micro-enterprises is tested. These settings contribute to dislocation of the traditional model of training based on the unity of time, place and action.

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1. General introduction

In a macroeconomic environment that has for some years been marked by the continuing contraction of employment and structural changes on labour markets, the EU's economic and political decision-makers have come to focus their attention on small and medium-sized enterprises (SMEs)¹. SMEs have long been ignored or underestimated, with attention focusing on the large organisations that were believed to be the only ones capable of fostering growth and modernity; now, there is a fairly widespread consensus that SMEs are in fact the main source of economic dynamism, innovation and job creation.

1.1 SMEs make a comeback

This interest in SMEs is not new, and their value was highlighted in some early works (Marbach, the German who advanced the theory of the '*Mittelstand*', in 1942; and, more recently, the ideologist Schumacher in 1978, the pragmatist Birch in 1979, etc.)². Of course, this trend has not returned overnight, nor in the same way in every country. What is striking about the most recent history of the phenomenon is its extent and intensity, which have, in most of the developed countries, led

to SMEs becoming both a *central feature* of economic, social and employment policies and a *mythical being*, a paragon of virtue.

It was during the 1980s that SMEs really made their comeback. It was a comeback made possible by a whole range of factors that have been enumerated a thousand times: collapse of mass production, trend towards the decentralisation and fragmentation of major groups as a result of the discovery of new sources of competitiveness based on the adaptability and flexibility of small production structures (Piore and Sabel, 1984), the tertiarisation of society, etc. We should also mention the hopes raised by the burgeoning of enterprise creation that came in the tracks of Birch's work and observation of entrepreneurial dynamism in the United States, which it was felt might check unemployment and give a second wind to employment policies that had too often been limited to defensive measures.

Indeed, the figures leave little room for doubt about the significance of SMEs in our economies: in 1996, for example, the European Economic Area³, plus Switzerland, had some nineteen million private, non-agricultural enterprises employing a total of more than 110 million people. Of these, 99.8% could be cat-

¹ In addition to SMEs for small and medium-sized enterprises, we shall also be using some other abbreviations in this document: SMIs for small and medium-sized industries, VSEs for very small enterprises with fewer than ten employees, SEs for small enterprises with fewer than 50 employees, and LEs for large enterprises with, unless otherwise stated, more than 250 employees.

² In this respect, it is difficult to better the monumental work conducted on the initiative of the International Commission of the History of Social Movements and Social Structures (attached to Unesco via the International Committee of Historical Sciences) and modestly called a 'survey' (International Commission of the History of Social Movements and Social Structures, 1981). This project included no fewer than 31 reports on 28 countries in the five continents, drawn up by (many) historians, economists (fewer than today) and highly respected sociologists and political economists. Most of these reports were based on research conducted by working parties set up in

the countries being studied and drew on the work of more than 200 researchers. The reports are remarkable in their historical depth and scope, all including extensive bibliographies and all beautifully written. Just two regrets: that small traders and craftsmen are given greater coverage than the small industries of the time, and that coverage of Italy was cut short because of the author's ill health.

³ Most of the statistics reproduced here are drawn from two major instruments: the series of reports produced by the European Network for SME Research [ENSR], the most recent of which (1997) covers 19 countries (the 15 EU Member States, plus Iceland, Liechtenstein, Norway and Switzerland); and the 'harmonised statistics' for the 15 Member States provided by Eurostat in its regular reports on *Enterprises in Europe*, of which we consulted the fourth and fifth (European Commission, 1996, 1998). In addition to these two major sources, we also consulted the European Commission document (1998).

Table 1.1: Breakdown of enterprises by country and number of employees, in percentages, and total number of enterprises by country, in thousands (1996)

	SMEs			Sub-total	LEs	Total	Total
	Very small enterprises	Small	Medium-sized				
				%			(1 000)
Austria	86.1	10.8	2.4	99.4	0.6	100.0	220
Belgium	96.5	2.9	0.5	99.8	0.2	100.0	800
Denmark	92.4	6.3	1.1	99.8	0.2	100.0	230
Finland	94.4	4.5	0.9	99.8	0.2	100.0	205
France	92.9	5.8	1.1	99.8	0.2	100.0	2 085
Germany	88.1	10.0	1.5	99.6	0.4	100.0	3 440
Greece	97.0	2.6	0.4	99.9	0.1	100.0	580
Ireland	89.8	8.0	1.6	99.4	0.6	100.0	80
Italy	94.4	5.1	0.5	99.9	0.1	100.0	3 345
Luxembourg	84.2	12.4	3.0	99.6	0.4	100.0	15
Netherlands	90.5	7.7	1.4	99.6	0.4	100.0	530
Portugal	93.8	5.3	0.9	99.9	0.1	100.0	690
Spain	94.9	4.4	0.6	99.9	0.1	100.0	2 335
Sweden	91.0	7.4	1.3	99.7	0.3	100.0	285
UK	94.5	4.7	0.7	99.8	0.2	100.0	3 760
EU	93.0	5.9	0.9	99.8	0.2	100.0	18 590

Source: ENSR, 1997. p. 326.

Table 1.2: Enterprises in the European Union in 1995: breakdown by country

	Number of enterprises (in thousands)	Number of people employed (in millions)	Proportion of total employment accounted for by SMEs (in %) (1)
EU - 15	18 049.53	111.76	65.7
B	594.64	3.68	72.6
DK	235.73	1.55	69.5
D	3 334.78	30.03	57.7
EL	746.86	1.73	86.5
E	2 349.67	10.93	79.4
F	2 116.24	15.34	65.9
IRL	70.86	0.74	67.0
I	3 251.88	13.98	79.9
L	17.99	0.18	71.6
NL	488.61	5.22	60.6
A	237.39	2.59	64.5
P	656.76	2.86	79.5
FIN	180.13	1.07	57.4
S	243.55	2.11	61.0
UK	3 355.01	20.12	56.9

1) SME: enterprises with 0-249 employees.

NB: 1994 figures in the cases of EL, I, NL and A.

Source: European Commission/Eurostat, 1998, p. 38.

egorised as SMEs (0-249 employees) and 93% as VSEs (0-9 employees), accounting respectively for 65% and 33% of total employment and 60% and 25% of total turnover (see Table 1.1). If we include non-commercial activities and agriculture, we can calculate that more than one person in two in the EU Member States is working in an SME, 45% in small enterprises (with fewer than 50 employees) and a third in enterprises with fewer than ten employees (European Commission, 1996, 1998).

Of course, the relative role of SMEs in the economy and on the labour market and the average size of enterprises vary from one sector to another and from one Member State to another (see Tables 1.2 and 1.3), and there are many possible ways of interpreting this 'comeback' of small production structures. Similarly, the breakdown of employment by staffing levels varies from one country to another (see Table 1.4). Indeed, the overall figures conceal significant complexity and SMEs still represent a landscape that it is difficult to map. This is why it is essential that further research be conducted to provide us with a clearer picture.

The world of research has not been immune to the developments mentioned above. Torrès (1997, 1998), tracing its recent history in the French-speaking countries in particular, identifies three major periods since the mid-1960s. During the first period (1965-1975), research followed the Aston school of thought (Pugh et al., 1968, 1969), focusing on the effects of enterprise size on organisation and functioning (Blau, 1970; Child and Mansfield, 1972; Minzberg, 1982; and Desreumaux, 1992). The second period (1975-1985) saw the coexistence of two distinct currents of research: one focusing on the *specificity* of SMEs and seeking to identify not only the diversity of possible forms but also the constants, permanences and common features; the other focusing on the *diversity* of SMEs and, by examining the many contingencies faced by them, attempting to construct typologies and thereby reduce their heterogeneity. Finally, the third period, which began in the mid-1980s, saw the world of research oscillating between a conception that, whilst developing the theory concern-

ing the specificity of SMEs, also focused on the many variations in the unique features of small firms (the 'synthesising' current), and an investigation of the processes of the 'denaturation' of the general model of SMEs, henceforth dependent upon or even dominated by large enterprises (loss of autonomy, rationalisation, etc.).

The Torrès theory is all the more attractive in that it accounts for a movement of thought that, despite some inevitable differences in the timing of its emergence caused by varying national situations, has become fairly widespread, not only in the French-speaking countries but in most EU Member States. This is, in any event, what emerges from an overview of research on SMEs in the five Member States we chose to study (D, E, F, I, UK).

1.2 Outline of this report

Following this brief introduction (*Part 1*), *Part 2* of this report provides a summary of the main research we consulted in studying employment and training practices in SMEs, specifically in the five countries mentioned above. It is prevailing trends and the cutting edge in each country that matter here more than the details, which we go into later in the report.

Part 3 focuses primarily on *definitional and demographic data* (enterprise formation/dissolution). The main difficulty lies in the ephemeral and diverse nature of our subject (see Section 3.1). What is the relationship between a very small enterprise [VSE] of the craft type and a medium-sized industrial enterprise? What is the relationship between an independent, privately owned enterprise and an SME that is part of a group or a franchise network? What is the relationship between an SME in the manufacturing sector and an SME in the service sector? This is why it is more appropriate to speak of SMEs in the plural rather than use a generalised singular.

We take a particularly close look at the methods of approach that researchers use to tackle this heterogeneity (Section 3.2). After studying its anatomy or morphology, we also aim to identify the main results of European research

Table 1.3: Structure of private enterprises (excluding the primary sector), by size of workforce and by country (1996)

	Number of enterprises (in thousands)	Average size	Dominant size category*
Austria	220	11	SME
Belgium	800	5	VSE
Denmark	230	7	SME
Finland	205	5	LE
France	2 085	7	LE
Germany	3 440	8	LE
Greece	580	3	VSE
Ireland	80	11	LE
Italy	3 345	4	VSE
Luxembourg	15	12	SME
Netherlands	530	10	LE
Portugal	690	4	SME
Spain	2 335	5	VSE
Sweden	285	7	LE
UK	3 760	5	LE
EU	18 590	6	LE

*A country is said to be 'dominated' by very small enterprises, small and medium-sized enterprises or large enterprises respectively if very small enterprises, small and medium-sized enterprises or large enterprises account for the majority of jobs.

Source: Calculations made by EIM Small Business Research and Consultancy on the basis of Eurostat/DG XXIII figures (European Commission, 1998).

Table 1.4: Breakdown of employment by size of workforce and by country in 1996

	SMEs				LEs	Total	Total
	Very small enterprises	Small	Medium- sized	Sub- total			
	% of employment						(1 000)
Austria	25	19	21	65	35	100	2 470
Belgium	48	14	11	73	27	100	3 835
Denmark	30	22	18	70	30	100	1 590
Finland	23	16	17	56	44	100	1 030
France	32	19	15	66	34	100	15 310
Germany	24	20	14	57	43	100	29 090
Greece	47	18	14	79	21	100	1 585
Ireland	18	16	14	49	51	100	840
Italy	48	21	11	80	20	100	14 040
Luxembourg	19	26	29	71	29	100	155
Netherlands	26	19	15	60	40	100	5 295
Portugal	38	23	18	79	21	100	2 800
Spain	47	19	12	79	21	100	10 910
Sweden	25	17	16	59	41	100	2 030
UK	31	16	12	59	41	100	20 420
EU	33	19	14	66	34	100	111 405

Source: ENSR, 1997: 327.

on entrepreneurship, that is, on enterprise-creation practices and their contribution to economic dynamism and job creation (Section 3.3). A final section looks at the demographics of SMEs in an attempt to clarify their role and development in the current reorganisation of production systems (Section 3.4).

Part 4 focuses on *SMEs as a player on labour markets*, that is, the specific effects they have in terms of structuring employment, on both the quantitative (Section 4.1) and qualitative (Section 4.4) levels, and, more generally, the main factors determining their practices (Section 4.2). Particular attention is also paid to methods of using external labour, recruitment practices and SMEs' role in the occupational integration of young people (Section 4.3). Finally, a fifth section looks at European research on the development of self-employment (Section 4.5), particularly as regards very small enterprises [VSEs].

The aim of *Part 5*, on *the training practices of SMEs*, is to identify research on the use of vocational training – both initial and continuing – by SMEs (Sections 5.1 and 5.2)⁴. The perspective we have chosen also enables us to maintain our focus on the training/employment relationship and to articulate this new field of research with the former. At the same time, bearing in mind the needs of policymakers, it is an opportunity to present some research on the main factors determining the demand for training in SMEs.

Taking note of research that indicates SMEs' disadvantaged position in terms of accessing and using the more institutionalised and external forms of continuing vocational training, we look at the body of research that attempts to identify the *specific contribution that small establishments make in terms of informal, in-house or 'on-the-job' training*, the assumption being, for example, that individual skills are not acquired only through structured training provision but also as a result of experiences in which mobility be-

tween and within enterprises plays a considerable role (Section 5.3). From this point of view, examination of practices and views concerning training in SMEs is an opportunity to rethink the traditional models of the training/employment relationship and question the rules governing the recognition and certification of skills acquired in a working situation alongside, in addition to or instead of accredited training processes (validation of occupational skills, job classification, etc.).

Taking a step back, the final section (Section 5.4) attempts to identify the new types of regulations that are currently emerging in relation to (initial and continuing) vocational training in most European countries. It emerges, among other things, that the shift towards a 'skills-based approach', work on the validation of skills acquired informally and a number of innovations currently at play might in many respects be seen as an opening of the door to vocational training within SMEs.

Finally, our general conclusion (**Part 6**) aims to draw the main lessons from this careful examination of the European literature by identifying the most useful points for public policies.

2. European literature under review: a risky but enlightening venture

What we are trying to do here might seem presumptuous, particularly since no previous research has given rise to such an attempt. However we do have close on more than 500 references works in our bibliography and we are not making any claims about being exhaustive or, still less, doing the work of the historians. We are not interested in going into detail; on the contrary, what we want to do is to achieve an overview and identify the most salient points that emerge from the available body of work, and especially those works that have attempted to look at the relationships between SMEs, employment and /or training.

Our reading of the literature has been far from superficial. For each country, we have tried

⁴ We shall be abbreviating the terms 'vocational training', 'continuing training' and 'continuing vocational training' to 'VT', 'CT' and 'CVT', respectively, in the remainder of this report.

to develop an overall picture by identifying the most common themes or issues and tracing the major trends affecting them. We shall offer some working hypotheses that could be studied in greater depth.

2.1 France: a national tradition which does not favour SMEs

First, we shall look at the situation in France – not because we see it in a particularly favourable light but because, on the contrary, it seems that, of the five countries we studied, France is furthest from answering the questions associated with SMEs. This is largely due to the traditional predominance of large enterprises, both in industrial policy and in academic research. Yet France does not have the greatest concentration of large enterprises. Although the concentration is higher than the average for Europe of 15, it is lower than the concentration in, for example, Finland, Belgium, Germany, the UK and Sweden; we also know that the imbalance between large and small enterprises has more to do with sectoral features than national differences (European Commission, 1996, p. 34). So, the reasons for France's indifference to SMEs needs to be sought in socially and historically constructed images. Without claiming to offer a fully detailed analysis of the situation, we should simply like to mention two aspects here: public policies and research developments.

2.1.1 The institutional and academic predominance of the large-enterprise model

As J. Saglio (1995) has commented, the major reference for French public policy until the late 1970s was virtually always the large enterprise. It is in fact around this predominant figure that major modernisation projects have been organised and planned. It can be argued that reciprocal ignorance or a 'mutual aversion', doubtless caused by contrasting sociological positions, has long reigned in France between SMEs and national institutions. 'Public institutions saw SMEs as an archaic industrial world inhabited by untamed capitalists who had little respect for their social and fiscal obligations' and, 'in SMEs' eyes, the

world of the State was inhabited by useless, unproductive bureaucrats who knew nothing of the realities of economic life and its constraints' (Saglio, 1995, p. 22). Moreover, the majority of SME managers have tended to be extremely distrustful of large enterprises and the various monopolies, which are always suspected – often with good reason – of colluding with the State.

At the same time, in academic research, SMEs have long been perceived as a hangover from the past. Other than in research by historians on early industry and a few scant references in historical overviews of industry, SMEs have virtually always been defined negatively or in terms of their shortcomings in relation to large enterprises⁵: they did not adhere to the rules of the division of labour, they were run more 'simply' and in a less formalised way, they were backward in terms of development, etc. In brief, they were too small and their economic role was deemed to be too insignificant to merit researchers' attention. So, an interest in SMEs was for fanatics, militants or those with a love for the exotic.

This would explain (or at least, this is our hypothesis) why, after this long period of lack of interest, the first works on SMEs that appeared in the late 1970s initially took the literary form of 'the essay' and a fairly utopian ideological position. So, small structures appear as improbable, paradoxical, akin to the social experimentation in new spaces ('country factories', self-centred development, alternative enterprises, etc.), based on ideologies that challenged major systems and the all-powerfulness of the Fordist-Taylorist model (on this point, see, among others, Chavanes, 1975; Chevalier, 1977; Gorz, 1980; Mendras, 1979; Rosanvallon, 1976, 1980).

2.1.2 Obsession with the modernisation of SMEs

Despite its significance and specificity, it would be a mistake to reduce the turning point of the 1980s to an academic curiosity

⁵ In other words, 'non-large enterprises', to use the term coined by J. Saglio (1995).

for, as in most other European countries, it was at the very time when mass production and the big industrial conglomerates went into crisis (restructuring), when unemployment was rising and the economy was becoming increasingly tertiarised, that the movement to rehabilitate SMEs really began in France.

However, the social components of the French conception of SMEs continued to hold sway throughout the last decade and, therefore, right up to now. This would, in our opinion, explain the shift in the thinking of all France's economic and political institutions, all coming to focus on one notion: SMEs need to be modernised and rationalised. Subtext: we need to guide them towards the large-enterprise model. This point of view can be illustrated in many ways – by, for example, stressing the development of public aid or stigmatising decision-makers' recurrent voluntarism and concern for small structures (setting up science parks, an inclination to create industrial districts '*à la française*', etc.).

Throughout the 1980s and, therefore, right up to today, the research community has failed to escape this strong social trend. Apart from a few scattered and sometimes isolated teams, particularly those researching the craft industry or small traders (Zarca, 1986; Auvolat, 1982; Auvolat et al., 1985; Gresle, 1981), and, as we shall see, with the exception of some economists and sociologists specialising in 'industrial districts' and working under the auspices of the *Centre d'Etudes de l'Emploi* [CEE] and the *Groupe Lyonnais de Sociologie Industrielle* [Glysi], this community has – whether we like it or not – largely gone along with an approach that sees technological development and innovation as an instrument of modernisation and competitiveness for SMEs (Jacot and Lajoinie, 1988; Rosanvallon, 1986; Hollard et al., 1987; D'Iribarne, 1986; Maurice et al., 1986). Even if not every researcher has succumbed to the dogma of technological determinism that the decision-makers are always so quick to propound; if they note in general the spread of flexible technologies in small enterprises, especially in the machine tools sector; if they are quick to look at the issue of new technolo-

gies in relation to their social and organisation appropriation; it nonetheless remains that the point of reference they use to assess changes in production systems is still the large enterprise and mass production.

2.1.3 From tangible technologies to intangible technologies

Indeed, in the late 1980s and early 1990s, there was already a very gradual shift away from tangible production technologies and towards the intangible technologies of management, training and organisation. It is in this context that we need to see, for example, the works of Le Bas and Clerc (1988). Studying SMEs' attitude to automation in the mechanical-engineering sector, these authors noted (and deplored) the fact that 'hypo-firms' (the smallest SMEs) were resistant to automation, while 'large' SMEs were more structured and more in favour of it. In addressing the former, they stress the importance of external consultancy and training as 'driving factors' (p. 105) in the rationalisation of SMEs. A little later (Le Bas, 1989), they are back again: automation projects have more chance of being successful in SMEs if they are both coordinated with industrial strategy and based on properly managed training processes. These processes must cover not only technical content but also new standards of management, organisational routines, the anticipation of economic changes, etc. This 'broadening of the field' and mobilisation of all the players are termed 'industrial apprenticeship' and conceived according to the standards of large enterprises, as they are in virtually every other work based, for example, on Ministry of Industry statistics showing that the main factors determining SMEs' attitude to training are size – SEs with fewer than 50 employees 'train less' than enterprises with more than 200 employees – the age of directors and managers – on average higher in SEs (Bucaille and Costa de Beauregard, 1989; Debrinay, 1990), etc. Recently, of course, a number of works on investment and modernisation in SMEs have focused on issues relating to employment (Heraud and Forte, 1995), but they are far from representing the majority of recent research.

2.1.4 The relationship between SMEs and employment: a relatively recent issue

Despite a few high-quality trailblazers that are already rather old (Greffe, 1984; Baroin and Fracheboud, 1983; Dalle and Bounine, 1987), it is reasonable to say that this area of research is relatively new in France, as compared with the UK, Germany and Italy. The research coordinated by Greffe, Baroin and Fracheboud certainly provides us with all the ingredients we need for debate, together with a number of equally weighty contributions and equally inspiring subtitles: 'SMEs – potential employment reservoir' (X. Greffe), 'SMEs and employment in France' (D. Baroin), 'SMEs and job creation in France' (F. Eymard-Duvernay and M. Delattre), 'social relations in SMEs in France' (J.-Y. Boulin, J.-P. Huiban et al.), 'the unemployed – creating or recreating occupational activity' (S. Pflieger and F. Tabourin), 'which policy for SMEs?' (X. Greffe). There are also some similarly in-depth international comparisons: Belgium (A. M. Kumps and R. Witterwuklghe), Italy (S. Brusco and P. Garonna), the Federal Republic of Germany (W. Steindle), the UK (G. Gudgin and then D. J. Storey), the European Community (J. Morley) and even Japan (E. Leclerc) and the USA (D. Baroin).

In the main, however, none of this work has been followed through and, although academic output on SMEs' role in the current transformation of production systems is particularly abundant (see Part 2), research on their impact on the number, structure and content of jobs is only in its infancy (Couraut, Trouvé, 1999). The same is true as regards the specific features of vocational training and the building up of professional skills and status in SMEs (see Part 5). Apart from the regular, annual comment on the lack of training, based on administrative statistics (Bentabet, Marion et al., 1999), and a few recent breakthroughs by a Céreq team as regards personnel management and training in very small enterprises (Bentabet et al., 1999), the field is essentially occupied by critical analyses of the 1971 law on continuing training and the difficulty of adapting it to the specific context of SMEs (on this point, see the works of E. Verdier, 1990b, c, 1991).

It is not for us to describe and explain these shortcomings in detail here. However, in addition to the chronic absence in France of ongoing relations between the world of research and occupational organisations (for the reasons mentioned earlier), one would very probably be able to identify some persistent divisions in the scientific community as regards SMEs. First and foremost, are SMEs really a subject for scientific research in France? Some researchers think not and are not afraid to say so, despite a logomachic work that argues to the contrary (Grasser et al., 1999).

2.1.5 Highly compartmentalised academic research

Evidently, in France more than in any other country, a considerable effort needs to be made if SMEs are not to be reduced either to a by-product of the development of major groups or to large enterprises 'in miniature' (Saglio, 1995). This is why it is difficult, in France, to break away from studying the major bodies of macrostatistics that define SMEs as residual forms of early industry by comparison with large enterprises, to recognise entrepreneurs' active role in the development of new managerial styles, and to move away from a definition that is too closely bound up with the traditional configuration of independent SMEs, and instead to focus on their inclusion and integration in various sectors, regions, networks or inter-enterprise competitive/co-operative relations, as in the case of the socioeconomic study of localised production systems. These three ways of distancing ourselves from the dominant models (of the large enterprise and the independent small enterprise) nevertheless derive from some relatively distinct currents of research.

On the one hand, it is certainly important to take account of Government documents that attempt to meet the need to know more about SMEs so that appropriate policies can be adopted. Examples are the regular reports on SMIs (small and medium sized industries) produced by SESSI (*Service des Statistiques Industrielles du Ministère de l'Industrie* [Industrial Statistics Service of the Ministry of Industry] 1995, 1999). By definition, however, these cover only enterprises in the industrial

sector with more than 20 employees. The same applies to INSEE's *Enquête sur les Petits Etablissements Industriels* [Survey of Small Industrial Establishments]. Researchers certainly do not make sufficient use of these major statistical sources. Mention might also be made of the recent implementation of a Dares⁶ (*Ministère de l'Emploi et de la Solidarité* [Ministry of Employment and Solidarity]) programme focusing on SMEs (Dares, 1995).

On the other hand, with regard to academic research, we need to distinguish: *firstly*, teams of economists and sociologists (for example, the *Centre d'Etudes de l'Emploi* in Paris, Céreq and its research team on employment and training in SMEs, the 'Mutations des Territoires en Europe' Laboratory of the University of Montpellier, which focuses more particularly on SMEs' role in local development, and the *Groupe Lyonnais de Sociologie Industrielle*, part of whose remit is to study local SME systems), whose work could be analysed and cross-referenced to enable us to reconsider the enterprise model; *secondly*, the more openly management-centred approaches, associated in particular with the *Association Internationale de Recherche en PME* [AIREPME – International Association for Research on SMEs], of links between France (with a strong Montpellier/Metz-Nancy axis) and Quebec, the mainspring of an International French-Speaking Conference on SMEs⁷. However, the latter tend to concentrate more on identifying SMEs' microeconomic performance or on epistemological issues (Julien and Marchesnay, 1988; Marchesnay and Fourcade, 1997; Mahé de Boislandelle, 1998a, 1998b) than on SMEs' employment and training practices or, even less, on the effects of public policies on the development of SMEs. There is currently no interface between these two major groups (economists and sociologists on the one hand and managers on the other) (on this point, see Trouvé, 1999). The potential for the 'cross-fertilisation' of research on Very Small Enterprises has nev-

ertheless already proved to be promising (Bentabet et al., 1999).

2.1.6 The various fields of research on initial and continuing vocational training

In the area of vocational training in France, we can distinguish various currents of scientific output. The first we are going to mention here are highly prolific but pay little or no attention to SMEs.

- First and foremost, there is an historical current (for example, Agulhon, 1994), whose major arguments all – or virtually all – point to chronic problems concerning the appropriate linking of 'technical', 'vocational', 'specialist' or 'skills-centred' training with the production system, because these forms of training have been socially devalued or perceived as routes to failure, because they have undergone massive decline over recent years (CAP-BEP)⁸, because they lower standards (as in the case of 'Bac Pros')⁹, because they generate new aspirations to pursue more general university studies (BTS-DUT)¹⁰. Like it or not, and despite recent attempts to rehabilitate these forms of initial training via systems of apprenticeship or combined training and work, this situation is the result of a sort of 'social pact' at national level (Trouvé, 1996b).
- Then there is a current that more or less comprises the works produced by Céreq and its associated centres¹¹ or offshoots,

⁸ CAP: *Certificat d'Aptitude Professionnelle* [Certificate of Vocational Skills]; BEP: *Brevet d'Etudes Professionnelles* [Certificate of Vocational Studies].

⁹ Bac Pro: *Baccalauréat Professionnel* [General Certificate of Vocational Education].

¹⁰ BTS: *Brevet de Technicien Supérieur* [Higher Technician's Certificate]; DUT: *Diplôme Universitaire de Technologie* [University Diploma in Technology].

¹¹ Céreq: *Centre d'Etudes et de Recherches sur les Qualifications* [Centre for Studies and Research on Skills and Qualifications]. 10 place de la Joliette, 13 474 Marseille, Cedex 02.

⁶ Dares: *Direction de l'Animation de la Recherche, des Etudes et des Statistiques* [Directorate for the Promotion of Research, Studies and Statistics].

⁷ The fourth conference, organised by the Universities of Nancy and Metz, was held in October 1998.

comprising an immense reservoir of research on the relationship between training and employment and on occupational integration and transitions, linking them to the functioning of labour markets and in some cases taking account of issues concerning the transformation of organisations and production activities, from a national, regional and, more recently, a comparative and international perspective.

Some leading works mark out the first group, comprising mainly works produced by Céreq but also others, the common feature being their failure to take account of SMEs. We shall mention a few here, without any wish to be exhaustive and omitting the even more prolific editorial output of journals¹², collections, numerous articles, conference proceedings and sundry communications: Géhin and Méhaut (1993), Vernières (coordinator) (1997), Friot and Rose (directors) (1996), Rose (1998), Vernières (1997) and, particularly, Aventur and Möbus (1999), but also Tanguy L. (director) (1986), Coutrot and Dubar (1992), Nicole-Drancourt and Roulleau-Berger (1995).

- Three other fields seem worthy of mention and of being described in greater detail. These are Government publications, both in the field of initial training (particularly apprenticeships) and in the field of continuing training (particularly the figures regularly produced on the basis of '24-83' tax declarations); the rare but illuminating research on mismatches between the legal provisions covering continuing training and the situation of SMEs (works of E. Verdier); and finally, a recent spate of qualitative studies and case studies covering both practices and perceptions concerning continuing vocational training in SMEs and VSEs, and the relationship between training and employment.

¹² Particularly Céreq's *Formation Emploi* [Employment Training] and Dares' *Travail et Emploi* [Work and Employment].

2.1.7 Statistical data: consistent evidence of unequal access to continuing vocational training (CVT) organised by enterprises

The field of CVT is highly specific. In France, it functions as a compensatory device, a second opportunity for those who have been unable to obtain not only the *educational qualifications* that exercise such a 'tyranny' (M. Godet) throughout working life, but also the *skills* that, on a social level, determine the kind of jobs each individual might expect to get¹³. However, looked at from another angle, CVT is also a source of information on the ways in which enterprises make use of labour. It is in this latter aspect that government data cast particular light on SMEs' investment in CVT.

Among others, two major, complementary sources can be drawn on here: on the one hand, the general data published by the *Ministère de l'Emploi et de la Solidarité* (Dares, but also the *Délégation à la Formation Professionnelle* [Delegation responsible for Vocational Training]) and, on the other, Céreq's annual report on *La FPC financée par les entreprises* [CVT funded by enterprises].

- The former, which covers major 'aggregates', provides reference data on structures, changes in expenditure and financial transfers with regard to continuing training, either by type of expenditure (training in the strict sense, pay for trainees and relief on social security contributions, sundry capital investment) or by target group (young people joining the job market for the first time, jobseekers and groups with difficulties, people already in employment). In 1997, government figures showed that, in France, 'expenditure by

¹³ We shall see later that the social and occupational functions of continuing training vary considerably from one country to another. For example, according to Vickerstaff (1992, p. 8), whereas it is typically seen as a response to the skills gap on the labour market in the UK, in other countries it seems to be vital to the effective use of labour (investment, prevention of wastage).

enterprises is equivalent to State expenditure (55 billion French francs)'. More than 80% of enterprises' expenditure is on *employee training* as part of a training plan or in the form of individual educational leave. The remaining 20% (10.4 billion French francs) goes on funding special employment and training contracts ('contrats de qualification', 'contrats d'adaptation' and 'contrats d'orientation'), and apprenticeships (Chanut and Baudequin-Gélaud, 1999). Special training for *young people under the age of 26* 'accounts for 22% of overall expenditure, with more than half of this being spent on apprenticeships and a quarter on employment and training contracts' (or 'government-aided employment'). Finally, expenditure on training *jobseekers* and groups with difficulties accounts for 20% of overall expenditure on vocational training. The most recent figures indicate that, in very recent years, it is young people who have been the main beneficiaries of the increase in expenditure.

- The report produced regularly by Céreq is much more specific (see, for example, Bentabet E., Marion I., Zygmunt Ch., 1999) and enables us to compare training practices in Small Enterprises (with 10-50 employees) with those in larger ones. Of course, however, the data cover only 'official' training (that is, government-recognised training) organised by enterprises and therefore provide information mostly on more structured forms of CVT. This is why they have long indicated SME 'deficits' in this area, with the exception of 'length of training periods' (see Part 5, Table 5.4), in terms of level of financial commitment and rates of access to training by workers (8.3% for men and 10.4% for women in enterprises with 10-19 employees, compared with 56% and 49% respectively in enterprises with 2 000 or more employees).

Certainly, the past few years have seen a slight increase in SMEs' contribution to CVT. However, 'the category of Small Enterprises (10-50 employees) is having difficulty in rising above the legal minimum' (Bentabet, Marion, Zygmunt, 1999, p. 13) and the gap

between this category and LEs remains constant. Finally, it is in sectors of activity in which SEs predominate that the indicators are weakest and training efforts least significant (BTP – building and public works, hotel and catering trade, agriculture, etc.). The official statistics thus regularly highlight inequalities of access to CVT, depending on size of enterprise.

2.1.8 The inappropriateness of legal provisions to SMEs

Verdier should be congratulated for having tackled this issue on numerous occasions and for linking it with consideration of the institutional conditions of CVT in France (Verdier, 1990a, b, c; 1991; 1999). He argues that the gaps in SMEs' contribution to CVT in France are largely due to the mismatch between the approaches supported by law and actual training practices in small establishments. His theory is nevertheless so central that we shall look at it again in more depth in Part 5 (Section 5.1).

2.1.9 The breakthrough of qualitative studies: SMEs between market and State

It would be unjust to end this rapid overview of training practices in SMEs in France without mentioning the new doors being opened by more qualitative analyses and case studies. Verdier blazed the trail with his works on the role of enterprise strategies in training practices in SMEs (1990b, 1991). Two more recent publications have followed in his footsteps: Bentabet et al. (1999) investigating the main factors determining training and personnel management practices in Very Small Enterprises in eight sectors of activity and proposing a model to reduce the extreme heterogeneity of the field, and Campinos-Dubernet (1999) following up a series of highly detailed reports on the relationship between training and employment in the metalworking and machinery industry, the plastics industry and the electrical and electronics sector.

Most of these works are amply commented upon in the rest of this report.

2.2 The UK: research on SMEs' contribution to employment and their place in the new model of vocational education and training (VET)

According to Atkinson and Storey (1994), most of the research during the 1980s on the relationships between small firms and employment in the UK focused on four main issues:

1. The first was to attempt to quantify job creation in small firms. Most of the research drew on the seminal work of David Birch in the USA (1979) on the relationship between the size of enterprises and their ability to create jobs. Numerous attempts were made to transfer Birch's methodology to the UK and other European countries and to verify whether similar results could be obtained.

It is reasonable to say that this research focused on the total number of jobs, on *the quantity of employment*. According to Atkinson and Storey, it was usually based on the inferences that could be drawn from some very extensive but far from complete databases. Hence the many criticisms levelled at it, particularly as regards methodology (appropriateness of sampling techniques, variability of results depending on the point in the economic cycle, etc.).

2. A second category of research focused more on the *quality of employment* in small firms. For example, some authors continued to look at the nature of *industrial relations* in SMEs, trade union activity, the specific availability of employee training, pay and other benefits, and the application of legislation on employment and working hours. We need to remember that, during this period (1980s), majority politics aimed to free (or 'protect', according to Atkinson and Storey) small firms from trade union pressure and legislation on worker protection. The idea behind this was that more jobs would be created and unemployment levels would drop. This is why much research in the UK examined the influence of public policies on the changes affecting the structure, conditions and content of jobs.

3. A third focus of research was the spectacular increase in *self-employment*. In June 1979, there were 1.9 million people in the UK (7.5% of the working population) who could be deemed to be self-employed; by June 1990, this figure had already risen to 3.3 million, or 12.2% of the working population (Campbell and Daly, 1991).

4. In the late 1980s and early 1990s, research on employment in small firms began to be superseded. More and more researchers were examining the *interactions between small firms and local labour markets*. They looked at how small enterprises procured their workforce, how they were developing their management capacities, how they coped with the constraints of the labour market and, finally, how all of that might influence an enterprise's performance.

These are the four points we shall be examining mostly here, keeping as close as we can to Atkinson and Storey (1994).

2.2.1 The significance of small firms in creating new jobs

Most British research can be seen as an extension of Birch's work in the USA (1979) and the subsequent debate. We know that Birch always claimed that, during the 1970s, two thirds of the increase in job numbers in the USA could be attributed to small firms with fewer than 20 employees.

On the basis of the unprecedented boom in enterprise creation during the period 1986-1989, research in the UK also tried to demonstrate that small firms were a major source of job creation. For example, Gallagher and Steward (1986), Doyle and Gallagher (1987) and even Daly et al. (1991) claimed that very small enterprises (with fewer than ten employees) had created 500 000 jobs between 1987 and 1989. They added that this represented about half of net job growth over this period, even though enterprises of this size employed less than a fifth of the total labour force. Of course, they did not break this down by sector and their findings reflect a major concentration of small firms in the service

sector. They also noted that, in the case of employment in the manufacturing sector, small firms' contribution was probably less significant.

The first criticisms of Birch came from Armington and Odle (1982), who, using the same body of data, were unable to reproduce their predecessor's results. Their work was followed by many others, the best known being those of Storey and Johnson (1986), arguing that the overestimation of employment in SMEs had been caused by the poor quality of databases.

Johnson demonstrated on several occasions (1989, 1991) that the rise in the relative significance of SMEs in employment terms in the UK since the early 1970s was due more to the contraction of employment in large firms than to its growth in small ones: 'the increase in importance of small establishments may therefore reflect the decline in large firms, rather than the growth of small firms' (Atkinson and Storey, 1994, p. 6). Later, Brown et al. (1990) advanced the idea – taken up on numerous occasions since – that account had to be taken not only of gross job creation but also of new small enterprises going out of business and that the emphasis needed to be placed on whether or not the employment being created by small enterprises was durable.

Using some very different yet complementary lines of argument, all these authors agree that there is some doubt about the real contribution SMEs make to job creation. For most of them, SMEs' performance in terms of employment creation is dependent upon a small number of enterprises that experience rapid growth: these are Storey and Johnson's (1986) 'fast growers' or 'high-flying firms', which, although in the minority, have a considerable impact on results. This conclusion is now so widely accepted that, having been the champions of an overly generalising approach, Gallagher and Miller (1991) have been won round. In a comparative study of Scotland and South-East England, they were, for example, able to establish that the enterprises they described as 'flyers' represented 18% of their sample but accounted for 92% of jobs created.

In their turn, Storey, Keasey et al. (1987) estimated that, for every 100 enterprises created in the early 1980s, by the end of the decade a quarter of them accounted for 50% of jobs created.

2.2.2 The controversial effects of government policies on employment growth in SMEs

These results are used by some researchers to feed the debate on policies concerning SMEs. Commenting on the Thatcherite policies of the 1980s, which gave indiscriminate support to small firms (reducing social security contributions, administrative constraints or trade union pressure in order to create an 'enterprise culture'), they show that these policies produced a very unequal development of employment among small enterprises. Some benefited, others did not. Furthermore, as Karlsson et al. (1993, pp. 7-8) incontestably argue: although the 'enterprise culture' supported by Mrs Thatcher in the UK 'was accompanied by a substantial increase in the total number of registrations of new enterprises (of the order of 30% between 1980 and 1990), similar growth also occurred in countries that did not follow the same vigorous policy (of removing State interference) [...] which would imply that policy incitements are not the only cause of the phenomenon [...] or that contradictory policies can lead to the same result'.

2.2.3 Research on the quality of employment in small firms

As we shall see later (Part 4), British researchers took an earlier and greater interest than their European colleagues in job quality and working conditions in SMEs. Like Brown et al. in the USA (1990), and using a number of objective indicators, they mostly focused on questioning the idyllic picture once depicted by the Bolton Committee ('in many respects the small firm provides a better environment for the employee than is possible in most large firms', 1971). Scott, Roberts and Holroyd (1989) argue, for example, that workers in small firms have terms and conditions of employment that are generally less favourable than those of workers in large enter-

prises, and it is now accepted that, although their level of job satisfaction might be higher, they have lower pay and earnings, less job security, less extensive trade union protection, more difficulty in accessing training and longer working hours.

Drawing on a longitudinal study of a sample of small and medium-sized enterprises, North, Smallbone and Leigh (1994) develop another argument: contrary to what might be expected, the SMEs included in their large sample did not make more use of a non-core workforce (part-timers, temporary contracts or homeworking) during the 1980s. In all these aspects, the typical practices of the sector were maintained. Here, too, the authors claim that changes in the structure and quality of employment in SMEs were concentrated in a small number of enterprises.

Let us leave aside the research on the spectacular success of self-employment, which was particularly prominent in the UK. We shall be covering this in Part 4 (see Section 4.5). For the moment, we shall focus on two other strong areas of British research: a study of the interactions between SMEs and the labour market and the even more original work on the relationship between small firms' strategic behaviour on the products market and their employment practices.

2.2.4 Interactions between the labour market and small firms

It is only very recently that British research has begun to take an interest in the complex relations between small firms and the labour market. In doing so, it has tried to solve three types of problem: Firstly, what specific contribution do SMEs make to the functioning of the labour market? Secondly and conversely, how does the labour market respond to SMEs' needs? And thirdly, what role do local labour markets play in SMEs' employment management?

□ The first two questions have been addressed, in particular, by Atkinson and Meager (1994). In general terms, these authors note that small firms' relationship with the external labour market is more discon-

tinuous, more irregular, less predictable and less open to systemisation than large enterprises' relationship with it.

The main results they obtain cast doubt on the received notion whereby SMEs usually have difficulty in recruiting workers. In fact, according to these authors, not all SMEs experience this problem, which depends upon the sector (whether or not a specialist labour market is involved), the skills required and, most importantly, the size of the enterprise. It is in fact when they are growing that small firms have recruitment problems. Their relations with the labour market become more frequent and more difficult. They have to enter into competition and organise their internal market. Also, the more recruitment problems a firm has had, the more it will tend to use formal methods of selecting new employees ('the more a business has experienced recruitment difficulties, the less likely it is to stick with word of mouth and other informal methods, and the more likely to supplement them, or indeed replace them, with more formal ones' (p. 72)). Conversely, it is easier for VSEs (enterprises with fewer than ten employees) to draw on available labour within the extended family or neighbourhood, without using overly sophisticated methods of communication and selection. This is why they complain less than enterprises with more than ten employees about the shortage of formal skills and qualifications, with the exception, of course, of VSEs in the intellectual services sector or areas requiring state-of-the-art technical skills.

Another finding: difficulties in finding what they need on the labour market are probably more common in fast-growing small firms than in typical small firms, and also more common in firms run by managers than in those run by owner-managers, who are strongly attached to their autonomy and power of control. The latter are still in the majority (65% owner-managers in Atkinson and Meager's surveys).

□ Furthermore, British research emphasises the importance of local labour markets, distinguishing, in particular, the urban, semi-urban and rural environments (North,

Smallbone and Leigh, 1994). However, the approach, like that of Scandinavian researchers, seems to be more 'regional' than 'local' (Johannison, 1993; Davidsson, Lindmark et al., 1993) and, in this respect, differs considerably from the analyses conducted in countries such as France and Italy.

2.2.5 Competitive strategies and employment practices

Finally, we cannot complete this rapid sketch of British research on SMEs without mentioning the particular importance of the work conducted within the 'small business' sector itself. Drawing on longitudinal empirical surveys, which sometimes combine quantitative and qualitative methods, this concerns, in particular, the relations between small firms' market strategies and their employment practices (Reid et al., 1993; Reid, 1993). Indeed, we should not forget that analysis of the structure and dynamics of an industry is a vital part of any analysis of enterprises' strategic practices. Similarly, we need to remember that there are differences in economic viability within a given sector (measured by performance gaps in relation to the sectoral average), which are often greater than intersectoral differences. One might also hypothesise that differences in the employment practices of SMEs in the same sector can largely be explained by the differing strategic choices made by competitors (see Part 4).

We shall discuss research on the subject of vocational training in SMEs later.

2.2.6 Reforms of the education and vocational training system¹⁴

As regards education and vocational training, no European country has experienced as great an upheaval as the UK over recent years. Over the past 20 years, a whole series of reforms have come one after the other,

sometimes in such rapid succession that some critics have seen it as a symptom of a very short-term policy and a lack of institutionalisation¹⁵. This is not the place to describe the various phases and the numerous programmes that have marked the period. They are, in any event, regularly described, defined and discussed in textbooks on the subject (Creagh, 1999), because changes in the British VET system have in many ways served, if not as a model to follow, at least as an indispensable reference for all the EU Member States.

'The levy arrangements of the 1964 Act were unpopular with small firms and their opposition to the measure, voiced to a large extent through the Bolton Committee of Inquiry into Small Firms in 1971, helped to modify the arrangements to the levy exemption system. The Industrial Training Boards were also felt by some to be organised by the big firms for the big firms; they were criticised as fostering expensive off-the-job training and not appreciating the merits of more informal on-the-job methods characteristic of smaller firms' (Vickerstaff, 1992, p. 9).

Instead, we shall be looking at research that has emphasised SMEs' role in the reforms, raising two complementary questions: what are the merits of the new programmes that have been adopted as regards SMEs? How have they been analysed and evaluated by researchers? The first question could be divided into two and would strictly speaking have two points of entry, depending on 'whether SMEs are [considered as] 'customers' or 'providers' in the training market place' (Hyland and Matlay, 1997, p. 131). In other words, we have two subquestions: *firstly*, how have the TECs [Training Enterprise Councils] and LECs [Local Enterprise Companies] (see Box 2.2) met SMEs' train-

¹⁴ This part of the report owes much to M. Creagh, Lecturer HRM/Enterprise Groups, of the Cranfield School of Management, who selected the literature and drafted a summary (Creagh, 1999).

¹⁵ 'Rapid and frequent policy change has itself been a policy, consistent with the emerging British Model of placing maximum emphasis on short-term appraisal of an institution's performance. With this has come a concomitant downgrading of the role of experience and of stable institutions which were likely to be seen as sources of rigidity and resistance to rapid change' (Crouch et al., 1999, p. 129).

Box 2.1: Industrial Training Boards and the SMEs

'*Industrial Training Boards* were national statutory organisations for training based on industries or commercial sectors. They were established under the 1964 Industrial Training Act and could levy firms in their sector and then use these funds to pay for training' (Vickerstaff, 1998).

Box 2.2: Development and delivery of Modern Apprenticeships [MAS]

'In the last thirty years various remedies for Britain's training problems have been tried. These vary from the Training Levy of the 1964 Act and the *Industrial Training Boards*, through Manpower Services Commission/ Training Agency sponsored schemes such as TOPs, YOP, YTS, YT, etc., to the current development of the Training and Enterprise Councils [TECs] (in England and Wales) and of the Local Enterprise Company [LECs] (in Scotland). TECs are to operate as local networks for gathering information on labour market needs, managing government training schemes and providing training and enterprise advice and support' (Vickerstaff, 1992, p. 1).

'As part of government's policy to recreate a market-led training system, the *TECs and LECs* were established during 1990-1991' (Parker and Vickerstaff, 1996, p. 251).

'*The T/LECs* were conceived as locally-based employer-led organisations [...]. They are organised as limited guarantee companies; the majority of their board members are business leaders and they are responsible for a sizeable range of government unemployment, training and enterprise schemes. [...] They are geographical rather than industry or sector-based' (Vickerstaff and Parker, 1995, p. 58).

'The *Youth Opportunities Scheme* [YOPS] was launched in 1978. This evolved into the *Youth Training Scheme* [YTS], which was launched in 1983 and was the heart of the government's training programme. It was a scheme for 16 and 17 year olds. It began as a one-year scheme but in 1985 it became a two-year scheme. In 1990 it became *Youth Training* [YT]' (Creagh, 1999, p. 4).

'*National Vocational Qualifications* [NVQs] are qualifications based on work experience whose purpose is to accredit skills deriving essentially from experience in the workplace. They are designed to be very flexible, without any compulsory programme or method of study. There is no fixed rule on length or place of training. These qualifications are subdivided into five levels, from basic level 1 to advanced level 5.'

Source: European Commission, Eurostat, Cedefop, 1997.

ing needs (this is the most common option, chosen, for example, by Vickerstaff and Parker, 1995; Parker and Vickerstaff, 1996; and, more recently, Vickerstaff again, 1998)? *Secondly*, what are SMEs' specific training needs and what role might they play in VET policies and strategies (this is the approach taken by Vickerstaff, 1992; Matlay, 1997; and Hyland and Matlay, 1997)? On closer inspection, these two methods of approach are not interchangeable for, whereas the first concentrates mainly on the appropriateness of

public policies and their development, placing the emphasis on integrating young people and combating unemployment, the second gives preference to enterprise logics and SMEs' specific way of investing in human capital.

Originally, SMEs were certainly not a central focus of the policies defined by decision-makers. In general, it is undoubtedly easier to argue the structural lack of qualifications among the labour force, particularly interme-

diate qualifications¹⁶, which is seen as the UK's main handicap in terms of economic competitiveness, together with the political will exhibited by the Conservative Government to do away with corporatist conceptions and trade union influence on bodies such as the Industrial Training Boards [ITBs], which was considered to be excessive. In the 1960s and 1970s, the ITBs were based on a tripartite approach ('government, employers and trade unions') and certainly, before being dismantled in the 1980s, they had some power of control over labour markets via apprenticeships, coordinating the training needs of the production apparatus (see Box 2.1).

Many of the programmes that have emerged since the late 1980s, however, particularly via the TECs and LECs, have placed the emphasis more explicitly on meeting SMEs' needs and dealing with the issues of local economic development¹⁷. In any event, it is these two aspects combined that are highlighted by Parker and Vickerstaff (1996), both by quoting a self-congratulatory official document: 'Employer involvement in education and training is being secured through TECs. We have now, for the first time, given leadership of training to top business people and other key local people and the power and resources to apply local solutions to local needs' (DES/DE/WO, 1991, paragraph 2.14), and by stating that 'TECs and LECs are relatively new mechanisms for trying to forge a policy alliance on training and enterprise issues in the micropolitical context of local business communities. The 'local' employer-led basis of TEC or LEC organisations has been seen by many as their major benefit over industry-based organisations such as the Industrial Training Boards [ITBs] in the 1960s and 1970s (the Industry Training Organisations [ITOs] as they have become)' (1996, p. 252).

¹⁶ In 1988, for example, only 33% of British workers had a recognised qualification, as against 66% in Germany and a little over 50% in France (OECD, 1989).

¹⁷ Meanwhile, during the 1980s, 'it has been acknowledged that small firms have a vital role to play in the wider attempt to regenerate the UK economy' (Parker and Vickerstaff, 1996, p. 252).

This is why, although most researchers acknowledge that it is too early to assess the long-term impact of the new structure of VET, a feature of their most recent work is to endeavour to forge an explicit link between vocational training and the SME issue.

So, what conclusions can we draw from the wealth of literature? For purposes of clarity, we must distinguish between research on *the integration of young people*¹⁸ and research on *SMEs*. They do not necessarily represent two periods, since the various types of reforms very often overlap, but they are at the least, two different approaches, two registers of application, or rather, two lines of interpretation. The former focus more on the *processes of occupational integration*, while the latter are oriented more towards *SMEs' needs* or the need to make the new system more likely 'to reach the SME sector' (Parker and Vickerstaff, 1996, p. 255).

2.2.7 Occupational integration and SMEs

According to Lefresne (1999, p. 198), the first group of measures, comprising the YTS programme that later became YT, should clearly be interpreted as an application of 'the policies to increase the flexibility of the labour market' that were conducted during the 1980s. It is marked by 'massive, unprecedented State intervention in the field of vocational training'. In her thesis, offering a European comparison of occupational integration systems and public employment policies, she concludes, in particular, with regard to the UK:

- that the various programmes concerning the integration of young people have achieved 'varying levels of performance': in 1996, only half of the participants completed a training scheme, whilst a third obtained a vocational qualification (*Labour Market Trends*, December 1997). According to Lefresne, there are three reasons for these mediocre results: the lack of legiti-

¹⁸ ... Leaving aside programmes concerning adult jobseekers.

macy of the system, which is based on the will of the Government but in which the other players (particularly trade union organisations) are little involved or excluded; the counterproductive effects of Workfare¹⁹, which pushes young people into registering for training schemes without having thought through their plan for the future; and the perverse effects of the method of managing programmes run by the TECs, which favours short-term results ('Output-related funding')²⁰;

- young people's general disillusionment with apprenticeships: whereas the old YTS still had 400 000 participants in 1989 and saw its apogee in 1986-1987, with 60% of young people aged 16-17 finding a place on the labour market, YT had no more than 276 000 participants in January 1992 and 230 000 in January 1997.

As regards the issue of SMEs, Vickerstaff adds with irony that 'YTS has been attractive to small firms but not always for training reasons' (1992, p. 9) and, a few years later, that 'the legacy of Youth Training [YT] has for many had the combined effect of undermining the image of 'training' for young people and of 'scheme' for employers' (Vickerstaff, 1998, p. 218). And many other authors attribute the main gaps in the programme to policy failings (Hodkinson et al., 1995, 1996; Hyland, 1994, 1996).

- It was mainly in the late 1980s and early 1990s that the subject of SMEs appeared

¹⁹ That is, a mechanism whereby the granting of unemployment benefits is dependent upon participation – at whatever cost – in employment-policy programmes.

²⁰ 'The criteria of efficiency used are constructed on the basis of the number of candidates undergoing training, the number of NVQs awarded for every hundred trainees completing their course and the cost of training. This means that no account is taken of the nature of the training provided, or its level, or the type of training body involved.' This means that training tends to be of a low level, accentuating the segmentation of the labour market, and with marked differences from one TEC to another.

more explicitly in the new structure of training – or at least, that is what the literature suggests – particularly via the TECs and LECs, real 'institutional pillars of reform' (Lefresne, 1999, p. 207) and points of convergence between employment and vocational-training policies. The same period saw a new phase of regulation, marked by a wish for decentralisation, devolving powers and responsibilities to local level as a way of combating 'a tendency for small business owners to be generally sceptical of the benefits of government involvement in industry' (Vickerstaff, 1992, p. 1). Hence, 'the government wants employers to take the lead in improving the quantity and quality of training and seeks to devolve responsibility for the delivery of government-funded training schemes and enterprise initiatives, as far as possible, to local areas' (idem).

At the same time, a whole series of Government reports emphasise the central role of SMEs in economic competitiveness (DTI, 1994 and, in particular, 1996). This is all the more significant in that, in the UK as in many other countries, recent interest in SMEs has focused mainly on their economic role and much less on their methods of human resources management or their training practices (Pettigrew et al., 1990; Hendry et al., 1991, p. 2).

2.2.8 The limitations of a market-based approach

In their empirical studies and critical analyses, which essential elements do researchers point out as regards the TECs and LECs?

- It was Vickerstaff (1992) who first noted, on the basis of some research conducted in Kent, that, despite the TECs, the vast majority of SMEs were still not aware of the programmes available to them. Also, they still thought of training solely in terms of external class-based tuition and not as a much broader activity. Finally, the author raises a formidable question about the use of skills in SMEs: 'whether many of the skills shortages reported by employers [in the SMEs] are amenable to training solu-

Box 2.3: ITOs and TECs: a disappointment for the smallest enterprises?

Of the many providers of training for SMEs, the ITOs and TECs have played a particular role over the past few years. The ITOs are agencies based on a sectoral approach. They are the successors of the Industrial Training Boards. Like the TECs, they subcontract training provision to a very large number of providers in the private and public sectors, which might be prejudicial to any real awareness of SMEs' training needs. According to a survey conducted by Curran et al. (1996), only a quarter of SMEs had made use of the ITOs' and TECs' training services and the amount of contact was clearly correlated to size of enterprise, with the smallest being least likely to use these services. The reasons the authors give for this discrepancy, together with SEs' distrust of external training, are cost and their inability to define their training needs or decide upon training strategies. As regards ITOs' and TECs' programmes, the authors point out that they have inadequate resources to reach a large number of enterprises and overcome the resistances of SME managers.

tions or whether in fact the problems lie elsewhere, namely in inflated or discriminatory selection criteria' (p. 8).

Vickerstaff and Parker (1995), looking at the 104 TECs and LECs then in existence, offered an initial assessment of their ability to meet the specific needs of SMEs. They found five major obstacles 'which could affect success in 'reaching SMEs'', which is the main challenge for 40% of them: managers' traditional scepticism about government initiatives; the lack of human and financial resources; the varied needs of small firms; the isolation of SMEs (not belonging to business networks); and a system of aid for enterprises that is too fragmented and not very transparent.

- The same authors return to the subject a year later (Parker and Vickerstaff, 1996), listing and scientifically discussing one by one all the criticisms levelled against TECs and LECs during their first five years of existence (1990-1995): 'unelected and unaccountable' local bodies, overly dependent upon the government, without any leadership on the part of employers, "dumping ground' for the government's unemployment policies', inefficient because they are too small or, on the contrary, too large and therefore too distant from the local communities they are supposed to serve, etc. It is organisational mechanisms, management methods and

TECs' 'closeness to the customer' – that is, SMEs – that are particularly questioned.

These two authors, together with others (CLES, 1992; Vaughan, 1993; Abbott, 1994), note that small enterprises are virtually always under-represented²¹ on the Administrative Boards of TECs and that industry tends to prevail over services. Among the factors favouring TECs' adjustment to SMEs' needs, they paradoxically note the significance of the networks they have been able to establish with ITOs [Industrial Training Organisations], which are sectoral structures that were reformed after the disappearance of the old ITBs [Industrial Training Boards], but also the extreme diversity of the historical and territorial conditions influencing their operation.

So, there are no end of diagnoses, all of which are also possible avenues of research for those interested in SMEs – right through to works on the difficulty of adjusting NVQs to small firms' needs (see Box 2.2). In our opinion, they are very important even if, at the moment, most of them end in failure (IES, 1995; Robinson, 1996). Some authors concentrate

²¹ Vickerstaff (1992) notes that 'two-thirds of the Board must be private sector employers who are chairmen (sic!), chief executives or the top operational managers at local level of major companies' (Training Commission, 1989, p. 6).

on how their distribution in the SME world might be improved (Hyland and Matlay, 1997). Others condemn the rigidity of the system: 'the main problems are the high cost of training, the inflexibility of the NCVQ framework, and a mismatch between industrial training needs and officially endorsed VET policy' (Hodkinson et al., 1996). Finally, for Hales et al. (1996, p. 2), there is more chance of NVQs being adopted if enterprises already have a 'training culture' and he feels that NVQs' place in the reform should be reconsidered.

Despite the considerable national effort already invested in it, we can see, from systematic analysis, that the reform of the education and vocational training system in the UK still has a long way to go. In any event, it has still not managed to induce SMEs to commit themselves, clearly and definitively, to the path of training (see Box 2.3), and many researchers are close to feeling that a return to the 'levy system' or occupational regulations might ease the dysfunction of an approach that is totally market-oriented. But, of course, SMEs are not always victims: 'Is training on the small business owner/manager's agenda?' wonders Matlay (1997).

2.3 Italy²²: the basic model of the district and vocational training as 'productive socialisation'

Without wishing to ignore the macrostatistical data, produced mainly by ISTAT²³, research on the specific issue of small enterprises in southern Italy (De Vivo, 1997) or systematic comparisons between large and small enterprises (Contino and Revelli, 1992), which are far less abundant in Italy than they are elsewhere, we have chosen to focus mainly on SMEs organised at district level, not only because their stylised nature

(though still open to many interpretations) meets our purpose, but mostly because of the unique nature of their contribution to scientific analysis of SMEs, the labour market and training.

About thirty years ago (in the 1970s), a model of economic development that formed the basis for all later research on SMEs in Italy emerged in a number of Italian regions (Tuscany, Emilia Romagna and the Marches in central Italy; the Veneto in the north-east, etc.). During a period when the Fordist model reigned supreme in large industries, we find some effective forms of production organisation that owe nothing to this dominant model, nor to that of the traditional small enterprise, often perceived as a hangover from the past, nor even to the subcontracting model, whereby SMEs are constantly subjugated to large enterprises.

2.3.1 The SME theory is indissociable from the model of the district

The main figure of this alternative model is illustrated by the spread and concentration of a very dense fabric of SMEs in and around medium-sized towns away from major industrial centres, specialising in particular fields (textiles, ceramics, engineering, leather and footwear, etc.) and forming real production systems whose performance astonishes every commentator. This generic figure is defined variously in the literature, depending on the author, as the archetype of 'extensive industrialisation' or 'peripheral industrialisation', 'local production systems' or 'area systems' or 'SME systems' (Garofoli, 1983a, b), but it is the concept of 'industrial districts' that has been most widely adopted and has served as a common 'clue' and point of reference for most of the research conducted in Italy.

It was during the late 1970s and early 1980s that a series of authors from various disciplines, who might be seen as the founding fathers, established the main elements of the theoretical model. These included the economists Becattini (1975, 1978, 1979, 1987), Brusco (1982, 1986), Fuà (1983) and Garofoli (1981, 1983a, b), and the sociologists Bagnasco (1977, 1985, 1988), Trigilia (1986) and Paci

²² This section owes much to the expertise of B. Courault of the Centre d'Etudes de l'Emploi and his 'selective, analytical bibliography' on *employment and vocational training in SMEs in Italy*, CEE, July 1999, 58 pp.

²³ *Istituto Nazionale di Statistica* [National Statistics Institute], via Cesare Balbo 16, Rome.

(1979, 1980). An initial ILO publication, coordinated by Pyke et al. (1990), later tried to give an account of this first wave of research.

2.3.2 The social structuring of markets as the basis of the model and its reproduction

To a greater or lesser degree, all these trail-blazing researchers were inspired by the thinking of A. Marshall, particularly his theory of 'single markets' (1919), and believed that economic functioning and success do not simply obey the laws of competition but are also largely explained by forms of cooperation and solidarity set up at territorial level by SME managers. These substitute 'area effects' for traditional economies of scale. This means it is precisely these social and political conditions, which rest upon a whole collection of unwritten, shared standards, values and rules, which have to be identified to explain the functioning and overall performance of industrial districts.

We shall pass over the twin origin and reasons for the expansion of industrial districts, which undoubtedly lie, on the one hand, in some very ancient roots, going back to the first industry, that explain why the particular industrial economy of the district developed mainly in regions with a strong commercial, urban and craft industry tradition – itself strongly interlinked with family structures of agricultural origin – and, on the other hand, in the 'production decentralisation' movement led by Italian employers since the 1970s to counter the many crises facing the Taylorist organisation of labour. Since this latter period, which has served to accelerate the process, industrialists have been externalising an increasing proportion of their output, drawing on specialists and technicians in their own workshops, whom they have been encouraging to set up on their own account²⁴.

The former course of action makes it possible to account both for the social conditions of the collective mobilisation of players and skills, via the 'qualities of craft industry entrepreneurs', and for the extreme flexibility of the labour force in industrial districts. The latter, which might be seen as an economic re-deployment operation, similarly liberates the entrepreneurial abilities of former skilled employees, who depend upon the local community in sharing out the various phases of production. What emerges is an interpretation of the industrial district as comprising two levels 'in osmosis' (Becattini): firstly, it is an economic network formed by relations among enterprises belonging to the same industry but specialising in complementary phases of production. At the same time, and perhaps more importantly, it is a social network of workers who are capable of shifting their position on the labour market very quickly and frequently, of setting themselves up in business and employing other workers, in short, of becoming heads of enterprises and, from one day to the next, becoming employees again and blending into the collective context of the market of skills that small enterprises draw on or reject, according to a constant flow within the region (Solinas, 1982).

This latter form is essential to an understanding of the SME system, since it shows that, in Italy, the economic regulation of localised systems is inseparable from the functioning of the labour and employment market, just as it is inseparable from forms of local social and political structuring (as pointed out on many occasions by Trigilia, 1986, 1988). Hence, although they might exist, issues concerning vocational training in SMEs tend not to be apparent, since, in the context of industrial districts, the occupational mobility (between enterprises or between different statuses) and job flows that are a part of the

²⁴ This historic shift did not herald the death of large industry, as Piore and Sabel (1984) had a little too naively predicted. Indeed, whilst maintaining its economic importance, 'it is not as powerful as it was in structuring society and determines the lives and futures of a smaller number of people' (Benko et al., 1998). At the same time,

however, it needs a stable organisational base, which seems to be offered by the districts. 'Have it done' became the password of large enterprises and replaced the old rule that said it was more economical for the phases and intermediate operations involved in manufacturing an end product to be conducted in-house' (Courault, 1999).

enterprise dynamic serve as a means of providing training and capitalising upon the skills of the labour force at local level (Solinas, 1982, 1996). In this respect, although the industrial district is a specific model of SME development²⁵, it is also a kind of total production combination whose coherence can be understood only if, in the same analysis, we combine elements that would normally be separate in other countries, such as SMEs, the regions, widespread industrialisation, local development, employment and training.

2.3.3 The 'three waves' of research on SMEs

Having established this theoretical base, we can, with Courault (1999), distinguish three waves of research that have dominated the Italian literature on SMEs over the past few decades:

- initially, the period of theoretical development that we have just described: this began in the late 1970s and continued throughout the 1980s (see, in particular, the works of Brusco and Bagnasco);
- then the 1980s saw the parallel emergence of a sort of second generation of researchers who produced a multitude of local case studies and served to test out the consistency of the general model. Thus, we have the works of the 'Florentine school', following in the footsteps of Becattini (Garofoli, Sforzi, Dei Ottati, Bellandi, etc.), the 'Modena school', following in Brusco's footsteps (Russo, Solinas), and the 'Turin school', comprising Bagnasco, Trigilia and all the rest (Fuà, Capecchi, Paci, etc.), not forgetting their many successors, or Piore and Sabel's work (1984), which brought the model of 'flexible specialisation' onto the international level;
- finally, since the early 1990s, we have been seeing the development of new works that are reinterpretations, rereadings and

reassessments, either of the potential developments of the canonic model of the district in the face of today's major macro-economic transformations – and particularly the processes of globalisation and deindustrialisation – or in the light of the district's internal capacity for regulation.

Three likely ways forward are usually mentioned: permanence of the model, despite changing forms (Varaldo and Ferrucci, 1997); the decline or even disappearance of an exceptional model that has now become obsolete (Bologna and Fumagalli, 1997); and, somewhere between the two, gradual integration of the model in an economy comprising networks that spread beyond the local area. The latter option is taken up, in particular, by Rullani and Romano (1998), who pose the question of the internationalisation of districts, applying the post-Fordist theory not only to large enterprises (like P. Veltz in France) but also to SMEs. In plain language, these authors believe the districts will open their doors to the outside world and that this process will be marked by, for example, the delocalisation of production, investment in distribution outside the region, and even, in some cases, takeovers by multinationals of all or some of a district's enterprises. These changes would, in turn, imply new forms of regulation in the internal functioning of districts, which it will be important to study (particularly hierarchisation, the emergence of leading firms, etc.).

On this question of current alternatives to the district, one concept seems to be more or less generally accepted: both the permanence and the transformation of the original paradigm of the district. Whereas most of the original elements will remain, they will be subject to constant reorganisation. For some authors, however, it is social values that are shifting the least in the reorganisation of the districts. Indeed, these values are linked to a set of 'basic institutions' that are capable of 'enduring a whole range of historical circumstances: the family, religious or political communities, school, informal groups' (G. Becattini, in Belfanti and Maccabelli, 1997).

At the same time, a number of research works are looking at individual issues in depth: those

²⁵ B. Courault (1999) notes that Italians speak interchangeably of the 'district model' or 'district-organised' SMEs.

of Bologna and Fumagalli (1997), for example, on the unique position of craft industry in entrepreneurial dynamics and the conditions for reproducing the model; or Paci (1999), taking another look at the sources of 'interpersonal trust' in localised SME systems; and not forgetting Capecchi's original contributions on training (1995), a domain that is still the poor relative in research on SMEs in Italy, outside the schema of the 'production socialisation' essentially linked to the processes of mobility, as we mentioned earlier. Demonstrating the effects of vocational training on the entrepreneurial dynamic and local development, this author in particular demystifies the notion of a chronic mismatching of vocational training with SMEs' needs²⁶. Moreover, he emphasises the return effects of flexible specialisation on business apprenticeship.

At the end of this overview of the literature, we can conclude that Italian researchers' interest in SMEs has never waned since the late 1970s. Whatever their discipline (industrial or labour economics, history, sociology, etc.), it is continuity that predominates, based on an especially robust theoretical model that has been persistently reinterpreted or reanalysed, particularly in the light of a plethora of regional or local commentaries. Here, we are touching on the specific and unique nature of the Italian model of the SME.

2.3.4 Think industrial development before training policies

Yet, it would be wrong to believe that it has always been so. Capecchi (1995), whose aim was to rewrite the history of Italian sociology in the light of the process of industrial development and training, notes that she was initially influenced institutionally by the Ameri-

can research of the 1960s, which argued that there could be no industrialisation process without concentration and large enterprises. Whilst the model of the large enterprise and mass industrialisation predominated, a little as it did in the more resolutely Fordist France, the issue of vocational training remained secondary: '[indeed] from the viewpoint of the large enterprise, how is the relationship between industrial development and training policies interpreted? The answer is very simple: a sufficient condition for industrial development is the existence of a small number of specialists (highly specialised technical personnel and engineers) capable of coordinating the huge amount of work entrusted to workers solely responsible for performing tasks of execution' (Capecchi, 1995, p. 358).

In other ways, however, the approach adopted by the industrial districts has also long made it impossible to think of vocational training as a specific, priority issue or as an independent subject of research. Why? The answer is tackled in a number of works, such as those of Calza Bini (1995).

2.3.5 'Training' or the 'socialisation of knowledge'?

In integrating the education/employment relationship in research on and analyses of the labour market in Italy, Calza Bini acknowledges the thematic significance of territorial diversity and production decentralisation in research into the economics and sociology of work in Italy. However, he notes that 'the education/employment relationship is apparently not taken into consideration in the various models of development of the 'Three Italies' and is particularly underestimated in a number of analyses of the success of the 'Third Italy' and the failure of the Mezzogiorno' (1995, p. 379). In other words – and this comment could also be applied to French research on 'localised industrial systems' or 'SME systems' – whilst 'resources in terms of human capital' are seen as the basis for the social construction of the models, analysis in terms of jobs and training has long been neglected, with the emphasis being placed on analysis of production organisation and enterprise models (particularly of the small enterprise).

²⁶ On the basis of a study he conducted of Emilia Romagna in 1983, the author notes that 'the regions that have experienced very high levels of industrial development, which have been all the more astonishing in that they were unexpected, have succeeded in absorbing everyone leaving school with a certificate of secondary education, and also of proving that graduates can move out of paid employment and set up their own businesses' (1995, p. 360).

In the ideal/typical case of the industrial districts, we can see that the education/employment relationship in Italy has been neither a social issue nor a subject of specific research. Because the model implies evidence of socialisation and the acquisition of skills, both at work and in day-to-day relationships: 'in this situation, education for work takes place much more via the social environment of the community or the family environment, where the culture of experience and memory of know-how are shared, than via educational structures' (Calza Bini, 1995, p. 380). It is the deep sense of *professionalism à l'italienne*, that is, a form of employability that rests less on the institutional validation of skills (as in Germany or France) than on social recognition of the experiences accumulated by individuals, workers and small employers²⁷.

2.3.6 Regional differences in unemployment levels and the new challenge of the integration of young people

It is, of course, rising unemployment, particularly among young people²⁸, and growing awareness of regional disparities that are, somewhat belatedly, going to place the issue of the training/employment relationship at the centre of social concerns and scientific research. These are a result both of the crisis in the model of major Fordist concentrations in northern Italy and the opening up of regional economies (and particularly district economies). Going beyond a strictly quantitative reading of the problems on the labour market, a whole series of empirical works attempt to analyse not only the socio-territorial and family factors in the phenomenon of underemployment, but also the effects in terms of 'de-socialisation', leading to 'de-skilling' and the disappearance of traditional methods of apprenticeship (Pugliese and Altieri, 1990; Mingione, 1992; Calza Bini, Mingione and Pugliese, 1993; Pugliese, 1993).

²⁷ Most of the research stresses this weakness of institutional standards in the Italian model of vocational training (Campinos-Dubernet and Grando, 1988; Lefresne, 1999, pp. 239-256).

²⁸ In 1995, 74% of unemployed people in Italy were under the age of 30.

They distinguish, for example, the young people of the Mezzogiorno who have no access to employment, unless they can make use of networks of social relations or because of the lack of industrial production structures, from the overqualified young people in urban centres and northern Italy, whose new expectations are out of line with the supply of work.

So, a whole range of social mechanisms are coming into question, with the relationship between training and forms of occupational socialisation playing a central role. Hence, running parallel to these new advances in research, the social partners' recent commitment both to combating the extreme fragmentation of the vocational training system and to reforming the labour market, particularly via the introduction of special provisions for the integration of young people (greater flexibility of employment regulations and the adoption, in 1983, of the '*contratto di formazione lavoro*' [CFL – work training contract]). In this new shift, it is paradoxically (given their position in society) not SMEs that are the privileged beneficiaries of new policies (as is the case in, for example, the UK), but rather population groups with integration problems, that is, the unemployed or even 'young people, women and people from southern Italy' (Jobert, 1995, p. 275). However, we must not forget that, in Italy, the regional bases of vocational training are not being questioned and that, of the 500 000 or so young people who were employed under work training contracts every year in the late 1980s, nearly half were taken on as trainees in the industrial sector and 70% in small enterprises with fewer than 50 employees (Bulgrelli and Giovine, 1988).

2.4 Germany: the historic role of the 'Mittelstand'²⁹ in regulation of the labour market and the training/employment relationship

If an SME theory (German: *KMU = kleine und mittlere Unternehmen*) is possible out-

²⁹ References to the German body of scientific research were gathered by J. Reindl and M. Fecht (1999) and processed by H. Reineke, to whom we should like to express our thanks.

side Italy, it is in Germany that we need to look for it. We are unlikely to find one anywhere else, and certainly not in France, as we saw earlier. It derives from a very old conception of the SME as the basis of 'the social order'.

2.4.1 SMEs: an economic reality that is inseparable from social history

The term '*soziale Ordnung*' (the social order) used by many authors is particularly strong and needs to be retained, because it largely explains the historical importance of the '*Mittelstand*' (roughly: middle stratum³⁰): with its origins in the pressure groups that had a decisive impact on public life during the 1930s and 1940s (Scheuch, 1976), and prolonged beyond 1945 by the creation of many institutes of research on small and medium-sized enterprises that have survived to this day, this tradition makes SMEs – and particularly medium-sized enterprises – a pillar of the macropolitical regulation that functions alongside or above market forces. Just as much as being an economic reality, the SMEs – or rather, the *Mittelstand* that is its highest expression – is an (internal and external) place of social integration, for which F. Marbach produced a theory long ago (1942). Contrary to Schumpeter's and Marx' predictions of the late nineteenth century that SMEs would purely and simply vanish, wiped out by large enterprises and monopolies, Marbach suggested that the development of society and the social balance are guaranteed precisely by these intermediate bodies (the '*Mittel-lagen*'; intermediate strata). The SME is, of course, a place of work (*Arbeitsplatz*), but it is also a privileged place of socialisation (Scheuch, 1976, p. 318).

Not one significant German publication on SMEs mentions this earlier work. Not one provides an overview of the ebb and flow of work dedicated to them. Less empirical than that of British researchers, the point of view taken by German researchers is virtually always connected with social history: up until the 1980s, they tell us, it was the model of

the large enterprise that predominated in the works of economists and industrial sociologists still inspired by Marx' and Schumpeter's prophecies about the disappearance of small establishments. During this period, SMEs were seen as a residual and retrograde form of economic development (Scheuch, 1976); since the middle of the last decade, however, difficulties in getting out of economic crisis and the changes that are affecting production systems (particularly the growth of the tertiary sector) have turned SMEs into 'bearers of hope' (*Hoffnungsträger*) or even the 'main driving force behind structural change' (*Träger des Strukturwandels*) (Büchter, 1998). As well as examining SMEs' specific features, research simultaneously or successively focused on their economic prosperity and their ability to solve the problems of underemployment. In general, this second period of euphoria and idealisation is denounced in the most recent German literature, being replaced by a more moderate view of the real contribution SMEs are making to modern economies (Hilbert and Sperling, 1993).

2.4.2 ...but a neglected subject of research prior to the 1980s

Despite their deep roots in collective representations, or perhaps even because of these ideological origins, SMEs have not captured the attention of researchers in the social and economic sciences in Germany any more than they have in any other country, with the exception, perhaps, of the craft industry sector. More often than not, they have remained in the margins of the dominant model of the large rational organisation that was at the time considered to be the only path (*Schrittmacher*) to technical, economic and social modernisation. They were perceived as the outmoded production structures of a past era (*Residuen einer vergangenen Epoche*).

This is why, during this period, when any research was done on SMEs, it could not help being somewhat mean-minded and condescending about their shortcomings. At least, that is the approach reported by Scheuch (1976), who goes on to denounce the '*Massengesellschaft*' (mass society) and to defend and celebrate SMEs. He tries, for example, to

³⁰ Self-employed and employers of SMEs

demonstrate that, compared with large enterprises, relative pay in small establishments is not much lower (but is he talking about real small enterprises or 'large SMEs' in the German style?), that the number of skilled workers (*Facharbeiter*) is higher and that SMEs are more innovative. In an astonishingly modern text, he also notes that the 'mixture of enterprises of different sizes in the economic structure is surprisingly consistent' (*die Art der Mischung von Betriebsgrößen erweist sich als erstaunlich konstant*, p. 308), that in many areas there is no direct competition between SMEs and large enterprises, that the flexibility of small production lines makes up for any disadvantages in terms of costs, that the expected standardisation of tastes has not happened, and that what is actually happening is a 'parallel development of mass demand for a number of goods combined with growing differentiation' (*eine parallele Entwicklung zwischen Massennachfrage für eine Anzahl Güterkategorien kombiniert mit zunehmender Differenzierung*); Scheuch, 1976, p. 314).

2.4.3 From vindication to the identification and analysis of unique features

This way of thinking re-emerged in the mid 1980s, which saw a real rehabilitation of SMEs in the world of research. The many reasons for this rediscovery have been abundantly described and are in the main associated with changes in market conditions, the saturation of mass demand and 'the shift from sellers' markets to buyers' markets' (*die Umwandlung von Verkäufer- in Käufermärkte*) (Hilbert and Sperling, 1993, p. 19), and a growing need for flexibility and adaptability, which gives SMEs a competitive advantage.

The 'new prosperity of SMEs' is, then, a reflection of their unique potential, which Leicht (1995) – like Sombart before him – explains in terms of their role as '*Marktspezialisten*' and '*Marktolocalisten*' (market specialists and market localists), enabling them to occupy a place in the market that large enterprises find difficult to access or

of little interest. This is why small firms are particularly successful in craft or personal services and manufacturing, which require a high degree of specialisation, a high level of professionalism and an ability to solve clients' individual problems because of strong decentralisation. This is the *segmentationist* theory, to which we shall return later and which simultaneously explains the re-emergence of SMEs and the maintenance, or even strengthening, of structures devoted to mass production.

However, in the mid 1980s, under the influence and convergence of Piore and Sabel's theories (1984) on the one hand, and Kern and Schumann's (1984) on the other, German researchers, like their counterparts in most European countries, were pushed into adopting a more *generalist* position, linking the new rise of SMEs with the worldwide breakdown of the Fordist model and the virtually universal re-emergence of small production lines, and announcing the emergence of a production system that does away with Taylorist labour division.

Whatever the case, there is certainly a link between the paradigmatic shift in forms of production organisation and rationalisation and the renewed significance of small and medium-sized production units (Manz, 1993), and this turning point is a period of euphoria with regard to SMEs, mainly because of the employment potential they are assumed to have. They become paragons of virtue: tendentially closer to the market; more client-oriented; they are assumed to have considerable needs in terms of skills; they might promote a renaissance of continuing training or a reactivation of regional and local development policies; they might play a role in regenerating structurally disadvantaged regions; and might even be able to support a new conception of investment in human capital (Büchter, 1998). In brief, to use the title of a publication by K. Aiginger and G. Tichy (1984) 'the greatness of small firms' (*die Größe der Kleinen*) again

On the scientific level, researchers are trying to get away from the discourse of 'failure' and develop studies that are more clearly centred

on the *unique characteristics* of SMEs. Analyses, of course, focus on the microeconomic dimension. In addition and more importantly, however, we see a new interest in their role as social integrators. Although they apply different management criteria (Pfohl, Kellerwessel, 1990), they also represent 'another social world' (Kotthoff and Reindl, 1990) of which the categories of managerial theory (mostly drawn from the large enterprise model) fail to take sufficient account (Kotthoff, 1993). This same author also wonders: are SMEs really organisations? (*sind Klein- und Mittelbetriebe überhaupt Organisationen?*) (Kotthoff, 1993, p. 234). Not necessarily.

To begin with, contrary to the functioning of large organisations, SMEs' functioning depends mainly upon the personality of the owner/manager of which it is 'a reflection of his person' (*das Spiegelbild seiner Person*), according to Gantzel, quoted in Kotthoff, 1993, p. 235), hence a marked bent in German research for sociological typologies of SME managers. Also, they are more permeable to the environment and enjoy no great political or public power. Their existence is precarious and their life span relatively short. This means that, if SMEs are acting in a situation in which their market power is limited, they cannot organise the market in their favour, as the big monopolies can. They therefore need to *adapt* rather than *plan*: 'Small entrepreneurs' limited ability to influence and shape the market means they have to use approaches that are very different from strategic planning' (*die geringe Fähigkeit der kleinen Unternehmer, den Markt nach ihrem Bilde zu beeinflussen und zu formen, zwingt sie zu einer vom strategischen Planen sehr verschiedenen Verhaltensdisposition...*) (Kotthoff, 1993, p. 238). Their unique strength lies in pragmatism, experimentation, improvisation, extremely rapid reaction to change, instead and in place of the 'intellectualising', analytical and abstract procedures that are common in LEs.

2.4.4 From euphoria to realism

The turn of the 1980s, therefore, saw a complete reversal of approach. Faced with the '*reflexive Modernisierung*' (reflexive modernisation;

Manz, 1993), which imposes a slimming programme on large enterprises incapable of reacting quickly enough to new environmental conditions, the 'backwardness of SMEs' becomes an advantage, particularly because of the new importance of socio-organisational innovation. So, can SMEs be seen as a new 'path of industrial modernisation', a possible point of passage towards post-Fordism (Dohse, Jürgens, Malsch, 1985)?

In the early 1990s, however, this positive image of SMEs begins to crack and look more like a 'fantasy' (a '*Wunsch-Konzept*', according to Hilbert and Sperling, 1993, p. 192) than a genuine radical break with the dominant processes of industrialisation. This is what authors like, for example, Manz (1993) try to demonstrate, drawing on empirical research on the processes of technical and organisational innovation in SMEs in the machine tools sector. According to Manz, there is undoubtedly a very close link between the renaissance of SMEs as bearers of hope and the profound crisis in the Taylorist model of rationalisation in large organisations. This notwithstanding, however, SMEs are not mastering all the new requirements of modernisation, particularly at the 'socio-innovative' level.

Preindustrial structures of domination (patriarchy, authoritarianism, etc.) are still very present in SMEs, preventing the democratisation of social relations. With the exception of the socioeconomic configurations present in the well-known industrial districts '*à l'italienne*' (though they too are threatened by the new forms of capitalist accumulation), these structural and cultural shortcomings end by neutralising SMEs' competitive advantages. The 'people-centred' and 'return-to-work' production alternatives that had been hoped for (Brödner and Pekruhl, 1991) are thrown into question by the way in which markets actually work. For example, in seeking to identify the potential for technological and social modernisation of SMEs in the machine tools sector, an example of the '*Mittelstand*', Manz (1993) discovers some far more complex hybrids between the Taylorist workshops and those where group work and small

production lines confirm the reskilling theory so dear to Kern and Schuman. Moreover, in some cases, the use of new information and communication technologies [NICTs] is leading to a rise in the number of white-collar workers, accentuating the division between design, preparation and planning and execution of work. In brief, SMEs do not enjoy sufficiently unequivocal conditions for socio-organisational innovations that break with Taylorist rationalisation practices, even in the machine tools sector.

During this same period, this kind of disillusionment can also be seen in another series of works – for example, those of Hilbert and Sperling (1993). These authors, who studied 225 enterprises in four segments of the manufacturing sector (timber processing, textiles and clothing, machine tools, electrical and electronics industry), conclude that, quantitatively, it is, in the end, enterprises whose autonomy (*Manövrierfähigkeit*) is the most limited and entrepreneurs who see collaborators more as a problem than a potential that are in the majority! Thus we come to a *KMU-Realität* (SME reality; Büchter, 1998).

2.4.5 A special way of dealing with the diversity of SMEs: the 'segmentationist' theory

Not all SMEs are in a favourable position to offer a credible, lasting alternative to mass production. This is the great relativist discovery of the 1990s, not only in Germany but also in other countries. Firstly, as Kotthoff (1993) comments, the challenges vary from one sector and industry to another. For example, although the number of enterprises in the service sector has increased, it has fallen in the industrial sector (Leicht and Stockmann, 1993; Sorge, 1996). In the timber-processing and furniture-manufacturing industries, for example, SMEs are often highly dependent on central purchasing organisations. This means their challenge is 'to become more autonomous within that dependence' (Kotthoff, 1993). Similarly, in the textiles and clothing industry, there is growing competition from countries with low-cost labour. Conversely, it has often been felt

in Germany that the engineering and machine tools sector was a model for innovative and flexible SMEs.

Nevertheless, from another perspective, the fact of belonging to a particular sector neither inexorably condemns an enterprise to decline nor unequivocally guarantees its success, because the sector's influence is not totally deterministic. SMEs' situation also depends on their strategic position and orientation, in other words, on their managers' disposition. Their chances do not depend solely on 'hard facts' but also on 'business mentality', which is a decisive factor. For example, are they focusing on product innovation or increased productivity and economies of scale? Are they trying to maintain their closeness to the end client and their autonomy, or are they giving preference to subcontracting? Are they targeting niche markets or mass markets (Kotthoff, 1993, p. 238)?

This is why it is helpful to take an approach that we shall call 'segmentationist', like the one suggested by Leicht (1995), which shows that the success of small enterprises in the same sectoral environment varies depending on whether they are operating on a market on which they are in competition with large enterprises or whether, conversely, they are operating on segmented markets on which enterprises of varying sizes can coexist by working with a different efficiency potential.

Just like the organisational models of the large enterprise, there is no 'one best way' for SMEs, and SMEs are not necessarily a good example for large enterprises to follow. There are many possible paths of development, say Hilbert and Sperling (1993, p. 194). The regional environment is also vital, and SMEs that are established in the more industrialised regions have the best chance of success (Büchter, 1998). All these elements mean that, in the latter half of the 1990s, German researchers began to identify not so much SMEs' 'shortcomings' as their limitations – for example, their lack of human resources and capital (Simons, 1997) or their increasingly precarious position in subcontracting relationships, particularly in the automobile sector (Fieten, 1995; Koch and Strutynski, 1996).

2.4.6 The controversy around new information and communication technologies [NICTs]

This rapid overview of the German literature on SMEs would not be complete if we failed to mention an issue already raised in our discussion of the situation in France. Simultaneously with the new realism that marked research in the late 1980s and early 1990s, the literature changes direction and becomes marked by the question of the modernisation of SMEs in the face of, in particular, the pressure of foreign competition on costs and the globalisation that imposes new forms of rationalisation. Some approaches might be normative and focus on the organisation of production: '*Produktionsplanung*', '*Steuerungssystem*', '*Innovationsprozesse*' and, particularly, '*neue Technologien*' (production planning, regulation system, innovation processes, new technologies). Might these new technologies give rise to new non-Taylorist concepts? Are they a factor in the modernisation and emancipation of SMEs or, on the contrary, are SMEs – and especially those with fewer than 100 employees – being particularly sidelined by them?

Here again, we cannot talk in generalisations. Many researchers stress the *reality* of the deficit in financial and information resources (Modrow-Thiel, Rossmann, Wächter, 1993; Hilbert and Sperling, 1995), particularly for SEs with fewer than 100 employees, and they note that enterprises with more than 100 employees are more open to NICTs (Hilbert and Sperling, 1995; Wittstock, 1990). Once again, SMEs in industrialised regions are in a more favourable position because they can draw on local and regional provision of technological advice, since the level of technico-organisational penetration depends on the sector and manufacturing processes involved.

However, one result is fairly clearly established and is of very great significance here: the SME sectors in which employment growth is strongest are, in particular, the craft industry ('*Handwerk*'), construction, maintenance and repairs, and installation activities – precisely areas that are traditionally very difficult for new technologies to penetrate (Büchter, 1998).

In brief, SMEs do not need to be 'high-tech' to succeed or to create a large number of jobs.

2.4.7 SMEs in the restructuring of the industrial apparatus of the new Länder

Finally, we shall focus on a unique feature of German research: in the updating of analyses concerning the need to increase the regionalisation of institutional support for SMEs, an especially important place is reserved for SMEs' role in the integration process of the new *Länder*. We know, in particular, that the dislocation of industrial combines ('*Kombinate*') in the former East Germany has given rise to the creation of a multitude of SMEs. Whereas, in the days of the GDR, 90% of workers worked in 270 combines, there are now 460 000 SMEs, employing 3.1 million workers (Semlinger, 1995).

Most of the research indicates that two processes have taken place, one after the other: first, a shift towards privatisation and the breaking-up of large conglomerates; and then the development of Government-aided enterprise creation. Enterprises that emerged as a result of the former process have survived better than those created under the latter and have provided more jobs. On the other hand, several works show that the failure of newly-created enterprises is no greater in the East than it is in the West (Hinz and Wilsdorf, 1998; Brixy and Kohaut, 1998); that sector is a powerful determinant; and that, with the gradual harmonisation of SME development in the East and West, it is regional differences that are the most important (Baunach and Schmude, 1998). Hence the idea of developing targeted aid to suit the individual regions. Also, managers' level of skills and occupational experience seem to be decisive. What emerges as a general rule, however, is that there are many possible strategies and paths to success. There is no prevailing model (Brussig, 1998).

2.4.8 Structural change and SMEs' role in constructing skills and qualifications

As in other countries, there is no shortage of macrostatistical data on vocational training,

both initial and continuing, in Germany. These data are regularly drawn up by the BIBB³¹ and are mostly coordinated with the European FORCE programme. They cover initial vocational training (*'Berufsausbildung'*); the dual system of apprenticeship (*'das duale System'*); adult training (*'Weiterbildung'*), both vocational and non-vocational (*'berufliche Weiterbildung'* and *'nichtberufliche Weiterbildung'*); and *'AFG-geförderte Weiterbildung'*³², whether this is organised by the enterprise (*'Betriebliche Weiterbildung'*) or in the form of individual continuing training (*'individuelle Weiterbildung'*), according to a particularly complex structure that is described and explained by, among others, Alt, Sauter and Tillmann (1994). Some very interesting data are also to be found in the *Berufsbildungsbericht* (annual report on vocational training) produced by the BMBW (*Bundesminister für Bildung und Wissenschaft* [Federal Office for Education and Science], 1992, 1998).

There are also works specifically devoted to SMEs' practices as regards vocational training. As part of their contribution to this report, Reindl and Fecht (1999) drew up a list that includes, in particular, the recent works of K.-H. Schmidt (1984a), Büchter (1998), Faulstich (1992), Leicht and Tur Castello (1998) and Mendis (1991), as well as numerous other research papers or theses. Generally, Reindl and Fecht believe that 'SMEs and, in particular, craft enterprises, have always provided above-average quantities of vocational training. They train far more young people than they need and can later employ' (1999, p. 15). This means their objective role is very often to supply large enterprises with skilled labour.

Despite all this, SMEs' practices are always severely criticised: 'SMEs tend to exploit young people instead of training them'. Moreover, 'nowadays people have doubts as to

whether the training level is adequate to fulfil new technological and social requirements'. According to the authors, much of this criticism derives from excessive use of criteria drawn from the large enterprise model: 'training systems and planning, apprentice workshops, theoretical instruction, teaching staff trained in VET. The fact is, however, that SMEs do not necessarily train more badly, but that they train differently' (idem, p. 15). From this viewpoint, it should be possible to argue that training of human capital 'tends to be more highly skilled in SMEs than in large enterprises. The specific production models in small enterprises (small series, individual manufacture, rapidly changing production programmes, the need to respond flexibly to market fluctuations, etc.) necessitate skilled, versatile employees.'

In examining the contradiction between two conceptions of SMEs – one placing the accent on their inadequacies as regards the qualitative appropriateness of their staff and their unattractiveness to more highly skilled workers; the other perceiving them as the main driving force behind innovation and job creation – the works of Leicht and Tur Castello (1998) are an example of an entire German literature on this subject. One of their hypotheses (verified) is *that SMEs' needs in terms of skills* are closely dependent upon the industry in which they operate.

2.4.9 Skills and qualifications structures and globalisation

Generally speaking, the level of skills and qualifications (particularly formal qualifications) enjoyed by SMEs' workers has risen over recent years. Of course, SMEs still have fewer university graduates (*'Akademiker'*) than large enterprises (p. 51), but there are some SMEs in which the recent rise in the level of skills and qualifications has been greater than in large enterprises: particularly in 'modern' sectors, among 'global players' (p. 13), in some small units that have become subcontractors to large enterprises undergoing reorganisation, in SMEs in the services sector that are highly intellectually intensive, and in self-employed activities or the liberal professions (*'Selbständige, Freie Berufe'*). By

³² AFG: *Arbeitsförderungsgesetz* [Law on the promotion of work].

³¹ BIBB: *Bundesinstitut für Berufsbildung* [Federal Institute for Vocational Training], Berlin and Bonn.

Table 2.1: Breakdown of trainees and training rates per size of enterprise – 1996 (National figures; old Länder)

Size of enterprise	Trainees (%)	Employees (%) (1)	Training rate (2)
1-4	11.1	8.8	6.9
5-19	27.7	18.3	8.3
20-49	13.1	13.2	5.9
50-199	17.8	21.6	4.5
200-499	10.8	13.5	4.4
> 500	18.5	24.7	4.1
Total	100	100	5.5

(1) Number of employees paying social security contributions.

(2) Percentage of trainees of the total number of employees.

Source: *Bundesanstalt für Arbeit* [Federal Employment Office]; own estimates, Ifm Mannheim.

contrast, there are still many SEs in sectors and markets that do not require high levels of skills or qualifications (hotel and catering trade, commerce, hairdressing, etc.) or which are slowing down (textiles, leather, etc.). However, we should not overemphasise the supposed effects of globalisation on skills structures, which is actually affecting only 2-12% of SEs, depending on the industry to which they belong. Also, the service industries and craft sector, in which small enterprises predominate, are less affected by globalisation than by new information and communication technologies, which are having a positive effect on the development of their human capital (Falk and Pfeiffer, 1998). It is moreover impossible to evaluate the quality of the labour factor in SEs simply from the point of view of technological modernisation, which would immediately relegate traditional craftsmanship to the status of 'a relic of ancient times' (p. 9).

Another significant conclusion emerges from the works of Leicht and Tur Castello (1998): in Germany, at the very moment when the dual apprenticeship system is experiencing a degree of disaffection³³, it is precisely initial

vocational training *rather than continuing vocational training* that is being best adjusted to the needs of small enterprises (and particularly craft enterprises). At the same time, it is in small enterprises *rather than large enterprises* that the knowledge and know-how acquired through apprenticeships are proving to be most 'useful' (*'verwertbar'*).

On the former point, in 1996, small enterprises – most of them craft enterprises – with fewer than 20 employees took on 39% of all apprentices, even though they accounted for only 27% of the total employed population. In addition to this, small enterprises train twice as many workers as they need (in 1992, they employed 30.8% of skilled workers and had taken on 57.8% as apprentices, whereas large industry, which accounted for 30.8% of skilled workers, had trained only 19% as apprentices)³⁴. It might therefore be argued that, on the quantitative level, small enterprises' contribution to the initial training of young people outstrips their needs and that, in Germany, the intensity of training via apprenticeships lessens with the size of enterprise (see Table 2.1). Also, on the qualitative level, the knowledge and know-how acquired

³³ For example, in the old *Länder*, the demand for apprenticeships fell by 39% between 1984 and 1994 and supply fell by 31% (or 503 000 places) over the same period. This crisis is usually attributed, at least in part, to the tendency for young people to pursue general, university studies.

³⁴ According to a survey conducted by the *Institut für Arbeitsmarkt- und Berufsforschung* (IAB) [The Institute of Employment Research] of the *Bundesanstalt für Arbeit* [Federal Employment Service], cited by Kucera (1997, p. 66).

through apprenticeships seem to be more 'usable' in small enterprises than they are in large ones (Strohmeier, 1998, quoted in Leicht and Tur Castello, 1998, p. 34, Schaubild 3). This is what emerges from a survey conducted by the BIBB and IAB³⁵ over two periods (1985-1986 and 1991-1992).

Leicht and Tur Castello summarise this point of view: 'while there has been a steady increase in the number of employees in SMEs with an apprenticeship or similar qualification since the 1970s, in large enterprises their numbers have greatly decreased again during the recession. (...) In many branches of the production industry in particular, SMEs remain the shrinking refuge for skilled workers' (1998, p. 80).

On the second point, there is no doubt that the acceleration of technological and economic change is causing a permanent devaluation of the human capital acquired by SE employees during their initial vocational training, which confirms the crucial importance of continuing vocational training. Indeed, over recent years, more and more employees have taken part in training programmes. By this criterion, however, the rate of participation in SEs is still lower than in LEs (p. 38, Figure 4). It is also lower in the craft industry and commerce than it is in industry, other services or the liberal professions. Finally, the smaller the enterprise, the greater the difference between the need identified and workforce participation in continuing training, in other words, the difference between needs and actual participation in continuing vocational training is always more marked in SEs than in LEs... and these differences are all the more marked in some industries (p. 41).

2.4.10 SMEs: stakeholders in the crisis and in the restructuring of the vocational training system

Of course, all these elements are the product of an historical social and institutional compromise. That compromise has however

now entered a phase of disequilibrium, in which young people leaving the training system and SMEs themselves have become main stakeholders: *the former*, because of their growing inclination for long, full-time training courses and for disciplines that tend to take them into large enterprises (management, bank administration, insurance, marketing, etc.), but also because of their increasingly marked tendency to leave the enterprises in which they have done their apprenticeships – often SEs – to take jobs in larger enterprises and, finally, because of the difficulty more disadvantaged groups (unskilled, the '*Ungelernte*') have in accessing the system of apprenticeship; *the latter* (SMEs), because they are indirectly up against the increasingly selective attitude of large enterprises³⁶ as regards young people's skills and qualifications, which means they are left with the least skilled and qualified candidates. 'The integration vocation' of SMEs is not being questioned; it is being 'displaced'. Indeed, a definite split is appearing in the dual system, which was based on the potential continuity and mobility of trained, skilled workers' career paths in small enterprises. The risk is that this split will accentuate not only the inequalities between small and large enterprises but also the dualism of the labour market.

This is why, in Germany as in many other countries (see Part 5), the interaction between employment policies and the policies guiding vocational training is becoming increasingly evident (Schömann, 1995). It is in this context that we need to understand the adoption of the German law on the promotion of work ('*Arbeitsförderungsgesetz*') of 1985, whose purpose was to make the employment status of young people coming out of the apprenticeship system more flexible (use of fixed-term contracts, part-time working, disconnection between young people's initial training and jobs offered, 'exchange

³⁵ *Institut für Arbeitsmarkt- und Berufsforschung.*

³⁶ Indeed, large enterprises are increasingly trying to attract young people who have an '*Abitur*' or students from the '*Fachhochschulen*', to the detriment of young people with lesser qualifications.

programmes' that enable large enterprises undergoing restructuring to make former apprentices available to craft enterprises, etc.) and to prevent the occupational exclusion of young people least likely to gain access to apprenticeships. However, by contrast with the situation in other countries, these 'new employment regulations' linked to vocational training are still subject to heavy collective regulation, particularly via negotiated collective agreements, usually at industry level (Lefresne, 1999. p. 289).

2.5 Spain: lots of SMEs – little research

It is a known fact that Spain is one of the European countries with the highest density of SMEs ('PYMES'). However, short of taking a closer look and searching beyond a bibliography that is shorter than those for the other countries studied here (some fifty references, works and articles over the last decade), the least one can say is that research on the three issues of SMEs, employment and training is not very advanced. However, we need to note three salient features:

2.5.1 Works on the economic role of SMEs

There are many works on the place and function of SMEs in the Spanish economy and its integration in the European Community (Pérez Gonzalez C., 1997), or in the shift towards globalisation. However, it is virtually always their microeconomic performance that is examined (Camisón Zornoza, 1996a and b; Fernández et al., 1996; Montoya Sánchez, 1997). In this field, it is mainly strategic concerns that have held researchers' attention since the early 1990s (Churruca et al., 1995; Maqueda Lafuente, 1992; Lorenzo Gómez and Sánchez Pérez, 1997).

For example, several empirical studies seem to confirm that there are greater competitive differences between enterprises in the same sector (intra-sectoral differentiation) than between enterprises in different sectors (Fernández, 1993). It is moreover extraordinary to note that this dimension (strategic behaviour) is covered by major statistical works (Impi, 1995, pp. 59-113, see also, in particular, the use that can be made of the annual

ESEE survey that has been conducted since 1990 – *Encuesta sobre Estrategias Empresariales* [Survey of Business Strategies]), as is the coordination of human resources management³⁷ and enterprise strategy. Most of the research constantly returns to the triple dimension of competitiveness: the general economic and institutional framework, the structure of the sector, and strategic choices at enterprise level (Serra Peris, 1996; Aragón Sánchez and Sánchez Marín, 1998). It is also by no means sure that the good results (profitability, operating margin, etc.) at micro level are reflected in a better competitive position at national level in Spain. In fact, the opposite seems to be true (Camisón Zornoza, 1996b).

2.5.2 SMEs at the centre of new labour market regulations?

Another unique feature: the (rare) studies on SMEs' contribution to employment virtually always cover both the kind of jobs involved (particularly the type of contracts of employment used – an important issue in Spain in recent years in terms of the flexibility and growing insecurity of jobs) and the characteristics of the workforce (age and length of service, level of training, etc.: Impi, 1995 and, in particular, Para et al., 1995). Mention should also be made of some recent research on human resources management and training as factors in SMEs' competitiveness (Aragón and Sanz, 1997; Ferrer Ortega, 1999), but researchers tend to have difficulties in finding points of anchorage in analytical models outside that of the large enterprise (Aragón Sánchez and Sánchez Marín, 1998). Finally, it is no surprise to find some regional studies, including, for example, García Ordóñez' study of Andalusia (1997). There are some interesting scenarios that are worth comparing with regionalised approaches in the UK and Scandinavia.

2.5.3 Government research

Our body of reference also includes many publications on national and regional (Autono-

³⁷ In the British sense.

mous Communities) policies applying to SMEs in Spain (Ipmi, 1995, pp. 115-168; Ice, 1998), and documents of a more administrative nature on provisions, financial instruments and advisory aids for SMEs³⁸.

Generally speaking, apart from these references, one might note and/or deplore the lack of major scientific studies on SMEs, and particularly medium-sized enterprises, in Spain (Clifford and Cavanagh, 1989). This is all the more striking in that Spain is one of the countries (together with Greece, Portugal and Italy) in which SMEs have the most important role in the production apparatus, representing close on 80% of total employment (European Commission, 1998).

3. The role of SMEs in the transformation of production systems: social and methodological diversity

What does research on SMEs do to reduce or deal with the extreme diversity of its subject? How does it account for the role and development of SMEs in the current reshaping of production systems? What are the main factors determining the demographic dynamics of SMEs? What are the main lessons to be drawn from the most recent research on enterprise?

These are the questions we shall be trying to answer in the first section of this part of our report.

³⁸ Published by the *Dirección General de Política de la Pequeña y Mediana Empresa, Ministerio de Economía y Hacienda, Secretariat de Estado de Comercio, Turismo y de la Pequeña y Mediana Empresa* [Directorate-General for Policy concerning Small and Medium-Sized Enterprises, Ministry of the Economy and Treasury, Secretary of State for Commerce, Tourism and Small and Medium-Sized Enterprises].

³⁹ Strictly speaking, the recommendation published by the Commission in the Official Journal of the European Communities (L 107/6, 1996) on adopting a common definition of SMEs recommended including two other criteria: turnover (less than ECU 40 million) or balance sheet total (less than

3.1 A generic 'SME', or SMEs in the plural?

The first question that any discussion of SMEs comes up against is how to define its subject. Between the nominalist optimism adopted by the European Union (1996)³⁹, whereby SMEs are to be defined purely in terms of their size, that is, the size of their workforce, and a relativism that, by multiplying the other available variables ad infinitum, risks diluting the subject to such an extent that it becomes unrecognisable, the middle path is indeed narrow and full of difficulties. What we have to accept is that 'there is no standard, scientific, universally accepted definition of small and medium-sized enterprises' (Eurostat, 1996, p. 13).

3.1.1 A subject with unclear definitional boundaries

Although most of the statistics, and particularly comparative statistics, now adhere to the 'European standard' (with enterprises with fewer than 250 employees being deemed to be SMEs) and its segmentations⁴⁰ (as in the case of, for example, data from the European SME Observatory, ENSR, 1996, 1997), we know that the criterion of size is inadequate. However, even though this criterion has been criticised, especially by researchers, it can serve as a 'provisional concept', a 'preconception', which is a useful and definite tool for much research: inadequate, then, but essential.

In most cases, therefore, it is size that is taken into account because 'there is always a close

ECU 27 million) and economic independence. However, given the difficulties involved in obtaining sufficiently detailed, standardised statistical information on all the EU Member States, it is not always possible to take these latter two criteria into consideration (ENSR, 1997).

⁴⁰ That is, 'Very Small Enterprises (hereinafter referred to as VSEs) with fewer than ten employees, including enterprises with no employees, that is self-employed people; Small Enterprises [SEs] with 10-49 employees; and Medium-Sized Enterprises [MEs], with 50-249 employees'. This means that, still according to the same definition, enterprises with 250 or more employees must be deemed to be Large Enterprises [LEs].

Table 3.1. Classification of firms by size (employment numbers) in several OECD countries

	Eurostat	F, D, Jap	N, CH	UK, DK, FIN	A	E	I	OECD
VSE	0-9	1-49	1-20	1-50		-	1-9	0-19
SE	10-49					0-49	10-99	20-99
ME	50-249	50-499	21-99	51-200	10-100	50-499	100-499	100-499
LE	250 +	500+	100+	201 +	101 +	500 +		500 +

link between enterprises' size and some of their practices' (Savoye, 1994), and it is, of course, the enterprise (and not the establishment that is part of a group) that is the statistical reference unit. However, the accepted size varies over time and space: in France, for example, until recently, statistics might have included as SMEs enterprises with as many as 499 employees (INSEE, 1994), like in the USA. Furthermore, whereas in France, Germany and Japan, enterprises are deemed to be small firms if they have 1-49 employees, the figure drops to 1-20 employees in Norway and Switzerland. Medium-sized firms have a workforce of 50-499 employees in France and Germany, but the figure drops to 51-200 employees in the UK, Denmark and Finland, 21-100 employees in Norway, and 10-100 in Austria.

It is, therefore, impossible to ignore the extreme diversity in the field. What is the relationship between a Very Small Enterprise [VSE] of the craft industry type and a medium-sized industrial enterprise? What is the relationship between an independent, privately-owned Small Enterprise [SE] and an SME that is part of a group or franchise network? What is the relationship between an SME in the manufacturing sector, which might well have a hundred employees, and an SME providing consultancy services for enterprises, which will only very rarely have more than 50 employees?

This diversity itself rests upon a whole range of criteria and dimensions that are revealed by most of the research (Cross, 1983; Dunne and Hughes, 1990), which, whilst deepening our knowledge of SMEs, paradoxically help to muddle the definition. For example, should we give a special place to craft enterprises,

particularly as regards employment and training, by cross-referencing the size and purpose of the enterprise or its owner, as suggested by an examination of the German literature and the repeated investigations of the European SME Observatory?⁴¹ Do we need to include the criterion of independence in the general definition of SME and should independence be defined in legal or financial terms (for an enterprise to be deemed to be an SME, the European Commission recommends that 'it may not be 25% or more owned by a large enterprise or jointly by several large enterprises')? This definition is used by, for example, Varyam and Kraybill (1992), with their notion of 'ownership', and by Duchéneaut, in his extensive case studies (1995, 1996). But then do we run the risk of ignoring the current dynamic, whereby SMEs (and especially SMIs) are being integrated, in various ways, in larger groups or networks of enterprises? For example, the 1980s saw an increase in the number of franchises (Stanworth, 1988; Stanworth and Purdy, 1994; Fried and Elard, 1997).

Then there is sectoral differentiation, which – as we shall see later – often proves to be the most pertinent; so pertinent, in fact, that authors like Curran et al. (1991) do not hesitate to include it in their basic definition of SMEs, together with size. In addition, of course, other criteria demand more subtle segmentations

⁴¹ It should be noted that, in Germany, the craft industry is the subject of special national legislation ('*Handwerksordnung*' No 127 of 28 December 1965) and included 127 occupations in 1994, with 623 000 enterprises employing 5 138 000 workers, which is equivalent to 8.2 employees per enterprise, as against only 2.5 per enterprise in France and 2.3 in Italy (ENSR, 1996, p. 102 et seq).

and are mentioned by many researchers. For example, with regard to the industry concerned (Kotthoff and Reindl, 1990; Leicht and Stromeyer, 1995), the age of the enterprise (Evans, 1987), or its strategic position in relation to the products or services market (Bentabet et al., 1999; Trouvé, 1999). Finally, also 'the notion that the small firm sector was an homogeneous entity, suffering similar problems and experiencing similar opportunities, is fundamentally misguided' (Atkinson and Storey, 1994, p. 4).

3.1.2 The social components of the definition

From this perspective, we can see that international comparisons are especially risky, and all the more so in that the organisation and size of enterprises, as well as survey methods, are closely dependent not only on the nature of the economic fabric but also on institutional and social conditions within each country (tax and social security systems, availability of grant aid, etc.).

We have to get used to this idea: SMEs are a social institution, a product of unique national historical and social conditions. Is it by chance, for example, that Birch's work (1979, 1987; Birch, Haggerty, Parsons, 1997) emerged and was pursued in the USA and the UK, seeing SMEs as the main vehicle of the enterprise ideology and the basic unit of a market economy? Might it not be possible to interpret the vogue of research on SMEs in Quebec as an affirmation of French-speaking culture against the North American cult of gigantism? In Europe, is it not true that the view of SMEs as family enterprises actually had a solid anthropological basis for a very long time (hypotheses formulated by O. Torrès)? Furthermore, in a European area in search of unity, might it not also be possible to distinguish an SME culture '*à l'italienne*', deeply rooted in particular geographical areas, and a German conception of SMEs as guarantors of the continuing strength of the social fabric?

For all these reasons, with the exception of Italy and Germany, it would be difficult to establish a general theory for SMEs that would

match the one developed, for example, by Alfred D. Chandler, for large enterprises. At the very most, we have to content ourselves with partial formalisations and constructions of 'average scope', whose richness and diversity correspond to the many facets of the subject under study.

3.2 The various methods of approach

Without aiming to be exhaustive, we can now distinguish several methods of approaching the subject of SMEs, which have gradually been developed alongside major econometric studies that are too exclusively based on 'size effects'. We shall focus on seven of these approaches that we feel have helped to enhance our knowledge of SMEs over recent years: *macrostatistical approaches, longitudinal approaches, approaches by branch, territorial approaches, manager typologies, ethnographic studies* and, finally, *international comparisons*. We shall leave aside the latter, because it potentially cuts across the six others and will be discussed on many occasions during this report. In its place, we shall offer a short commentary on recent ethnographic approaches.

It should be noted that these approaches are not mutually exclusive and can be combined in many ways, thus offering an abundance of new paths for future research. For example, macrostatistical approaches might be combined with typologies concerning 'local forms of organisation of the production apparatus', as in the recent works of Hecquet and Lainé in France (1998); similarly, there is often a continuum between territorial studies and longitudinal approaches, as illustrated by the syntheses produced by Atkinson and Storey (1994) or Karlsson et al. (1993), or the Italian case studies and 'revisitations' of a number of French researchers (Ganne, 1999; De Banville and Vennin, 1999); and comparative works can draw on quantitative data or be based on intensive, qualitative research, and so on.

The value of these various methods of approach is that they attempt to reduce the heterogeneity of the subject 'SME', particularly by using statistical or qualitative typologies,

and particularly to avoid a regressive, inadequate conception of SMEs, by emphasising their unique features and making the effort to demonstrate that small enterprises are not 'large enterprises in miniature'. In some cases, however, although it gives us a better understanding of SMEs' role in the current transformation of socio-production systems, the approach strictly focusing on enterprise movements does not always give rise to an analysis of the effects on the number and structure of jobs, and still less on SMEs' training practices. This, at least, is what emerges from a careful examination of the international literature on the subject (Courault, Trouvé, 1999).

3.2.1 Macrostatistical studies: rethinking SME/LE relations in new approaches to production

Macrostatistical studies have virtually always been conducted for administrative and descriptive purposes. This applies to databases built by institutions devoted to SMEs or SMIs, be they Government-commissioned (for example, the major works of SESSI in France), transnational (the publications of the European Commission, Eurostat or the OECD), or instigated by occupational organisations (for example, the works of IMPI in Spain, 1995). Their purpose is usually to identify SMEs' place and development in production systems, particularly by comparing their structures by size of workforce. This is why they tend to give preference to analyses by major aggregates based on the effects of size and sector rather than using other variables that are more difficult to process. Moreover, since 'panellised' data are only rarely available, most of them tend to use 'successive pictures', which give an inadequate account of the processes and dynamics of change over time. This description is, of course, highly simplified, but it does give a good idea of the methodological challenges being faced by macrostatistical research.

However, some good results are being achieved: for example, some current research is looking at the new relationships between SEs and LEs and the new production approaches being taken by SMEs.

Research on new relationships between SEs and LEs: power relations or productive interaction?

A memorable and somewhat artificial debate has traditionally run between the respective 'champions' of large enterprises and of SMEs. For the former (Harrison, 1994-a,b), in terms of rationalising production, streamlining organisation and returning to 'core competencies', large enterprises have characteristics similar to those of SMEs (flexibility, reactivity, ability to tackle small markets), sometimes incorporating NICTs: in brief, they have become capable of 'reconciling their large size with small-scale production', according to the theories of Davis, Haltiwanger and Schuh (1996). For the latter, such as Kirchhoff in the USA (1994), Davidsson in Sweden (Davidsson et al., 1996) and Baldwin and Picot in Canada (1995), it is a question of understanding how the production system works on the basis of unique coordination between SMEs and LEs, with, in particular, LEs' productivity being supported by SMEs' flexibility, especially as a means of reducing the weight of bureaucratic structures⁴².

This debate is doubtless being continued today between, on the one hand, the partisans of the theory of domination or the 'repercussion' on SEs of the forms of rationalisation being used by large enterprises, particularly through the study of subcontracting relationships, for example, from a multi-industry viewpoint (Ardenti and Vrain, 1998) or in the automotive industry (Mathieu and Gorgeu, 1995), and, on the other hand, those who argue for the complementary nature of the two forms of enterprises, emphasising the margins for manoeuvre that can be taken by SMEs (Kotthoff and Reindl, 1990; Reid, 1993; Marchesnay and Fourcade, 1997). As we shall see later, these two approaches can, in

⁴² 'The notion that large enterprises are no longer creating jobs because of their subcontracting strategies does not mean they are not playing a role in employment growth. Indeed, their search for flexibility in adapting production to demand is leading them to forge alliances with other enterprises and with a peripheral workforce' (Gass, 1996, p. 65).

our opinion, be combined: although large organisations undoubtedly have an impact on the structure of the production apparatus and although we cannot ignore the rise in subcontracting⁴³, some SMEs are able to develop strategic positions that give them some protection against too strong a dependence on dominant large enterprises⁴⁴. It is nonetheless true that current changes in the apparatus of production are, if not calling into question, at least considerably confusing the 'pure' model of the private small enterprise (Bentabet et al., 1999), a phenomenon that some authors are quick to interpret as a symptom of the *disappearance of SMEs* (Curvalle, 1994; Dubost, 1995).

In any event, analysis of macrostatistical data indicates that it is impossible to dissociate SMEs' demographic dynamic and contribution to employment from the development of large enterprises and inter-enterprise relations in general (Baudry, 1995), even though many, sometimes contradictory, interpretations can be made of this: 'what happens therefore to the large-firm sector must inevitably influence smaller firms and vice versa. Hence it is essential to examine key developments amongst larger firms in order to better understand the small-firm sector' (Karlsson et al., 1993, p. 7). An excellent illustration is provided in France by a line of thought that runs from Delattre (1982) to Boccara (1998) via Parent (1995a, b):

⁴³ The special position of subcontracting SMEs is of vital significance. Apart from by the authors cited here, the issue was also covered by, in particular, Bonneau, Gardes et al. in the late 1980s (1989). On the basis of a questionnaire-based survey of 355 enterprises, of which two thirds have fewer than 50 employees, 80% are single establishments and 75% are independent subcontractors, they show that, depending on the sector, 7% of them have experienced a rise in the number of unskilled workers (26% in the smelting industry and 14% in the plastics sector) and that the smaller they are the less increase they are seeing in the number of skilled workers (28% of enterprises with 20-49 employees and 69% of enterprises with 200 or more employees). It is sectors in which the proportion of skilled workers was already greatest (boiler-making, electronics and engineering) that have continued to see a rise in skill levels. On the other hand, 49% of enterprises have improved their skills structure by increasing the proportion of

Boccara, in particular, shows that it is mainly in SMEs that either belong to groups or operate within their sphere ('circulating SMEs', that is, SMEs that enter and leave group control) that there is the most evident growth in employment (these SMEs created 300 000 jobs during the period 1984-1992).

On this basis, it would be possible to identify several areas of separate or combined investigation, depending on the chosen reading of the situation: either focusing on the fragmentation, decentralisation, externalisation, deconcentration or hiving-off of large groups, not forgetting the other forms of co-contracting, franchising, co-design or multiple partnerships⁴⁵, or concentrating on the current endogenous development of a new SME architecture, with the development of micro-groups (SESSI, 1995) or *networks* organised on geographical or other bases, which statistical methods are still having much difficulty in covering (INSEE, 1997). This means that it is mainly the relations of financial dependence that have been studied. Yet, in many cases, it is still too soon to give a breakdown of SMEs or LEs by the most value-creative segments (strategic aspects), particularly in value chains that run from industry to distribution. Also, forms of cooperation (legal, commercial) or the sharing of quantitative and qualitative human resources by SMEs and LEs are still relative strangers to statistical

professional and managerial employees and engineers and/or technicians. According to this criterion, and many others, it is again size and sector that are the determining factors. For example, although the use of temporary labour increases with size, either in intensity or frequency, it is in the smelting industry and the plastics sector that enterprises make most use of fixed-term contracts (9% and 7%, respectively). For the moment, it is the plastics sector and boiler-making industry that are the highest consumers.

⁴⁴ We shall see later that it is precisely these SMEs that retain their autonomy or 'market power' that are the highest performers in terms of the quantity and quality of employment they provide.

⁴⁵ A stronger typology of these many SME/LE relations can be found in F. Saget, in Commission of the European Communities (1989, pp. 49-65). See also the ENSR publication (1996, pp. 157-178).

observation. Apart from the methodological issues concerning the comparability of variables used in international comparisons, these are the two essential limitations of macro-statistical approaches, which are partly solved in research with a more qualitative or monographic bent, as well as in approaches focusing on a single industry (see later).

Research on new production approaches in SMEs (and especially SMIs)

Attempting to construct some typologies on the basis of a very considerable number of organisation variables for some extensive samples of French and German SMIs (small and medium sized industries), Moati, Pouquet et al. (1997) distinguish four major categories (and eight subcategories) of SMIs, depending on their production approaches (degree of openness to the environment, internal nature and organisation of the technical system and development, degree of specialisation, degree of consideration of human resources and the organisation of work, etc). The final breakdown is: 39.6% 'traditional SMIs', 31% 'cognitive SMIs', 16.5% 'Taylorist SMIs' and 12.9% 'lean commercial' SMIs. Whereas 'traditional SMIs' are a highly diversified group, which tend to operate in sectors that are not highly competitive and perceive their environment as safe and stable, 'cognitive SMIs' are usually to be found in medium to high-technology sectors, requiring increasingly high skill levels among workers and constant adjustments. 'Taylorist SMIs' tend to be in competitive, 'everyday' sectors, and 'lean commercials' are in sectors experiencing growing competitive pressure, leading to reduced performance and a need to reorganise to adapt to changes on the market. This is not the place to describe the content of each of these types, which would require considerable discussion. We shall simply mention two major aspects:

1. on the one hand, Moati, Pouquet et al. show that 'the sector to which an enterprise belongs does not necessarily indicate the type of production approach it will adopt' (p. 178). In other words, although some characteristics of the sectoral environment will be more or less favourable to their dissemination, 'different production approaches

can coexist among SMIs in the same sector. The adoption of a particular production approach thus seems to be as much the product of a strategic choice as a standard response to a certain sectoral environment' (p. 119). Among traditional SMIs, for example, there may be both passive, closed enterprises and SMIs exploiting a 'technological niche';

2. on the other hand, looking at public aid for SMIs, the authors demonstrate that this aid is used very differently, depending on the production approach involved. Briefly, although 'Taylorist' SMIs, for example, are over-represented among SMIs receiving aid concerning production factors (capital investment, aid for recruitment and termination of contracts, etc), 'cognitive' SMIs are more highly subsidised by aid for innovation. Also, among the 'cognitives', we need to distinguish those that are 'close to science' (high-tech SMIs) and 'global technologists', which are relatively disconnected from production activity, work in networks that make more 'eclectic' use of aid. The former are certainly given greater preference in France than they are in Germany, where public aid – although used less – seems to be distributed more evenly. Combining recommendations with strict observation, the authors draw an inspiring conclusion from their empirical research: we need to encourage 'the maintenance of an aid system that is rich and diverse enough to provide appropriate support for each enterprise category, in accordance with the requirements of the relevant production approach' (p. 192). Nevertheless, they comment that 'in France and Germany, it is precisely the enterprises that are being most marginalized by major developments in the organisation of production – those that, overall, have the poorest economic results – that are benefiting least from public enterprise aid and criticising it most' (p. 166).

3.2.2 Longitudinal research: understanding processes

We have seen that the main problem facing macroeconomic research lay usually in the im-

possibility of giving an account of developments within a given enterprise population in two successive surveys. Now, we know that enterprise movements are not simply a question of quantity but also of quality. For example, the disappearance of an enterprise might be attributable to a cessation of trading or a change in legal status. Similarly, a new enterprise might be a genuine creation 'from scratch' or the result of a transfer of activities from one enterprise to another. If the instrument of observation is too distanced from the field or if the categories of analysis are too loose, there is a major risk of losing a vital part of the information. This type of difficulty is usually dealt with by replacing the examination of processes with a sequence of 'stills'. Longitudinal approaches serve precisely to avoid this problem.

A good example is provided by an important study conducted by North, Smallbone and Leigh (1994), which had the twin merits of looking at the contribution made to employment by mature rather than newly-formed SMEs and, at the same time, examining changes in work processes and their impact on jobs during the 1980s. The authors study a panel of 293 enterprises in existence in 1979, which was later expanded to a retrospective sample for the period 1979-1990. The SMEs chosen are all independent, employ fewer than 100 workers, and operate in eight sectors of manufacturing industry, ranging from labour-intensive sectors (clothing, furniture) to higher or medium-technology sectors (electronics, scientific instruments). Moreover, they cover three distinct geographical zones (urban, semi-urban and rural).

What is the value of this research on the methodological level and, particularly, what are its most important contributions? Firstly, it may be noted that the authors do not simply study SMEs' situation at the beginning and end of the reference period, but are able to describe how these enterprises have developed throughout the 1980s and, therefore, to comment upon the processes that have led some of them to survive and change (the 'survivors') and others to disappear (the 'non-survivors'). There are 124 non-survivors, causing the loss of 2 631 jobs, or 37% of the jobs provided at the begin-

ning of the period. The survivors are responsible for employment growth of 18% in the panel, but this general trend conceals a difference between survivors whose workforce has increased (52%) and those who have seen a drop in the number of people they employ (36%).

This research is a 'concentrate' of many observations that are repeated again and again in English and European literature. Medium-term trends in the demographics of enterprises and jobs conceal a multitude of changes affecting SMEs which are very difficult to identify in the short term or in terms of dynamics. The 'non-survivors' are usually smaller than the 'survivors' and belong to specific sectors. Among the 'survivors', on the other hand, it is the largest enterprises (with more than 50 employees) that have lost the most jobs. Another discovery: it is SMEs in rural areas that perform best in terms of employment, with 50% job increases in most sectors, as against 6.7% in London and 23% in semi-urban areas. Finally, there is a statistically significant correlation between the economic development of the SMEs studied and the number of jobs they create, since 83% of jobs created are in enterprises that doubled their turnover during the 1980s. The authors use this to draw a useful conclusion: 'From a policy point of view, it suggests that focusing on job creation *per se* may be less successful in generating employment in the longer term than focusing on those firms which have the greatest growth potential' (1994, p. 222).

The authors thus confirm Storey's theory (1988), which is repeatedly cited in the literature: a substantial proportion of job creation in SMEs tends to be concentrated in a relatively small number of firms.

With regard to changes in the labour process⁴⁶, North, Smallbone and Leigh focus par-

⁴⁶ By 'labour process', the authors mean not only the status of employed workers (full-time/part-time, gender distribution, degree of contrast between core and peripheral workers), but also the proportion of skilled workers, the skills level required by production and the degrees of demarcation between the various skills levels.

ticularly on the likely increase in (numerical or functional) flexibility in SMEs. They follow Shutt and Whittington (1987) in demonstrating small firms' dependence on large firms' fragmentation strategies, but they do not find any significant increase in the number of part-time or 'peripheral' workers, which is an employment practice used by a minority of SMEs. Indeed, SMEs seem to prefer to use overtime as a way of adjusting the quantity of labour. As regards functional flexibility, although the authors note a slight increase in the number of skilled workers, they are struck by the great stability of the kinds of skills required by enterprise managers over the reference period. It is, of course, in the minority of SMEs working in technologically sensitive sectors that the most significant changes are taking place, but the trend is towards 'upskilling' or 'reskilling' rather than towards the 'deskilling' that is nonetheless evident in some firms manufacturing electronic products.

The conclusion the authors draw from this longitudinal study of SMEs over the period 1979-1990 and a study of SMEs' practices as regards employment and use of labour is that, during the 1980s, most adjustments in SMEs were marginal and few firms have introduced radical changes in their labour process. In most cases, there was no 'radical break' in the way SMEs manage the labour factor. It was very difficult to find SMEs with a clear strategy of human resources management: only 16% of the London panel could be considered as having an 'explicit labour strategy' and the structural adjustments they made concerned factors other than forms of labour: 'adjustments to other aspects of the firm, such as products, markets, and the organisational structure, were more common than labour process adjustments' (p. 253).

3.2.3 From sector to system: coordinating industrial economics and strategic management

It has been repeatedly argued that the sectoral variable is, together with size, undoubtedly the one that best explains the quantitative management of labour in SMEs. At the same time, we have seen that a break-

down into major sectoral aggregates is inadequate if we want to perceive the full complexity and diversity of behaviour patterns among SMEs in the same sector. For purely descriptive purposes, the notion of 'system' adds an *interpretative* and *dynamic* dimension to research on inter-enterprise relations. It also makes it possible to look at industrial economics and strategic management in combination, revealing that SMEs' economic performance and labour management are largely dependent on the position they occupy in 'chains of value' (Porter, 1990; Chevalier, 1997). The specific purpose is to understand how the characteristics of final demand structure and restructure new inter-relations between design, production and distribution and how they influence both the internal organisation of enterprises (technologies, ways of using capital and labour, etc.) and relations between enterprises (redefinition of enterprise boundaries, networks, partnerships, domination, etc.).

For example, are SMEs in a position to appropriate the most value-generating segments in a given system or, on the contrary, are they ghettoised in activities that keep them distanced from these segments, to the benefit of large groups? This is the major question that needs to be asked, though the notions of 'market power' or 'added value' in the micro and macroeconomic sense are not of very much help here. Some SMEs are indeed able to succeed without occupying a particularly large market, as in the case of 'niche' enterprises in particular; on the other hand, in an economy of diversity, it is precisely the 'priceless' value of a product or service, as judged by the end-client, that counts more than quantity or price. This is why a good knowledge of this end-client, acquired via direct contact, is always a distinct advantage of high-performance SMEs.

Of course, economists do not always look at enterprise strategies in this way, which is why they find it difficult to explain efficiency differences between SMEs in the same sector (Trouvé, 1999). It is nevertheless suggested by many recent works on the restructuring of some systems, such as agri-foodstuffs (Lamanthe, 1998), transport or logistics, tex-

tiles and clothing or even the automotive industry. In the textiles and clothing sector, though with some differences depending on the country concerned, SMEs are losing their once dominant role in production and moving into distribution. This is leading to a redistribution of jobs, whose impact is being felt both in former production areas and in SMEs, which are being forced to take up new positions either upstream (for example, in design or innovation) or downstream (for example, making use of new distribution circuits) or in new 'interface' service functions (Courault and Parat, 1998).

In the automotive sector (Gorgeu and Mathieu, 1995, 1998, 1999), we are seeing the hierarchisation of subcontracting levels, orchestrated by manufacturers or final assemblers, who are using just-in-time organisation methods and therefore forcing a reduction in the number and concentration of first-level suppliers, as well as their relocation (neighbourhood factories). So, what is the role of SMEs in the reorganisation of this system? The authors cited above show, in particular, that SMEs in the sector have some specific features in terms of their method of labour management, depending on their level in hierarchical subcontracting relations. For example, although manufacturers are losing jobs, equipment suppliers are gaining them; but this is less a quantitative labour transfer than a new distribution of skills and skills-management methods from one end of the system to the other. In this respect, it is possible to make two reasonable hypotheses: firstly, in systems including SMEs as players, it can be argued that their position is more decisive than their size and even that the former determines the latter; secondly, there is a link between the hierarchisation into subcontracting chains organised by the dominant enterprises in certain systems and the segmentation of the labour market, as B. Baudry confirms in a recent piece of research (1994). In the case of the automotive industry, one of the economic interpretations of the vertical disintegration of large groups is 'the potential and frequent cost differential between in-house production (in a large enterprise) and external supply (by SMEs), because of labour costs' (De Banville and Chanaron, 1991, p. 56).

3.2.4 Territorial approaches: in the shadow of the recurrent model of industrial districts 'à l'italienne'

It is a known fact that, more than anything else, SMEs' development depends on conditions associated with their local environment. This is why much of the research on them, particularly that inspired by Marshall (Marshall, 1906 and 1919; Marshall and Marshall, 1891)⁴⁷, has very quickly placed the emphasis on their inclusion in a specific economic, social and historical context. We have seen that, in some countries, such as Italy, research on SMEs has always taken this approach, whereas, in other countries (Germany, the UK, France), the crisis in mass production has led to its re-emergence (Piore and Sabel, 1984). Finally, it might be claimed that this approach remains a source of inspiration for analyses of the development of networked firms (Veltz, 1997; Rullani, 1998; Gastaldi, 1999).

Localised SMEs or the district model

An abundance of literature that cannot possibly be looked at in detail here serves as a basis for identifying some major focuses in the majority of works that have combined analysis of SME fabrics and their territorial organisation. Firstly, there are various paths for the formation and development of enterprises

⁴⁷ The issue of industrial districts is a long-standing subject of economic analysis identified and theorised by A. Marshall. 'Districts' are localised industrial systems of SMEs whose roots lie in the historical forms of the small semi-industrial, semi-artisanal workshops of early industry, described and analysed by Marshall in the form that existed locally and historically in and around Manchester in the early twentieth century (Industry and Trade, 1919). The market is not governed solely by the principle of competition, whereby only the best profit at the best price to the satisfaction of all; cooperation and solidarity are also principles that in exceptional cases replace the basic economic rules. Marshall has inspired research on large enterprises and SMEs, with each form being synonymous with a distinct organisation 'theorised' according to different principles: broad specialisation and integration for large enterprises and geographical concentration and narrow specialisation for SMEs grouped in districts (Courault, 1999).

that cannot be reduced either to the purely individual emergence of small firms or to the model of growth illustrated by a small enterprise that turns into a large one; one of these paths is represented by the recurring model of the 'districts à l'italienne' that we described earlier. According to the founding fathers, this model is conceived as a localised system of inter-enterprise organisation, usually comprising a myriad of craft and industrial SMEs concentrated in small or medium-sized urban areas around one or more specialised industrial production.

At economic level, this geographical proximity of a multitude of SMEs, sharing the entire production process on the basis of a very strict division of labour⁴⁸, generates 'area economies' that have advantages over economies of scale (Becattini, 1987). However, these 'localised systems of production and innovation' cannot be conceived without the substructure of the 'local community', which is the basis of their economic success. Because of the geographical proximity and, above all, the social intimacy of entrepreneurs, relations of cooperation and trust are built up alongside competition and market relations. These two dimensions are indissociable and essential to the formation of 'SME districts'. Becattini reiterates this: it is impossible to separate analysis of the production system from the social conditions underlying that system (in Pyke et al., 1990). According to Bagnasco (1988), like the market itself, the district is a 'social construct' that brings together a decentralised production system, unique ways of using labour and strong local cooperation mechanisms, as well as a self-regulating political system at local level (see the works of Trigilia), with socio-occupational groups being partners in local institutions guaranteeing the permanence and reproduction of the system.

It is because they have been unaware of the coexistence of all these elements in a single unit that a number of economic decision-makers have regularly toyed with the idea of importing the 'district' model into other national

contexts (see the considerations of DATAR in France). This is also why a number of researchers have endlessly returned to the model, or to similar configurations, to refine its interpretation and compare it with current or earlier observations. For example, in France alone, we might mention the collective research coordinated by B. Ganne (1992). From an accumulation of research over the years, it finally emerges that the examples found elsewhere, in other national contexts, have remained exceptions that have never given rise to an Italian-style generalisation of the model. Simplifying somewhat, one might almost say that three schools of thought can be identified here: the most naive or most technocratic is the idea of trying to establish districts everywhere (DATAR); the one that one sees everywhere, from Italy to China, Taiwan to Peru, Brazil to India: works illustrating this school are cited in the survey of the literature by Benko et al. (1998); and finally, there is the school that sees the district as a socio-production model that is unique and highly specific to Italy: this is the line taken by Courault and Ganne, with the latter putting forward the very realistic notion that there is no need for peripheral areas to be integrated in 'localised production units' to guarantee the industrial success of some SMEs. He provides evidence of this in a forthcoming publication (1999) that combines the local and longitudinal approach to show that SMEs can develop alongside new types of geographical groupings (based, for example, on occupation-based approaches) that are very different from the 'localist' model of the Italian districts.

The notion of network: renewed analysis of relations between SMEs and large enterprises?

We shall now move from SME districts to 'systemised' or 'networked' SMEs. The former term focuses expressly on SMEs. Network or systems-based approaches look more particularly at relations between SMEs and large enterprises: some focus on the 'SME-isation' of groups in new production organisations at world level (Raveyre, 1988, 1999); others concentrate attention on the restructurings that are taking place as a result of SMEs' individual routes to internationalisation (Ganne,

⁴⁸ 'The district is a concrete example of the localised division of labour' (Becattini, 1992, p. 39).

1999); while still others put the emphasis on new forms of territorial structuring, based on new relationships between SMEs, between SMEs and markets, SMEs and groups, internal and external local relations (Rullani and Romano, 1998).

In any event, although there is no universal model of the SME, the network seems to prefigure some infinitely flexible and open extensive forms which, although they represent the continuation of district-based SME systems, might in the future become a favoured way of restructuring groups, bringing SMEs and large enterprises together. As regards methodology, however, it might be noted that these 'new forms of organisation' and inter-firm relationships, particularly in the post-Fordist context, once again prove the need for improved integration of local and global analyses, qualitative research and macro-statistical studies. On this latter point, despite some recent inroads (see, in particular, the works of Hecquet and Lainé – 1998 – on industry in France), a statistical typology of networks has yet to be devised and is proving to be a highly complex task (INSEE, 1997).

3.2.5 The virtues of socioeconomic typologies: enterprise profiles, manager profiles

We have already seen the value of typologies, and typologies based on a multi-criteria, socioeconomic definition of SMEs are certainly the richest. Julien and GREPME (1997, pp. 1-16) attempt to draw up a relatively exhaustive bibliography before proposing a 'complex global typology' integrating several 'continuums': 'the material dimension (number of employees, assets, turnover), sector or branch of activity, type of market, centralisation or control and structure or organisation, level of independence, type of strategy followed, type of technology used and use or non-use of innovation' (idem, p. 10), and proposing a multidimensional definition of the concept of SME: small size, centralisation of management, little (internal) functional specialisation, an intuitive or relatively unformalised strategy, an internal information system that is relatively uncomplicated or not highly organised, and a simple external information

system. Maqueda Lafuente in Spain has made similar proposals, including more qualitative criteria (1992, p. 16).

This is not the place to discuss these definitions, which we feel are flawed by many pre-suppositions, particularly the one concerning 'simplicity', which was a feature attributed to SMEs a long time ago by Mintzberg (1982). However, despite the good workability of quantitative variables, it has to be said that qualitative typologies have considerably enhanced knowledge of SMEs in recent years.

The multi-rationality of SME managers, according to M. Bauer

A very special place must be given here to typologies that combine analysis of *managers' sociological profiles* and analysis of *enterprise profiles*, for, as M. Bauer, expert on the subject, says – there can be no sociology of enterprise without a sociology of its managers, particularly when we are talking about SMEs (1990). In his examination of small business, Bauer (1993) proposes a model that he constructs in the form of a law on the multi-rationality of managers: 'an SME owner/manager works not only on the basis of an economic rationale, but also on the basis of a political rationale and a family rationale' (p. 12). Thus we have a 'tripod' based on *homo economicus* (selling), *homo politicus* (conserving) and *pater familias* (sharing). Whilst the rationality of *homo economicus* is socially valued, that of the two others is concealed by the skilful approach of managers and their firms – hidden, but no less effective for that, one might say.

However, there are also various different economic rationalities – that is, no fewer than five different figures, ordered in accordance with two dimensions: entrepreneurial and patrimonial, sometimes the two together. The same applies to *homo politicus*, whose various figures reflect the different ways of preparing succession, depending on whether there are potential successors in the enterprise, whether they belong to the family or not, whether there is just one successor or several. As for *pater familias*, his behaviour can be understood only with reference to his dynastic concerns. What is the degree of family/enterprise differentia-

tion (number of children working in the enterprise, number of children kept by the enterprise)? Bauer finishes by listing no fewer than 480 different SME management styles and, therefore, 480 different 'SMEs': according to him, this is the price we have to pay for moving away from the 'theoretical firm' invented by microeconomics and towards real enterprises. However, wary of too deterministic an interpretation of his theory, Bauer warns us that 'the role played by owner/managers in building 'their' enterprise explains why the typology of owner/managers is so similar to the typology of enterprises. Similar does not mean the same, however, and it would be ridiculous to confound analytically an enterprise and its owner/manager' (p. 225).

Kotthoff's sociology of small business

This same approach is taken by the works of Kotthoff (1993) in Germany: according to him, the paradigms and constructs that serve as reference frameworks or are used for organisational or management theories have nothing to do with the reality of SMEs. The difference between an SME and an LE begins with the basic notion of *organisation*. And, before all else, 'are small and medium-sized enterprises actually organisations?' (1993, p. 234). Nothing is less certain if organisation means: 'a permanent institution, which acquires relative independence by establishing a boundary between itself and its environment, which also renders itself largely independent, via membership roles, of the persons active within it, of their moods, personal fate and fluctuations, and which is public in nature and carries political weight owing to its size'. SMEs are, on the contrary, based on 'personality, with virtually no independence of their environment and no public character, and their permanence is more than a little precarious' (p. 234).

The personal and private nature of the family economy means its destiny is intimately bound up with that of the owner and his family because 'the entrepreneur is the focal point of the enterprise' (Gantzel, 1962). The entrepreneur is, then, the key to understanding the economics, organisation and management of SMEs. Certainly, not all SMEs are family businesses, but they can be 'familialist' with-

out being patrimonial, as we have already shown (Bentabet et al., 1999). Of course, some new manager profiles are emerging (Ardenti and Vrain, 1995b, 1998), but, whatever their previous path and whatever their social and cultural capital, small entrepreneurs' limited ability to influence the market forces them into a pattern that is very different from the strategic planning that one is more likely to find in Les. 'Our investigation concludes that the "social breeding ground" for entrepreneurial success is the biographical constellation of the entrepreneur himself, whom I call the entrepreneurial social character' (p. 236). According to the reference publications, we find six or seven models of enterprises: 'the small family business, the "boss's" business; the dynamic/charismatic empire, the degenerate family enterprise; the manager-run enterprise deeply rooted in small-scale business, and the technocratic manager-run enterprise'.

We should be taking a risk if we were to enter into the richness of this nomenclature, which concerns not only managers' culture but also the culture shared by professional and managerial staff and employees. This subject is, in any case, covered in some depth elsewhere (Kotthoff and Reindl, 1990). We shall simply note three things: firstly, the typology is based on forms of social regulation (*Sozialordnungen*), including the background and role of the owner, the strength and nature of the hierarchy, working conditions, skills levels, methods of pay, nature of relations among workers, the strength of collective forms of representation (enterprise culture), and the surrounding social environment. Secondly, there are two possible forms of social order: the family-type 'pragmatic production community' and SMEs that are already subject to a bureaucratic, authoritarian order (*seelenlose Arbeitshäuser* or 'factories without soul'). The former is based on close, interdependent relationships between owner and employees (*gemeinschaftliche Sozialordnung*); the second is known as 'instrumental' (*instrumentalistische Sozialordnung*).

A general feature of the world of SMEs is the predominance of the community-based social order, which applies in three-quarters of the cases studied. Thirdly, one might think there

Table 3.2: Typologies of entrepreneurs, according to various authors

Authors	Boswell (1971)	Laufer (1975)	Lecointre (1977)	Marchesnay (1988)	Marmuse (1992)
Typologies proposed	conservative rational expansionist craftsman entrepreneur manager	manager and innovator owner technician craftsman	autonomous family production organisations 'survival enterprises' growth enterprises	PIG' entrepreneur (permanence-independence-growth) 'GAP' entrepreneur (growth-autonomy-permanence)	craftsman entrepreneur manager

Source: Ivanaj and Géhin, 1997, p. 86.

would be a relationship, even some coherence, between enterprise policy, labour system and method of social regulation (*'soziale Ordnung'*), as argued by some French authors (Bentabet et al., 1999). According to Kotthoff and Reindl (1990), this is not the case: for example, SMEs in the machine tools sector, which are product-focused and have a very highly skilled labour system, might be based on the same 'social order' as small enterprises in the textiles and clothing industry, which, on the contrary, have their eye on economies of scale and operate in a highly Taylorist labour system. This literary debate merits further research.

Other authors, such as Ivanaj and Géhin (1997) in France, explore 'the relations between the manager's values, perceived as a value system, and strategic behaviour'. This covers, for example, aspects as diverse as sociocultural choices (religion, politics, the family, the individual, work, etc.) and entrepreneurial values (acceptance of risk, conception of growth, profit, security, etc.). Ivanaj and Géhin offer a relatively full survey of recent research in this field in the French-speaking countries and, for example, provide a table of the most commonly used typologies (see Table 3.2).

It is of this tradition that our own works are a part, seeking to identify the links between market strategies, labour management practices and training in very small enterprises (Bentabet et al., 1999, pp. 99-117). On the basis of qualitative research covering eight sectors of activity, we have identified six variables

explaining VSEs' practices (sector/industry, legal status and place in the chain of value, territorial roots, degree of structuring of occupations exercised, strategic orientations and managers' career path and profile). This gives rise to a model constructed on the basis of the continuum and breaks between three stylised VSE types (traditional independent VSEs; managerial VSEs, that is, ones that are 'integrated' in large groups or 'modernised'; and entrepreneurial VSEs).

3.2.6 Ethnographic studies

Finally, we need to mention a number of works deriving explicitly from the ethnographic method, which tend either to be based on 'participatory observation', as in the case of Holliday (1995) or Ram (1994), or to be part of the current of action-research or 'interactive research' applied to management, as propounded by Plane (1998). In the former case, researchers study 'the real life of the organisation of production' and try to understand the players' behaviour patterns from their point of view. In the latter, researchers formulate scientific or operational knowledge on the basis of four principles: 'the knowledge formulated is based on fieldwork; - fieldwork is adapted to facts and situations that might influence it; - the players have an important role in the research process; - the researchers are responsible for interpreting the information and theoretical constructs deriving from the research'. Researchers should, in particular, focus on the relationships between

Table 3.3: The fate of newly-created or re-launched enterprises in France (by sector)

Survival rate after five years	1987-1992
Agri-foodstuffs industry	62 %
Hotel and catering trade	44 %
Household services	66 %
Industry	53 %
Enterprise services	54 %
Transport and tele-communications	53 %
Commerce	44 %
Construction and civil engineering	49 %

Source: D. Francoz and J. Bonneau (1994).

'the formal and the informal', 'the visible and the concealed', 'words and actions', 'what is implicit and what is explicit'. Furthermore, all of this research is based on intensive, qualitative methodologies that are highly appropriate to the formulation of theories, which can then be complemented by empirical methods of verification of a statistical nature.

3.3 From 'Schumpeterist' ('Schumpeterian') entrepreneur to socialised creator

As we shall see later, it is important not to confuse entrepreneurship with employment creation. The fact that a lot of new enterprises are being created does not necessarily mean that a lot of jobs are being created, too (Schmidt N., 1989). Nor should we confuse *entrepreneur profile* and *manager profile*: for, although an entrepreneur is capable of creating an enterprise by introducing 'new combinations of means of production' (Schumpeter, 1935), a manager will ensure its survival. Although entrepreneurship 'is not a profession' (idem, p. 325), a manager's realism is not always reflected in strong creativity or the expansion of activities. Yet these two figures represent two complementary aspects that are a major focus of attention for today's decision-makers (OECD, 1998a) and the subject of a particularly abundant literature, especially in the English-speaking countries: *creation* (what are the factors of success and

failure on start-up?) and *growth, permanence or performance* (is it possible to identify in advance people who are capable of creating enterprises with strong potential for development?⁴⁹ How can we support them?)

3.3.1 Flourishing research that demystifies the image of the 'inspired' entrepreneur

On this point, following a euphoric phase during the 1980s, most research today offers a vision that is more 'lucid', 'more complex' and more measured with regard to enterprise creation and, first and foremost, its repercussions in terms of jobs (Saporta, 1994). We know, in particular, that no more than 50% of newly-created enterprises in Europe survive for more than five years. Of course, this survival rate varies from one sector to another, as is so clearly demonstrated by Francoz and Bonneau (1994, see Table 3.3), but it is usually lower for sole traders than it is for small enterprises involving more than one person. For example, Callies (1989a and b) shows that more than 60% of new enterprises still have no employees after four years. Also, 'most research shows that a rapid increase in employment by enterprise-creators is still a relatively rare occurrence, particularly if the creator began as a sole trader' (Saporta, 1994, p. 75). In France, a now rather old study that has served as a reference work (Brun and Mouriaux, 1993), which looked at 1 082 enterprises created in 1989, showed that only one of these enterprises had exceeded the threshold of 50 employees three years after start-up, and that only 12% employed more than five people. This latter percentage fell to 1% when the initial workforce comprised only the enterprise-creator.

In Germany, too, the 1980s saw a net increase in the number of small enterprises and jobs they had created (Paulini, 1997). However, Brüderl (1998) notes that there is plenty of room to feel pessimistic about the fact that a

⁴⁹ It should be noted that this category of entrepreneurship, known as 'continued entrepreneurship' because enterprise creation is followed by economic growth, jobs and investment, provides the continuum between *entrepreneur* and *manager*, as described earlier.

third of newly-created enterprises disappear during the first five years and that, of the survivors, only a quarter show a significant increase in jobs, meaning that only very few new enterprises actually manage to grow. There are nevertheless some positive aspects on the macroeconomic level since, according to Brüderl, the 4% of new enterprises that have a strong expansion dynamic are bearers of structural economic change. Even Marbach (1942) had noted that the value of SMEs lies not in their individual existence but in the aggregates they form. We therefore need to distinguish between the individual fragility of small enterprises and their strength as a group (*'Stärke des Aggregats'*, Leicht and Strohmeier, 1995, p. 7). This is a notion dear to Schumpeter: SMEs are a perfect illustration of the phenomenon of creative destruction and demographic turbulence (1934).

Nor should we have any misconceptions about recently-created innovative SEs: in Germany, their rate of creation is paradoxically slower than it was in the 1980s, with their proportion of new enterprises in manufacturing industry falling from 8% to 6.7% between 1990 and 1995 (Nerlinger, 1998). In the UK, Oakey (1991) obtained similar results in a piece of longitudinal research on the biotechnologies sector. These small 'high-tech' firms need regional university infrastructures and have little impact on enterprise and employment-creation dynamics at regional and national level. Of course, there are many aid programmes aimed at them, but these programmes tend to be fairly ineffectual because of lack of transparency. In France, Arnould and Abonnat (1999) identified no fewer than 37 different types of aid (at regional, national and European level) available in 1999 to small firms based on new information and communication technologies [NICTs]. Young innovative enterprises (particularly those using NICTs) need to be covered by some more in-depth research so that we can understand their medium and long-term development and their contribution both to the development of new industries and to employment. Work could also be done on international comparisons of their financing (Nerlinger, 1998). Generally speaking, however, virtually all the current research agrees that it is important

not to overestimate the role that technology might play in generating employment.

3.3.2 Enterprise creation and the labour market

In order to understand the mechanisms of enterprise creation, many researchers have tried to identify the relationship between enterprise creation and the functioning of the labour market. On this point, everyone is aware of the unresolved controversy about 'push and pull factors' in the works of the prolific American researcher D. Audretsch (1993). On one side, the increase in enterprise creation is explained by a 'push' factor – an upsurge in the number of unemployed workers, who are, in some cases, being encouraged by public policy to create their own enterprises. On the other side, it is argued that enterprise creation is being 'pulled' by demand for additional goods and services or, in other words, by economic growth. In the USA, neither Audretsch himself, focusing on industry, nor other researchers taking a regional perspective (for example, Reynolds et al., 1993) have found any link between the rate of enterprise creation and the high level of unemployment. In fact, they have found quite the opposite, that is, that the number of new enterprises created is lowest in regions with high unemployment levels.

One might wonder whether these results can be generalised to cover Europe – either all or part of it. Indeed, a considerable amount of research has been done over the past few years in France and Germany on the phenomenon of enterprise creation by jobseekers. A distinction has even been drawn between 'entrepreneurial creations', which are the result of a project, calculation or rational forethought, and 'social-integration creations' by players whose objectives are more defensive and comprise exercising on their own account knowledge and know-how acquired during previous employment (Saporta, 1994). Several quite substantial works have shown the significance and effectiveness of public enterprise-creation aid for the unemployed (Aucouturier, 1997; Aucouturier et al., 1996).

However, the national and macrostatistical data in this field are both limited and uncon-

vincing. With one exception: Johannisson (1993) in Sweden imitates Reynolds in looking at the determinants of enterprise 'volatility', region by region. Having identified four conditions that affect enterprise creation (market for goods or services, availability of resources, start-up environment and the occupational backgrounds of those creating enterprises), he stresses the importance of the last two, which concern the spatial and sociological sources of creativity (presence of craft workers, local networks, availability and dissemination of role models, etc.), which are similar to the 'industrial atmosphere', 'the air that one breathes', as described by Marshall. Again in Sweden, Davidsson et al. (1993) examine 80 labour markets and focus on the qualitative factors that influence SME dynamics, such as enterprise networks, etc.

Now at last, apart from the difficulty of making international comparisons on this tricky issue, we realise that rates of enterprise creation (usually calculated in relation to 10 000 people aged 16-64) not only vary from country to country (OECD, 1998, p. 53), but that the most marked differences are within individual countries (Reynolds and Storey, 1993), with the rate varying, for example, from 1 to 4 in France or the USA, 1 to 3 in Italy and 1 to 2 in Germany.

We shall not be returning to the question of the value of studying the beneficial effects of the geographical concentration of enterprises and economic activities (Isard, 1956, cited by Bonnet). Instead, we shall concentrate on two other starting points mentioned repeatedly in the European literature: sectoral criteria and the characteristics of entrepreneurs. The former relate to an almost deterministic conception of enterprise creation; the latter are of a more sociological nature (and perhaps equally strong determinants), for they cannot be reduced to the simple psychological profiles or other 'cognitive maps' of enterprise-creators, which are often wrongly considered to be the ultimate explanatory factor.

3.3.3 Sectoral variables

On this first point, we can draw on the European Commission's fifth report on *Enterprises*

in Europe (1998, pp. 65-80). Apart from mentioning the influence of economic cycles (which seem once again to contradict the theory concerning unemployment's 'push effect' on enterprise creation) and the fact that there are some economic sectors in which SMEs predominate (vehicle recovery, sales and repairs; personal services; hotel and catering trade, etc.) and others dominated by large enterprises (post and telecommunications, mining and energy, automotive industry, etc.), the aforementioned document distinguishes two major European areas in the mid-1990s: the South (Portugal, Spain, Italy and Greece), plus France, is characterised by a lower growth rate of enterprise creation in service activities (about one third of new enterprises) and by a very high rate of creation in commerce and the hotel and catering trade (ranging from 41.2% in Spain to 45% in Portugal); and the North (Denmark, the Netherlands, Finland, Sweden and the UK), where, on the contrary, the majority of enterprise creations are in the service sector (usually close on 50%), with every country in the North seeing more enterprise creation in services than in commerce and the hotel and catering trade. In these latter sectors, however, closures are exceeding creations in both North and South, whilst the service sector is experiencing more creations than closures (except in Sweden).

Yet, this approach, using aggregate figures, seems inadequate. Which services are we talking about? Services for private individuals, neighbourhood services or high-added-value services for enterprises? This is why attempts to produce a model based on intra-sectoral methods of regulating the demographics of establishments or enterprises, such as the one proposed by Bonnet (1998), seem useful. Using economic indicators, Bonnet suggests that we distinguish four methods of regulation – we leave it up to the reader to match the corresponding subsectors with each of the following definitions:

- *competitive sectors that are slowing down*, where we are seeing a drop in the number of establishments and enterprises, though with the possibility of a strong revival if the barriers to entry (measured by average size of workforce) are weak;

- ❑ *growing competitive sectors*, where numbers of establishments and enterprises are rising, particularly in sectors with weak entry barriers, and where the number of enterprise closures (voluntary cessation of activity and bankruptcy) is increasing because of the high number of enterprise creations;
- ❑ *concentrated sectors*, which set up *strategic entry barriers* (price policies, commercial capacities, etc.) that obstruct enterprise creation. This means there is a low turnover in terms of the production fabric;
- ❑ finally, *concentrated sectors* which operate a more subtle regulation of enterprise flows, combining, on the one hand, *opportunities for entry into market niches* or technological niches (presence of markets that are dismissed by large enterprises because they require the use of highly specialised technologies which are dependent upon the knowledge of a few specialists who have decided to exploit some spheres on their own account) and, on the other, *restructurings*.

3.3.4 The social determinants of 'enterprise spirit'

An imagery deriving from neoclassical thought continues to perceive the entrepreneur as an isolated player, free of all determination, spontaneous and endowed with exceptional personal faculties that set him apart. This is the simplistic reading commonly applied to Schumpeter's theories⁵⁰. However, most current research on entrepreneurs is trying to prove the influence of their 'social

capital', their ability to '*entreprendre*' [undertake] (Boutillier and Uzunidis, 1999). Far from necessarily being an initiator or pioneer in an area in which 'imitators' dominate (Paulini, 1997), entrepreneurs tend to come at the end of a long family line, often through several generations, and operate in a clearly defined sociocultural environment. This is why we need to study their socio-occupational backgrounds, the beliefs that result from that background, and the processes that have led them to create an enterprise, being careful not to confuse, as is too often the case, 'their moral and ethical value system' (Max Weber), which usually tends towards *individualism*, with the process of creation, which instead highlights the *interactions* between creators and their original or current social or occupational environment, institutional aid or partnership opportunities (enterprise/university), circles of innovators, etc.

Hence the many current categorisations that distinguish, for example, entrepreneurs 'from entrepreneurial environments' and 'constrained entrepreneurs' (Bonnet, 1998), 'emerging entrepreneurs', capable of seizing a market opportunity previously un- or under-exploited by other enterprises, and 'adaptive entrepreneurs', who are reacting to unemployment and/or job insecurity (Marchesnay, 1986). Hence also the value of studies that cover the transitions between paid employment or unemployment and enterprise creation and self-employment (on this point, see the works of Caussat and Olier, 1997; Aucouturier, 1994, 1996, for France). In particular, Aucouturier shows that unemployed people in receipt of aid for enterprise creation usually create smaller enterprises than other entrepreneurs, that they are, in other words, not employers in the same way as other entrepreneurs (82% have no employees and three-quarters of them are sole traders, particularly in the craft sector and commerce).

Hence, finally, a recent focus on alternative forms of creation and enterprise: 'new socio-economic entrepreneurship' (OECD, 1998, pp. 125-139), 'integration enterprises', most of which are very small, 'associative' or 'intermediate' enterprises, etc., not forgetting research on 'interstitial' entrepreneurial crea-

⁵⁰ Indeed, it is at the price of a loose interpretation that the Schumpeterist entrepreneur appears to be an isolated player in full control of his intentions for, although for Schumpeter, an entrepreneur questions routines, he is nonetheless influenced by the socioeconomic system of which he is a part: 'economic and social phenomena are moved by an internal impulse and the resulting situations force individuals and groups to adopt, for better or for worse, specific patterns of behaviour: not, of course, because these situations deprive them of their freedom of choice, but because they shape their preferences and reduce the number of choices open to them' (1979, p. 17).

tivity in the urban environment (Roulleau-Berger et al., 1997) or in immigrant communities in many European countries.

In the end, it is the figure of the 'socialised' entrepreneur that emerges, whether researchers place the emphasis on family environment (Carrasco, 1997; Lafferrère, 1998; Boutiller and Uzunidis, 1999), sociocultural and political context (as in the case of the Italian industrial districts or 'regionalist' studies of the UK and Sweden), or on the individual occupational backgrounds of enterprise-creators, and especially that of the professional or managerial staff who leave large enterprises or consultancies to set up their own small enterprise (case studies by Ardeni and Vrain, 1998).

In the first case, there is abundant literature and it would be presumptuous to attempt to draw up an inventory. We shall, however, mention the work of Monchois and Bonneau (1996) who, on the basis of an extensive study of 81 000 newly-created enterprises in 1994, show that 42.1% of those creating or re-launching them had previously been in employment, 43.6% had been unemployed (61% for less than a year) and 14.3% had been occupationally inactive. Asked whether anybody in their family was an enterprise head or in self-employment, 72% said yes and 28% said no. Similar results have been obtained by a number of research projects at European level, both recently and in the past (Gollac and Laulhé, 1987; Viennet, 1988; Keeble and Walker, 1993). Kombou and Kochanski (1988) also demonstrate the influence of the enterprise-creator's social category on the sector and size of the enterprise created.

So, what is to be done about the difficulty of gaining access to credit, which is often said to prevent potential entrepreneurs from putting their ideas into action? Of course, the hypothesis of a connection between a person's inheritance and the likelihood of their setting up in business on their own account has been formulated and verified many times on the econometric level, particularly in the English-speaking countries. What emerges from the most recent research on entrepreneurship, however, is that policies to aid or encourage enterprise creation cannot be reduced to their

financial dimension or replace the transmission of 'informal human capital' (Lafferrère, 1998)⁵¹.

These results determine our understanding of the limitations of the most voluntarist public policies that seek either to promote enterprise creation by limiting unemployment benefits (leverage on the supply side of labour) or to arouse or reawaken 'the enterprise spirit' or 'entrepreneurial culture' by lowering the cost of labour, reducing administrative constraints and costs or neutralising trade union pressure (leverage on the demand side). The former ignore the fact that it is in the regions least affected by unemployment that enterprise creation is most dynamic, as shown by Meager (1992) in the cases of Germany and the UK; the latter, by doing nothing about the social factors that determine people's ability to become entrepreneurs and offering indiscriminate support to SMEs, fail both to stay the unequal development (on both the socio-

⁵¹ Lafferrère's research in France offers some very interesting findings: firstly, 64% of self-employed people have a self-employed father or father-in-law (and the figure is still 30% if we exclude farmers); self-employed people have few qualifications (51% did not progress beyond primary-school studies and 9% have a university qualification, as against 39% and 17% for all employees, excluding self-employed people in the liberal professions). Also, among self-employed people, qualifications (particularly beyond *baccalauréat* level) tend to have a negative effect on the probability of becoming an entrepreneur; in other words, the more qualified the son of a self-employed person is, the less likely he is to become a self-employed entrepreneur. These comments apply particularly to self-employed traders or craftspeople, as opposed to 'heads of enterprise', whose formal human capital is often similar to that of employed people. Finally, we should note a very important finding: using a variable of 'length of time between leaving the school or university system and entering paid work', Lafferrère (1998) finds this period to be twice as long in the case of self-employed sons of self-employed fathers as it is among employees (three years as against a year and a half). This means one might hypothesise that this period is a period of unpaid apprenticeship with the parent, which, though not leading to a recognised qualification, favours the informal transmission of entrepreneurial knowledge and know-how. An argument to remember for the third part of this report on vocational training.

logical and geographical levels) of this ability and, as we shall see, to create a significant number of jobs.

3.4 For a demography of SMEs nonetheless...

Despite the relativism that is a feature of their definition (see earlier in this report), we still need a demography of SMEs. In an economic context marked by significant change, it is as important to study their physiological dynamics as it is to study their anatomy or morphology. We therefore need to pay attention to their *metabolism* when they are simply cruising along nicely, their *catabolism* when they are going through a period of decline and their *anabolism* when they are going through a period of development⁵². And why not a genetics of SMEs, or even an embryology, capable of identifying the forms and movements that precede their administrative birth?

3.4.1 From anatomy to physiology

With the demography of SMEs, we shift from anatomy to physiology, since it involves studying the creation and disappearance of enterprises or, more precisely, three aspects of their dynamics: 'their entry into, growth in and exit from' the production system (Moati et al., 1997, p. 5). We shall not dwell here on the formidable methodological and practical problems posed by measuring and observing these variables, particularly from a comparative viewpoint at European level. The European SME Observatory makes regular mention of it and demonstrates that there is no standard definition of the creation and disappearance of enterprises, that the breadth of the definition varies from one country to another

⁵² Particularly the specific 'turbulence' of the SME environment. Birch, for example, commented that enterprises that develop harmoniously during their first five years then come up against difficulties and often disappear, whereas those that have reached maturity and show all the signs of good health have, by contrast, usually had a difficult beginning. Is it not possible that the metabolism so typical of young SMEs has an *educational purpose*, via trial and error and the gradual discovery of the most effective production combinations? (Dalle et Bounine, 1987).

(ENSR, 1996, pp. 131-136). Although, for example, Germany and Austria have high rates of creation, this is largely because these countries use a *broad definition* of the notion of creation. Conversely, although Denmark, Spain and Portugal have low creation rates, this is a reflection of the *narrow definitions* and sources adopted in these countries.

It is therefore important not to forget the extreme diversity of *entry* methods (creations from scratch, re-launches, takeovers and acquisitions)⁵³. *Growth* also implies several independent or associated methods: internal, external, contractual (assignment, cooperation, alliance), and, of course, *exits* might imply redeployment (moving out of one sector into another), cessations of activity, voluntary changes in legal status (re-launch, takeover), or involuntary exits caused by failure or bankruptcy⁵⁴. What sources do we use? What unit of investigation (establishment, enterprise, group)? What level of aggregation do we choose? These are the questions most commonly put forward, but we shall not be examining them here; instead, we shall be concentrating on the main themes and results that seem to be most certain in European research on the demography of SMEs.

Four main issues are usually covered in the literature: 1. Who are the new entrants and what processes underlie the emergence of new enterprises? 2. What are the main factors determining entries? 3. When the focus is on entry and exit flows, it is the phenomenon of volatility that holds the attention; 4. Finally, what interpretations can we make of the movements of SMEs as a whole in the economic system? We shall examine these questions one by one.

⁵³ According to Bonneau and Monchois (1996), the breakdown of entry methods in the case of France in 1994 was as follows: 7.9% pure creation; 2.6% reactivation; 2.1% relaunch, or a total creation rate of 12.7% for the entire economy, excluding agriculture and financial services.

⁵⁴ In France, although 210 000-240 000 enterprises, or about 10% of all enterprises (excluding takeovers), cease trading every year, there are on average four times more cessations without liquidation than there are bankruptcies (Francoz, 1996).

Box 3.1. Enterprise creation and job creation: a few determining factors⁵⁶

The size of the enterprise when it is created: enterprises that have no employees at the outset create fewer jobs (Dunne and Hughes, 1994; Saporta, 1994; Mouriaux, 1994).

Legal status: sole traders create fewer jobs than small structures taking the form of limited companies (Brun and Mouriaux, 1993).

Methods of creation: although pure creations are in the majority, they create fewer jobs than re-launches or acquisitions (Bonneau and Francoz, 1995).

Regional or local environment: spread of role models in the environment (Büchter, 1998; Johannisson, 1993); effects of geographical concentration (Italian industrial districts).

Trading strategy adopted by the enterprise-creator: independence from distribution circuits (or direct contact with the end client) promotes job creation, as do differentiation or niche strategies as opposed to price competition (Trouvé, 1999); subcontracting SMEs also tend to be less secure (Fieten, 1995; Koch and Strutynski, 1996).

Sector and/or branch of activity: services tend to create more jobs than industry (Leicht and Stockmann, 1993; Sorge, 1996), but intra-sectoral manoeuvres are more decisive than sectoral factors (Kotthoff and Reindl, 1990). There is some uncertainty about the number and quality of jobs created by small 'high-tech' firms (Oakey, 1991; Nerlinger, 1998).

Occupational background of enterprise-creators and self-employment: the former unemployed create more small enterprises than other groups (82% have no employees when they set up their enterprise); unemployed people in receipt of aid provide less employment than any other group of enterprise-creators and the enterprises they set up tend to be one-man businesses (three-quarters of enterprises, as against one enterprise in two created in the form of a company by a person previously in employment; the former unemployed usually set themselves up as craftspeople or salesmen (Aucouturier, 1997).

3.4.2 More pure creations than transfers⁵⁵, but fewer jobs than in existing or re-launched SMEs.

With regard to *new entrants* and despite the various definitions (broad or narrow), the majority of studies indicate that most entry flows are accounted for by very small structures that emerge from nothing. In France, in 1994, pure creations accounted for 57% of enterprise creations, and 73% involved enterprises with no employees (nearly 60% in in-

dustry alone). We shall see later, moreover, that these figures are vital if we are to understand the link between enterprise creation and job creation, since, combining case studies and national macrostatistical analyses, many authors succeed in demonstrating not only that recently-created enterprises make a lesser contribution to employment than creations involving the transfer of activities, but also that the more employees they have at the outset, the stronger their chances of creating jobs (Mouriaux, 1994; Bonneau, 1994; Bonneau and Francoz, 1995).

⁵⁵ These are forms of creation involving the total or partial transfer of existing activities (Mouriaux, 1994), that is, the creation of new subsidiaries, takeovers and mergers, delocations and changes of activity.

⁵⁶ Our concern here is less the factors determining enterprise creation than the factors that influence job creation via enterprise creation.

In other words, although one might rejoice at the fact that creations from nothing account for the large majority of new enterprises (57%, according to Bonneau, 1994), enterprise creation does not necessarily mean the creation of a new activity, since 'externalisation, virtual employment and also re-launches or the creation of subsidiaries are all parameters that limit the field of genuinely new enterprises'. Nor is it synonymous with 'job creation', since, during their first five years of existence, pure creations generate about half as many jobs as re-launches and acquisitions (Bonneau and Francoz, 1995). For example, in the early 1990s, just 1.1% of enterprises created and re-launched in France had more than 190 employees on start-up. In the UK, 74% of enterprises created between 1987 and 1989 employed fewer than five people in 1989 (Daly et al., cited by Love, 1996), but it might also be noted that the percentage of newly created enterprises whose initial workforce comprised 1-4 employees varied from 10% in Denmark and Sweden to 48% in the UK, 36% in the Netherlands, 21% in France and 26% in Italy (European Commission, 1998, p. 73). Generally speaking, however, enterprises entering the production system as a result of acquisition or the setting-up of a subsidiary are, on average, smaller than those resulting from pure creations, though they are also less numerous in most countries.

3.4.3 The main determinants of the demography of SMEs

Many works tackle this decisive issue, but without obtaining any definitive results. The factors determining the dynamics of SMEs, taken as meaning the development 'from birth to death, through all the changes they undergo in the interim', are both multiple and in complex interaction (Karlsson, Johannisson and Storey, 1993). This is why we have to appreciate and admire the systematic survey conducted by Moati et al. (1997) of the international literature – multidisciplinary, both theoretical and empirical, on the microeconomic and sectoral determinants of enterprise demography. This is why we shall pursue this point. In the case of microeconomic determinants, there is an abundant harvest leading to some unquestionable results, but

they are insufficient to 'reveal the full complexity of the phenomena under study'. In the case of sectoral determinants, research is focusing increasingly on segmentations, the purpose being to demonstrate the intra-sectoral efficiency differentials between enterprises, as strategic variables (Trouvé, 1999).

It is becoming apparent, in the case of enterprises being created from scratch, that, in addition to sectoral variables and the 'technological regimes' (Audretsch, 1995) that are a feature of such enterprises (attractiveness, extent of entry barriers, etc.), the weight of the creator/manager's personal characteristics is vital (ability to seize opportunities, mobilisation of networks, personal background, etc.). This aspect is covered by all the research on 'entrepreneurship' that we mentioned earlier. We shall concentrate here on the factors determining growth and 'exit'.

As regards the growth of enterprises, the superiority of VSEs (fewer than 10 employees) with the largest number of employees at the time of creation is once again confirmed (Moati et al., 1997, p. 34; Dunne and Hughes, 1994, on British figures; Dunne et al., 1988, on the USA).

With respect to the microeconomic factors determining exit, it is mainly the size and age of enterprises that have been studied. We know that the survival rate of newly-created enterprises five years after start-up is 49% in France and that it is surprisingly similar and stable in most other European countries: 49-53% in the UK, 58% in Ireland, 45% in Italy, 60% in the Netherlands, 50% in Portugal, etc. (Moati et al., 1997, p. 41). Drawing on a study of establishments in the American manufacturing industry, Audretsch (1995) has shown, for example, that 57% of exits involve establishments that have been in operation for fewer than 10 years (of which 19% involve establishments that have been in operation for one or two years), as against 23% involving enterprises that have been in operation for more than 20 years.

Birch (1979, 1987) had already pointed to this: newly-created small enterprises are faced more than anything else by a serious selec-

tion process during their first few years of existence. It is also during this period that they can best test their relative efficiency level (Jovanovic, 1982), and those that survive for more than five years are not the ones that have experienced the fewest problems – quite the contrary (Dalle and Bounine, 1987). This means that, from a strictly empirical viewpoint, there is a link between the size and age of enterprises and the likelihood of them leaving the production system: in France, in 1996, 90% of failed enterprises had fewer than 10 employees. It might be argued that, whilst large enterprises (or establishments) are slimming down but have a greater chance of survival, the smallest, youngest SEs are more likely to disappear than in the past.

However, there are other factors determining exit, that is, the disappearance or transformation of small enterprises. This is paradoxically the case of ‘entry methods’, that is, their creation: in France, SINE data (INSEE) show, first and foremost, that, during SEs’ first few years of existence, the mortality rate of pure creations is higher than that of re-launches. Then, size on entry, which should certainly be a decisive variable guiding public policy, is once again highlighted: still in France, the survival rate after five years for one-man businesses set up in 1987 was only 45%; the percentage rose in line with size, reaching 65% for enterprises with 6-9 employees and 10 employees or more (Bonneau and Thirion, 1997). The American and German figures are identical. Of course, accounting ratios (debts/own funds) are not ignored by management-centred research. For example, ability to access external funding: an enterprise that benefits from bank support has a stronger chance of survival. Similarly, more and more research is emphasising the importance of ‘intangible’ support networks (advice, training and information) in improving SEs’ survival rates and chances of consolidation during periods of growth.

The profile of enterprise-creators is also used to explain SEs’ likelihood of survival, particularly their age and the significance of their cultural capital (qualifications, occupational experience): examples are Brüderl et al. (1992) in Germany, Storey (1994) and Cressy (1996) on British firms, Bonneau and Francoz in

France (1995), etc. In this case, as in the case of factors explaining growth, chances of survival are positively affected if the enterprise-creator is a former professional or managerial employee or was previously self-employed and has had access to advice during the start-up phase. Works on the strategic positioning of enterprises are both scarce and in their infancy because of economists’ and sociologists’ reluctance to acquire and apply the knowledge specific to management disciplines (Trouvé, 1999).

3.4.4 The ambivalence of technological intensity and innovation

One might also cite technological intensity and capacity for innovation, which EU decision-makers have often seen as an essential vector of the creation, development and survival of SMEs. However, these variables, which cannot be taken for granted, prove to be particularly ambivalent according to several pieces of research. As regards the technological intensity on which considerable expectations tend to be based (small ‘high-tech’ firms), it is by no means certain that it automatically guarantees SMEs’ success or the generation of a significant number of jobs. It would be worth assessing the growing significance of ‘investments of form’, intangible investments (training, organisation, human-resource-management technologies, mobilisation of networks) in the new operational regimes being adopted by SMEs (De Banville and Vennin, 1999; Ganne, 1999).

Similarly, as regards innovation, it would be wrong to believe that SMEs are by nature more innovative than large enterprises or that those that develop the most strongly and rapidly have higher levels of productivity and innovative activity, as is a little too naively thought by a number of commentators (such as Geroski and Pomroy, 1990; Geroski, 1995), following on from Audretsch (1991). The reverse sometimes proves to be true, that is, that product and process innovation is positively correlated to increase in size (Hughes, 1997, Figure 4), and, here too, the most recent research tends not to exaggerate the importance of technological innovation, since there is no question of determinism (Baldwin, 1995), even if there is sometimes noted to be

a very positive relationship between innovation during one period and chances of survival during a later period (Cosh, Hughes and Wood, 1996a, b). What are we talking about? Breakaway innovations or incremental innovations (that is, marginal and progressive)? Product innovation, process innovation or organisational innovation, which it is increasingly difficult to separate? Not to mention the great variety of effects these different types of innovation might have on employment.

In many cases, it is neither technology nor innovation that are in themselves a distinct advantage for SMEs, but rather their place on the market and in the value chain or their geographical consolidation – which brings us back to research on sector, industry or system (Courault, Trouvé, 1999), even regional differences (see, on this point, Davidsson et al., 1993; research on ‘innovative environments’, Aydalot, 1986; Julien and Marchesnay, 1996, pp. 89-102; and virtually all the Italian researchers), when it is not a question of more subtle intra-sectoral differences (Kotthoff, 1993; Fernández, 1993) or strategic positioning (Trouvé, 1999).

As we shall see when we come to look at employment, SMEs tend to operate on interstitial markets. Where, despite everything, they enter a sector that is highly capital-intensive or characterised by substantial economies of scale – except in the case of an acquisition rather than a pure creation – SMEs’ survival becomes more difficult and their independence is at risk. ‘Grow rapidly or disappear’, this is the dilemma these SMEs face when they come up against what Audretsch (1995) calls ‘the barriers to survival’. The significance of these barriers, together with ‘barriers to entry’, means that the sectors concerned tend to contain a fringe of ephemeral small enterprises, which explains the high level of constant entry and exit flows and, therefore, SEs’ volatility, at both sectoral and macroeconomic level (see, in particular, Dunne et al., 1988; Geroski, 1991).

It is clear that, provided we distinguish clearly, as advised by Evans and Siegfried (1992), between the influence of sectoral features on the demography of firms created from nothing and their influence on the demography of units cre-

ated by firms *in situ*, the significance of the sector is confirmed. However, it is to be regretted that, on this point, most of the research currently available focuses almost exclusively on industrial sectors, when all the statistics show that service activities are more volatile. Also, sectoral analyses are too superficial and incapable of giving an account of the more subtle intrasectoral segmentations that alone can both explain some of the efficiency differences between enterprises in the same sector and demonstrate that SMEs and large enterprises in the same sector are not necessarily in competition with each other.

It is moreover this relationship between SMEs and large enterprises which forms the basis for the analyses of the current evolution of systems of production.

4. SMEs as players on the labour markets

What real contribution do SMEs currently make to employment? What characterises those SMEs that create the most jobs (key variables: size, sector, strategies)? Is it true, as is often said, that SMEs are the best places for getting young people into work, or older workers back into work? What is the current place of self-employment? These are the questions we shall try to answer here as we look in particular at the formative role of SMEs in labour market dynamics.

Most of the research published in the developed countries over the last 20 years has shown that small firms play the greatest role in creating new jobs. With unemployment rising, these findings clearly affected political and economic strategies, which therefore sought to encourage SMEs. Apparently simple statements nevertheless hide a large number of questions.

4.1 The quantitative contribution of SMEs to employment: an open question

For example, is it not too easy to confuse the demographic growth in the number of SMEs with the increase in jobs they provide? It is true that in the case of SMEs there is a close correlation between the creation or final clo-

sure of enterprises and the creation or gross destruction of jobs. This varies from one country to another, but it is always more evident for SMEs than for LEs. In Spain, in the period 1991-1995, the creation of new firms accounted on average for 38.5% of new jobs created in small firms (less than 200 employees) compared with 13% in large firms (more than 200); in terms of job losses, 22.7% were due to closures of small enterprises and only 16% to closures of large ones. Moreover, recently created enterprises show on average a 15% higher amount of gross job creation than other enterprises (Ruano, 1997).

On the other hand, international comparisons show that while SMEs are increasing as a proportion of all enterprises in most countries, in some employment is rising at the same time, while in others it is constant. Moreover, while, in any given country, there may be a net increase in the number of SMEs as a whole, this does not necessarily result in an increase in employment in all sections of the workforce. In the United Kingdom, for example, only Very Small Enterprises (VSEs) are experiencing net growth in both their number and the number of people they employ. Likewise in Germany, a lot of research has shown that it is firms with 1 to 19 employees in particular that are showing the clearest net employment growth⁵⁷.

At the same time, not all small enterprises, especially the smallest of them (VSEs), are likely to be in a transitional stage towards larger units. In the typology adopted by Madinier in 1986, he distinguished roughly between structurally '*dynamic*' small enterprises, which had been expanding steadily for several years, especially those in the tertiary sector with an average of 30 employees, then enterprises *in decline*, mostly with more than 60 employees, especially in the industrial sector, and finally mostly *stagnant* very small enterprises in the commerce and service sectors, which would remain very small or small. This typology is still valid in part today.

⁵⁷ In Japan, on the other hand, all sizes are growing in number, but their workforces are relatively constant (Doi and Cowling, 1998).

Another potential source of confusion is whether people speak of the general contribution made by SMEs to employment or to the *net creation of new jobs*. Are they talking about job creation by existing SMEs or by new ones? On this point, Birch himself had already made the distinction between 'new firms' and 'small firms expansion' (1979). Just as the creation of a firm does not necessarily mean the creation of new activity (see Part I), job creation does not mean the creation of new jobs.

Also, while some SMEs create a lot of jobs, others also destroy a lot. There are even some that create and destroy jobs simultaneously. More than that, those that create the most jobs are sometimes the ones that also destroy the most, as the French Employment Ministry's DMMO/EMMO surveys regularly show⁵⁸! Hence the need for a clear distinction between stocks and flows of jobs (like stocks and flows of enterprises) and gross creations and destructions and net creations of jobs.

Finally, when speaking of the contribution made by SMEs to employment, we should always distinguish their endogenous growth from the flows of exogenous creations and destructions resulting from the dynamics of the productive apparatus (Bonneau, 1994)⁵⁹.

⁵⁸ Monthly Returns of Labour Movements and Monthly Surveys of Labour Movements. The first relate to firms with 50 employees or more, the second to those with between 10 and 49 employees.

⁵⁹ According to this author, if we define SMEs as all enterprises with a workforce of 10 to 499, we shall find that the change in their stock is in theory the result of five factors combined: VSEs (Very Small Enterprises) growing and crossing the 10-employee threshold, direct creations of enterprises with at least 10 employees from the outset, terminations of business, SME staff reductions that make them VSEs (again), and staff reductions or the reorganisation of production in large enterprises of 500 employees or more. Loveman and Sengenberger (1991) proposed five reasons for the rise in the proportion of total employment provided by enterprises in the developed economies: an increase in the creation of new enterprises; a fall in the mortality of small enterprises; an increase in the stock of small enterprises ('births minus deaths'); net job creation in existing small firms; and a fall in the number of jobs in existing large enterprises, making them, in the course of time, small firms (again).

All the questions raised bring us back first of all to a methodological debate from which we shall try to draw the main lessons. This debate is dealt with in particular in two OECD publications (1996-a; 1998: pp. 49-52). In most countries, macrostatistical corpuses are used to detect not only the relative performance of SMEs in job creation (gross, net) but also the main variables in the creation, destruction and simultaneous rotation of jobs.

4.1.1 The seminal work of D. Birch on the volume of employment

As we have already mentioned, it was David Birch (1979) who initiated a cycle of research on the relationship between enterprise size and job creation (see introduction) that has continued unbroken. He found that 82% of the new jobs created in the American economy between 1969 and 1976 were created by SMEs with less than 100 employees. He repeated the work (Birch et al., 1997) for the period 1992 to 1996 (86% of net job creations).

After Birch, a lot of studies claimed to reach similar findings, and for a long time these fed through into the official pronouncements of politicians and economic decision-makers. We saw earlier that the Anglo-Saxon tradition is particularly prolific, with, for example, Gallagher and Steward (1986), Doyle and Gallagher (1987), Daly et al. (1991); but if A.-G. Schmidt (1996) is to be believed, German researchers have not been outdone in the matter (Bade, 1985; Bock, 1985; Dahremöller, 1985; Irsch, 1985; Fritsch, 1984; Hull, 1984; Steinle, 1984). All these studies used longitudinal panel data and took more or less the same approach: they looked at the number of new jobs created by growing establishments or enterprises and the number of jobs destroyed by establishments or enterprises losing jobs and established the difference between the two, that is the net creation or destruction of employment. When the rates of job creation, job destruction and the net employment trend (job creations less destructions) were calculated by size of enterprise, small establishments or enterprises then generally seemed to have the highest rate of creation and destruction. Also, the net trend seemed greater for SMEs than in large enterprises.

4.1.2 An unquestionable contribution to the stock of jobs ...

No one denies that SMEs are 'providers' of jobs. In the EU alone, we have in fact seen that they now account for more than one job in two and, in particular, among them, VSEs (less than 10 employees) employ as many people as large enterprises (employing over 250), that is 33% as against 34%.

Neither is there any doubt that this proportion of jobs in SMEs (regardless of the statistical definition adopted) has grown steadily over the last twenty years (Sengenberger et al., 1990; Robson and Gallagher, 1994; Storey, 1994). This is a powerful and more or less general trend going hand in hand with the general reduction in the average size of enterprises and establishments, especially in manufacturing industry.

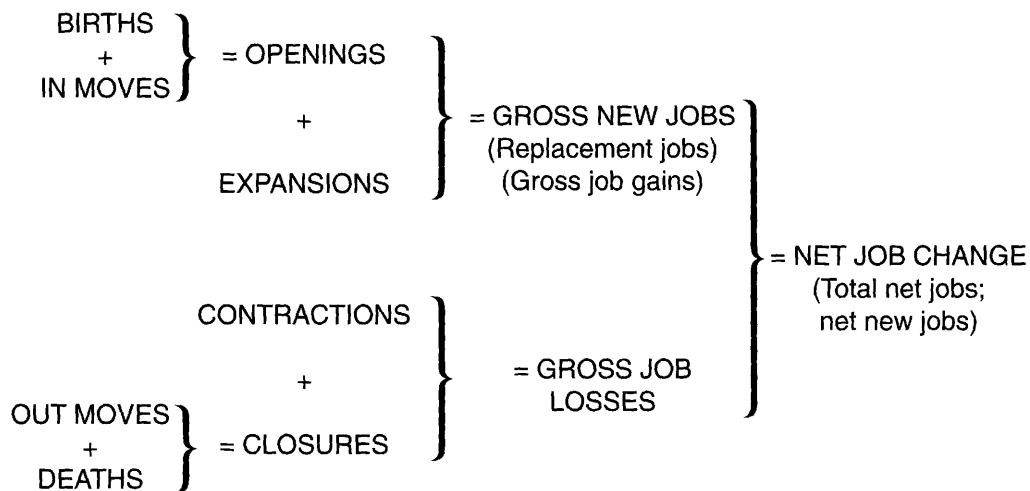
Finally, in the period 1988 to 1998, Very Small Enterprises seem to have stood up the best between 1990 and 1993, when all sizes of workforce were affected by the decline in employment (ENSR, 1996: p. 69, 1997: p. 62).

4.1.3 ... but questions regarding their role in net job creation

These are therefore all established facts, but if we look beyond excessive generalisations, a number of questions arise which, while not raising fundamental objections, do seriously put into perspective or clarify excessively blunt opinions. Apart from the national, regional and sectoral differences (Steinle, 1984) that must always be taken into account, we shall now briefly review the questions raised.

Methodological difficulties

In the most recent work on the contribution made by SMEs to the volume of employment, all or nearly all researchers have begun by stressing the methodological inadequacies and unsuitability of the databases used by Birch and his successors. For example, by using other techniques considered more reliable and subject to a strict distinction between 'gross creations' and 'net creations' of jobs according to a scheme repeated many times

Figure 4.1 The job generation process

Source: Storey and Johnson (1987a).
 NB.: terms in parentheses are synonyms.

in the literature (Figure 2.1), some have arrived at very different results. Such is the case, for example, of Hughes (1997)⁶⁰, or Davis, Haltiwanger and Schuh (1996), who are probably the most critical of what they call the 'conventional wisdom'. Using new calculation techniques, these authors in fact show that while SMEs show larger gross job gains and losses than large enterprises, 'we find no strong or systematic relationship between net job growth rates and either firm or plant size' (1996: p. 312). They also pave the way for a more qualitative approach, claiming that large enterprises and existing jobs show greater security and 'durability' than small enterprises and new jobs.

In general, the literature contains two arguments and two caveats that have to do with the selection bias of the reference samples.

⁶⁰ 'Net job 'creation' is the difference between gross job 'creation' and gross job 'destruction' (1997: 5).

They are set out in highly pedagogical fashion by Baldwin and Picot (1995: p. 319):

1. First, there is the 'size distribution fallacy', which fails to distinguish between stocks and flows of jobs (Maurin, 1995) and overlooks the threshold crossing phenomena between surveys (Story, 1994): a positive employment balance in one size category is just as likely to be the result of an increase in that particular category as of a reduction or increase in size categories immediately above or below. It is in fact difficult for successive interval panel studies to take account of such exogenous job movements. The very concept of a process is glossed over, and what makes matters even worse is that production systems are always being reconstructed and the size of establishments is tending to fall. Longitudinal data would therefore be needed allowing individual establishments to be identified. Even this approach however is not immune to error and no doubt requires considerable resources.

2. Then there is the 'regression-to-the-mean fallacy' caused by temporary deviations between employment and the optimum size of enterprises in the long term. The ones that regress are those that have just grown in size, and those that increase have had to cut back their workforce temporarily (Hughes, 1997). By using different techniques to correct the effects of this bias, Baldwin and Picot (1995) nevertheless manage to show that the net creation of jobs is still higher in the smallest establishments than in the large ones.

It could also be pointed out that all this research was conducted in the main in the manufacturing sector and in the context of North America. The inclusion of service activities could change the picture radically. Moreover, what it tends to call into question is not the general contribution made by SMEs to employment but the overestimating of it.

Endogenous or exogenous creation?

Another question arises concerning the interpretation of the statistical data. Is the role played by SMEs in job creation strictly *endogenous* or is it derived from *exogenous effects*, in particular the process of slimming down or externalising the categories of larger enterprises?

This question is in particular very much to the fore in German literature starting from the mid-1980s. Reviewing most of the relevant work, A.-G. Schmidt (1996) notes for example that a large proportion of the jobs created in SMEs are the result either of strategic reorganisation by large enterprises seeking to focus on their core business (downsizing, outsourcing, development of subcontracting), or of the creation of subsidiaries or franchises: in a number of databases, for example, the opening of a new shop by a retailing group may appear as the creation of a new enterprise. In all these cases, even if there is a marked trend towards smaller and smaller production units, this is not sufficient reason to describe them as '*mittelständische Unternehmen*' [small and medium firms] in the qualitative sense (A.-G. Schmidt, 1996: p. 550).

The author draws from these findings a conclusion concerning public policy: 'if relevant statistical data are missing, then there is no sound empirical basis for economic policy decisions' (p. 551). In this, he is supported by a number of Anglo-Saxon authors who hold that, even if small firms are a major source of job creation, there is no sound evidence that public expenditure on job creation has a greater impact when concentrated exclusively on small firms rather than anywhere else (Brown, Hamilton and Medoff, 1990). And unless we are sticking to a traditional, restrictive definition of an SME as a strictly independent unit, why should SMEs forming part of a group, a chain, a district or a network not be described as SMEs? As Hilbert and Sperling stress, 'there is only so much that SMEs can do' [...] (1993: p. 194). From their study of small firms in the Paderborn area, they show that they are not in themselves capable of eliminating mass unemployment. They are, as it were, in the slipstream of Nixdorf, which provides them with an efficient infrastructure, especially for vocational training for their staff.

SMEs create a lot of jobs, but they also destroy a lot ...

Another thing highlighted in research attacking an over generalising view of SMEs as job-creators is that while small firms do create a lot of jobs, they also destroy a lot, which means that they are also and especially involved in *animating the labour market* with constant ebbs and flows and a redistribution of jobs. This was demonstrated at the time by Berthier and Parent (1994) or E. Maurin (1995) for France. Maurin, for example, showed that while small firms (less than 50 employees) made up 98% of the total and accounted for about 55% of jobs (including 26% in VSE alone, i.e. those employing less than 10), in order to obtain 'an annual net change in jobs whose amplitude rarely exceeds 1%, ten to fifteen times as many jobs are gained and lost, and the smaller the firms are, the more they are caught up in this job redistribution' (1995: p. 30). In similar vein, the work done by Birch, which is still quoted in admiration of 'the American job-creation machine', itself stressed the necessary turbulence of environments favourable to the spread and

even the growth of SMEs (Dalle and Bounine, 1987).

The same idea comes out in a lot of other research, including that by Davis and Haltiwanger (1996: p. 301) and by Oulton and Hart (1996): SMEs play a key role in the dynamics (creation and abolition, 'creative destruction': Kirchhoff, 1994) and regulation of labour markets. For many of them, the important thing is not to survive but to change. It is nevertheless true that this (liberal) business logic makes little of job instability and the employees who are caught up in these Brownian movements. This is the question we shall tackle in paragraphs 2.3 and 2.4.

... and of those that create jobs, only a few create a lot

Another thing that has an indirect bearing on public policy is that it has been known for a long time that not all small firms are net job-creators and that only a small number of 'fast growers' contribute to the category's overall performance. This is the common theme of a lot of empirical research that has been done in the United Kingdom in particular based on the work of Storey and Johnson (1986, 1987-a). Even if the findings do not always agree one hundred percent⁶¹, the general idea has been confirmed many times over, in particular by Hughes (1997) and also by Gallagher and Miller (1991) who, after many doubts, ultimately come out in its support. In a comparison of Scotland and South East England, they find that the firms they describe as 'flyers' represent 18% of their sample but contribute 92% of the jobs created. Therefore, 'in essence, any apparent rapid rate of job creation amongst small firms as a whole is strongly influenced amongst small firms, the performance of the group is significantly influenced by only a few fast growers' (Atkinson and Storey, 1994: p. 8).

⁶¹ Thus, while Storey, Keam et al. consider that for every 100 enterprises created at the start of the 1980s, at the end of the decade a good quarter contribute 50% of the jobs created (1987), the same Storey notes (in 1994) that only 4% of enterprises created ten years earlier created 50% of the jobs in the surviving enterprises.

Hence the question: what are the characteristics of the SMEs that create the most jobs?

Two questions follow, rather than one. What are the distinguishing characteristics (or 'features') of the minority of small firms that create the most jobs in their category (North, Smallbone and Leigh, 1994, and Westhead and Birley, 1995, for a remarkable analytical text)? What are the constraints, if any, preventing most small firms from growing and which are not experienced by small 'high-flying firms' or 'fast growers'? We shall try to answer these two questions in the section below (4.2), where we consider the main *determinants of SMEs' employment practice*.

Before doing so, however, let us draw two main conclusions from our scrutiny of this vast ocean of research into the relationship between the size of enterprises and their quantitative contribution to employment.

1. From a scientific point of view, first of all, we would point out the contradiction between the extreme sophistication of the measurements used to assess the precise place of SMEs in job creation⁶² and the uncertain nature of the results finally obtained. We have to acknowledge the facts: 'the procedure for quantifying the precise contribution made by small firms to job creation is not wholly satisfactorily resolved in current times' (Cowling and Story, 1998: p. 8). In fact, they depend on the tools used, the quantity, nature and size of the enterprises included in different countries' databases, the period covered by the study, the stage in the economic cycle, etc.
2. Hence the tortuous formulations and extreme caution recommended by the European Commission in this field (European Commission, 1998). True, SMEs make an appreciable contribution to the stock of jobs in the countries of the EU and their place

⁶² According to Kirchhoff and Greene (1998: p. 167), authors such as Picot, Baldwin and Dupuy, for example, have detected no less than 18 methods of calculating the respective contributions of SMEs and LEs to job creation!

in employment has been growing for several years. But while SMEs tend to create more jobs than large enterprises, they also destroy more. So much so that 'the net flow, that is the difference between job creation and job destruction, seems to be virtually constant irrespective of the size of the enterprise' and 'only the smallest enterprises seem to have a greater net flow', that is, they 'create more jobs than large enterprises'. We should add that this applies only to 'survivors', which are generally young and subject to a very harsh selection process. However, this does not mean that, among the survivors, 'all very small enterprises grow more rapidly than all large enterprises', since 'the rate of growth of enterprises belonging to the same workforce size class, or even the same sector of activity, varies greatly' and so on. In other words, there are other factors (than size) that determine growth in employment (ENSR, 1997: p. 148).

There are therefore two possible ways out of this conundrum. One would be *theoretical or methodological* and would involve examining in more depth and discussing both the data collected, the methods of statistical processing, and the interpretations. This is the path suggested by the OECD (1996), among others. On this point we must note that most of the critical studies made are far from being unanimous. Most of them were made in the United States and in the industrial sector (whereas most SMEs are found in services), and they need to be pursued in greater depth from both the theoretical and methodological point of view and from that of the still very limited international comparisons (European Commission, 1998). They should look at sectors most likely to show the greatest expansion in employment: business services, personal services, leisure, hotels and catering, health and education. Moreover, the studies referred to say nothing about the effect on job creation of the financial and strategic links between SEs and LEs.

Another possible way out is that despite the many uncertainties still surrounding the research mentioned, a few of the best substantiated findings could still be used to try to shed

some light on public policies in spite of everything. This is what a large number of UK authors try to do in their discussions of the soundness of the Thatcherite policies of the 1980s. We have already seen that some consider that aids specifically targeted at SMEs could be a problem given the increasing interaction between them and large enterprises and that, secondly, an undifferentiated ('widespread') reduction in administrative and tax constraints could exacerbate the unequal growth in employment among SMEs, some (the 'growers') profiting from this windfall effect while others are left by the roadside because of their poor profitability. One could however, for the same reasons, question aids targeted exclusively at small firms with high potential.

Neither should we forget that the main interest of economic policy should not be the number of jobs but their quality that is their stability, durability and intrinsic quality. Davis and Haltiwanger (1996) have already stressed this, as has Ruano (1997) in Spain. They have nevertheless also drawn our attention to a possible new perverse effect: if public policies are more concerned with the durability and quality of jobs as an objective than with numbers, this destroys the argument that aid should by preference be directed at SMEs, since job quality generally increases with the size of the enterprise.

Finally, as Hughes remarks, the admirable exercises in measuring job creation tell us nothing about 'the direction of causation': 'finally, and perhaps most importantly, whatever may be claimed for job generation studies in terms of numbers of jobs created by size class, they are themselves merely accounting exercises and tell us nothing about the direction of causation' (1997: p. 8). This lack of causal analysis or 'analysis of causation' is moreover just as harmful to the scientific approach as it is to the needs of policy guidance: 'Why so few succeed in sustaining growth?'. The important thing in the latter is to be able to analyse and understand the factors that act in favour of the spectacular or discrete growth of some SMEs at the same time as those that prevent the others from expanding. Why should we not therefore be inter-

ested in the youngest SMEs, as advocated by Serra Peris (they grow more quickly, true, but they are more unstable and their development more risky)? On the other hand, why not promote the oldest SMEs, which are stable and survive, as Robson and Gallagher (1994) propose?

This causal relationship is the subject of a number of pieces of research which we shall now examine.

4.2 The main factors determining SME employment practice

Providing we can reconcile two literatures that are traditionally and inexorably separate (the one concerned with growth factors and the other focusing on job creation)⁶³, one might in general terms distinguish between two series of factors that have been the subject of particular study with a view to explaining how SMEs behave on the labour market.

4.2.1 The traditional variables

□ The first 'package' would contain the work that has shown the effect of the major sociodemographic variables available in the crudest databases and which are easily objectified. We shall not return to these, since they have been amply commented on earlier in this paper. They are the *size* of the firm, of course, its *sector*, its *life cycle* (i.e. its age), and its legal *status*: independent (self-employed), integrated, in company form or family. On this latter point, it will be noted that most work shows that family SMEs ('family businesses') perform better economically and in terms of jobs than do non-family businesses (see an international survey of such research in Trouvé, 1999: pp. 31-44).

⁶³ Hughes is in fact right to make a strict distinction between 'business growth' and 'job generation' (1997: p. 4), since the growth of enterprises (measured by their profitability, productivity or market share) does not necessarily result in a growth in their workforce. It is nevertheless true that prosperous enterprises tend to increase in size (Baldwin, 1995), although the relationship is not automatic, since there are firms whose growth is poor in terms of jobs.

In his analysis of the specific behaviour and development of family businesses in the industrial sector in Spain during 1994 (drawing on the ESEE survey), Juan Casado (1996), after indicating that the skill structures and wages of family businesses are inferior to those of non-family businesses, shows that when the economic cycle was in a 'recovery' phase after the 1993 depression, family businesses (with less than 200 employees) created more jobs than non-family businesses (with less than 200 employees), with +3% growth compared to -0.2%, and more than family businesses with more than 200 employees, which remained stable, while non-family firms with more than 200 employees continued to shed jobs (p. 92). Nevertheless, it is true that today, in Spain as elsewhere, we are witnessing a substantial shift from the core of family funding to outside partners and capital and also an increase in foreign capital (Camisón, 1996-b, figures 18 and 19).

There are however a number of other factors, such as *the mode of production* or *innovation capacity*. According to Atkinson and Meager, who see size as the determining factor but not the only one ('employment size is clearly not the sole determinant of typical small business practices') (1994: p. 32), account must also be taken of four characteristics of the environment: the balance and tensions of supply and demand on the *external labour market*, the characteristics of *other competitors* (are they small or large enterprises? are the products they sell everyday products or not?), the *political and institutional regime* (favourable to SMEs or not?) and the *territorial physical environment* (see figure 4.3)⁶⁴.

□ The second group might include work that is based either on frankly qualitative monographs or on the mobilisation of statistical classifications complemented by supplementary

⁶⁴ Apart from the Italian work already referred to, which sees the local system as a space for professional mobility (Solinas, 1982, 1996), the decentralisation taking place in most EU countries has, for example, resulted in certain institutional publications developing a regional or even subregional aspect in the light of structural fund programmes (European Commission, 1998: pp. 139-181).

segmentations that can be built only a posteriori from qualitative empirical studies⁶⁵. We believe that over the last few years this second corpus has made the greatest contribution to our knowledge of SME behaviour on the labour market. Although it is part of this kind of approach, we shall not be returning to the effect of the *profile*, the *sociological trajectory* or the *career path* of SME managers. This is known to be a key variable that has given rise to a number of typologies which Ivanaj and Géhin (1997) have recently tried to review for the French-speaking countries. We have already looked at that several times above.

4.2.2 The strategic behaviour variable and SME models

We are more interested in looking at what seems to us to be a new breakthrough in a field that is all the more fertile because it requires a multidisciplinary approach. We are referring here to work on the effect of *competition strategies* on the employment practices of SMEs. We have referred elsewhere to this as yet not very systematised approach based on a survey of the international literature (Trouvé, 1999). We shall discuss it below on the basis of three series of publications: German, British and French.

The work of Leicht and the segmentationist theories

Most German work constantly stresses that, over all, the greatest net job gains observed since the mid-1970s are found in small firms with between 5 and 19 employees (Leicht, 1995; p. 85; Leicht, Strohmeier, 1995: chart p. 20) and this expansion took place even in the manufacturing sector, which means that, in Germany at least, it is not due only to the development of services, as is too often believed. According to the *Statistisches Bundesamt* [German Federal Statistical Office], between 1970 and 1987 the growth in the rate of employment and enterprises was greatest in those with up to 49 employees, while all

the sizes above that stagnated or declined. On the other hand, some sources say that VSEs with 1-4 employees and SEs with 20 to 49 experienced only a modest increase (Leicht and Stockmann, 1993).

What is the reason for SEs with 5 to 19 employees being so prosperous? That is the question that these authors tackle here. They point out first of all that these small enterprises operate in quite specific *branches*⁶⁶: '*Expansion der Kleinbetriebe kommt nur in einer bestimmten 'Branchenumwelt'*' (Leicht, 1995: p. 178) and more particularly on markets not dominated by LEs. We are therefore back with the very old intuitions of W. Sombart, who believed that SMEs essentially occupy three specific areas: 'the area of **individualised** work, in which adaptation to the individual case is required (...); the area of **localised** work, i.e. work that must be carried out in a particular place, and in which a sales area of limited size serves as natural protection for the craft; the area of **repair work**, which is of little interest to capitalism' (Sombart, 1929: p. 27).

The specific potential of SMEs would therefore be explained by their roles as market specialists ('*Marktspezialisten*') and market localists ('*Marktlokalisten*') which enable them to retain in the long term ground that is difficult for LEs to access and which is of little interest to them. Leicht also argues that the *sector* is not enough to explain the expansion or decline of certain sizes of enterprises, since the true potential of SEs lies more than anything in their control of particular intra-sectoral segments that include types of production (series or to order, for example) and market. For example, in the small retailers sector we can see both the disappearance

⁶⁵ This is the case referred to below of the German works by Leicht; Leicht, Strohmeier; Hilbert and Sperling.

⁶⁶ The authors referred to sometimes use the terms 'branch' and 'sector' without distinction, but we consider the former to be the more suitable because it specifically defines the activity (or activities) of those enterprises which, further on, we shall call the product/effective market pair(s). It is therefore closer to the enterprises' microeconomic operation than the term 'sector', a statistical category that embraces at macroeconomic level 'all enterprises with the same principal activity' (on this point, cf. INSEE, 1997-98 or Morvan, 1985: pp. 345-347).

of 'Tante-Emma-Läden' (corner shops) and the new expansion of advanced technology centres, organic food shops, video rental shops, etc. For this reason, he proposes an approach that we shall call segmentationalist ('*ein segmentspezifisches Modell*') capable of differentiating SEs according to their ability to manoeuvre on the market.

He argues that the most prosperous SEs and the ones that generate the most employment occupy in particular segments where they are very close to the final customer, producing goods or services for which there is little demand or for which demand fluctuates greatly, at all events where SEs and LEs are not really in competition with each other. They also require a great deal of decentralisation and a high level of professionalism that most of the time is not conducive to rationalisation, internationalisation or standardisation. Such is the case, for example, of the building craft trades, material services ('*stoffliche Dienste*'), design, construction, installation, repair or maintenance activities, or technologically more modern activities (precision engineering, optics, computer assembly) and professional services to business (accountancy, consultancy) or to individuals (social and health services) that involve an ability to find tailor-made solutions to individual problems (Leicht and Strohmeier, 1998).

Conversely, where there is direct (actual or potential) competition between SEs and LEs, the former are always under threat. Certain craft activities, for example, or branches covering inflexible basic needs (leather, clothing, food) have gradually been replaced by mass production or delocalised. SEs are therefore expanding in all activities that are remote from mass production and where Taylorist/Fordist concepts cannot apply. Contrary to the thesis put forward by Piore and Sabel (1984), however, the expansion of SEs and their production model does not, according to Leicht, presage the end of mass production, since they are not really in direct competition with LE methods of organisation. Rather, the specific nature of their field of activity makes them structural elements complementary to the production process of large organisations (Leicht, 1995: p. 179).

Alongside the work done by Leicht, we must also mention that done by Hilbert and Sperling (1993). In our opinion, these two authors go further in that they explain the strategic manoeuvres of prosperous, job-creating SEs and try to articulate them firstly with the career paths and profiles of their managers (by distinguishing between, for example, 'technical entrepreneurs' and 'managerial entrepreneurs') and, secondly, with the skill structures of their labour force. They therefore show that there is a great variety of possible developments open to SMEs. They could lie anywhere on a spectrum ranging from an 'offensive productive concept' to a 'defensive productive concept', depending on their degree of dependence on the market.

- In the first concept, the SEs representing about one third of their sample practise a *flexible specialisation* that protects them from dependency or from competing too much with LEs. They are found mainly in the mechanical engineering, machine tools and computer industry sectors. They survive because they specialise in one market (they are '*Markt-Spezialisten*'), because they are able to offer technical backup services and in particular because they have direct commercial access to the final consumer. These SEs develop a policy of having highly skilled staff, recruiting in particular young people from whom they demand a high level of commitment and flexibility. They are generally recent (appearing in the 1970s and 80s) and managed by 'technical entrepreneurs' (*technischer Entrepreneur*), frequently engineers with several years' professional experience in their sector. This offensive production system may of course benefit from a particularly favourable regional labour market, sometimes structured by the presence of large enterprises that play a supporting role: continuing training infrastructure, availability of skilled personnel, etc.
- At the other end of the spectrum, which represents around 40% of the enterprises studied, SEs are obliged to apply a *defensive concept of production*, often accompanied by economic retrenchment and staff cut-backs. Most of them are small firms in

the timber or textiles/clothing industries. Mainly subcontractors (they are '*Markt-Zulieferer*') dominated by their contractors and therefore insecure, one way or another they apply traditional rationalisation models: minimising costs and increasing productivity. Their flexibility is based more on a deregulation of labour relations than on new forms of organisation. They are found especially in the motor industry, mechanical engineering or furniture manufacture.

- Between these two extremes, Hilbert and Sperling identify two other types of SE (1993: pp. 20 et seq.): the 'Markt-Newcomer', that is new entrants, like those that explain the American employment miracle, especially in services. A smaller number are however also found in the manufacturing trades, especially in the creation of craft businesses (Weitzel, 1986); then the 'Markt-Lokalisten' who satisfy everyday needs for goods or personal or repair services in a limited area.

SMEs may therefore move in a broad spectrum ranging from the 'poverty economy' to 'niche production' ('*Zwischen Armutsökonomie und Nischenproduktion*') (Hilbert and Sperling, 1993: p. 130). Like Leicht, however, Hilbert and Sperling show there is no sectoral determinism. For example, in the motor industry, where dependent subcontracting SEs predominate, we can find a '*Produktstrategie der diversifizierten Qualitätsproduktion*' (production strategy of diversified quality production) (Streeck, 1986). Likewise, we can find '*Markt-Spezialisten*' (market specialists) in textiles/clothing. These, it is true, are chiefly medium-sized firms that have the resources to give themselves direct access to distribution and the final consumer or to take control of design and innovation higher up the value chain.

For these authors, therefore, the business policy adopted by managers always predominates over the sectoral determinants which, for their part, do no more than define the room for manoeuvre open to the managers' strategic inspiration. This is more or less what Kotthoff and Reindl (1990) also find from their own qualitative empirical material. By focusing particularly on the machine-tool sector,

which scientists often use as a model for an innovative and flexible KMU, they manage to distinguish no less than three major types of generic market strategy, analysing their links with work systems and labour relations. Thus, there are both *strategic-conceptual enterprise strategies* ('*strategisch-konzeptionelle Unternehmenspolitik*'), enterprises *shifting to markets with economies of scale* ('*auf Massenmärkte und Skalenerträge ausweichende Unternehmenspolitik*') and *traditional reactive strategies* ('*konventionell orientierte reaktive Unternehmenspolitik*'), each with very different modes of organisation, production and labour mobilisation (1990: pp. 53-72). The same also applies in the furniture industry and in textiles/clothing, where SEs whose operation is based on a great variety of competitive advantages and handicaps may exist side by side.

The competitive variables

Hence the need to pursue further the recent research into the links between competition strategies and forms of employment and labour management in SMEs. There are serious obstacles to such an approach, which by implication involves bringing together the disciplines of industrial and labour economics, the sociology of enterprises and their managers, and management, which are normally institutionally separate, even though they have in common that they have all favoured the large enterprise model. Some studies are today showing the way, however. Of these, one might mention the work by Reid (1993) and Reid et al. (1993) in Great Britain, based on surveys that are already quite old (1985-1988) of recent enterprises (average three years old) employing between 8 and 15 people. They also try to combine quantitative and qualitative methods, field approaches and statistical data, while drawing on the 'competitive advantages' model inspired by M. Porter (1980, 1985).

This train of thought developed later and more sporadically in France owing to a persistent lack of interest in employment matters on the part of managers and no less chronic disdain by sociologists and economists for categories of analysis derived from stra-

tegic management (Julien and Marchesnay, 1988; Mahé de Boislandelle, 1998, 1st ed. 1988; Bentabet et al., 1999; or even Moati and Pouquet, 1996). Unlike G. Reid, most of these researchers are not interested solely in SEs in the start-up phase.

For example, Julien and Marchesnay formulated 'the strong hypothesis of a causal relationship between the firm's strategic management and the practices it adopts for taking on staff and, more generally, in labour management [...]. The policies adopted in labour management may vary according to the competitive advantage sought by the firm ['manager's objectives'] (1988: pp. 242 and 251). Mahé de Boislandelle related the employment variable to the 'basis of competitiveness adopted'. Bentabet et al. ventured to study micro-firms (very often neglected, even in research on SMEs) from intersectoral monographs, trying to model the links between market strategies and labour management and training behaviour. Finally, Moati and Pouquet used an extensive database of 233 industrial sectors to show that '80% of employment flows are intra-sectoral by nature', which means that they are caused mainly by differences in performance between enterprises in the same sector. According to these authors, two factors facilitate job creation: a favourable environment (growth sector, low intensity of competition, etc.) and 'a strategic positioning conducive to differentiation or focalisation, that is non-price competitiveness, which shields them from the imperative of chasing productivity'.

Lastly, we should note a recent compilation of international literature on competitive strategies and employment practices in SMEs (Trouvé, 1999). It is concerned in particular with enterprises in a 'front-line situation', that is fast growing and job-rich SEs, world class SMEs and SMEs based on new technologies. This systematic search comes to the same conclusions: even though the variables of size and sector still seem very significant, they do not go far enough in explaining the employment practices of the SMEs considered. They have to be linked to finer segmentations – through more qualitative approaches, for example – such as the profile and career path of the

managers and their positioning strategy (intentional or 'emerging') on specialised or highly differentiated segments. On the other hand, the qualitative analysis of the forms of labour management they adopt would be worth looking at in more detail, as we shall now try to suggest.

4.3 Recourse to the external market and forms of labour management

By dint of studying the contribution made by SMEs to employment on the basis of creations/destructions of enterprises, we might forget that they grow, develop and reach a cruising speed at which they interact with the labour market in a specific way. However, it is only very recently that researchers have taken an interest in this. It is true that the articulation or engaging of small firms with the external labour market, what Atkinson and Meager call 'small business engagement with the external labour market' (1994: p. 38) are very different to those of a large firm. In particular, 'for the small business ... the process is likely to be irregular, less predictable and less capable of systematisation' (idem: p. 39).

In most countries, macrostatistical corpuses are likely to tell us first of all about small firms' *recruitment practices*, especially of young persons being absorbed into employment, from the characteristics of the young people and the jobs they are offered. Exploitations of this kind are nevertheless not yet very widespread, especially when it comes to international, sectoral or intrasectoral comparisons. While a programme of this kind could prove very fruitful, it is still very ambitious, especially since the role of SMEs in regulating employment cannot be considered independently of the schemes that exist in most European countries for introducing people into working life and questions of initial training and the related forms of social recognition of qualifications (Lefresne, 1998, 1999).

Faced with the destabilisation of the internal markets of large enterprises and, at the same time, the proliferation of new forms of employment on the periphery of what was hitherto the dominant model (temporary, part-time or fixed-term jobs, employment-un-

employment and training-employment transitions, insecure status, etc.), might not SMEs act like a 'transitional market' (Gazier, 1998; Schmid, 1998), like an area of 'intermediate positions' between the external market and the internal market (Lefresne, 1998, p. 111) for young persons looking for a way into working life? Looking beyond young people, might not small firms play a role in transition and mobility throughout working life, becoming the preferred way back into work for 'older workers'⁶⁷ who have been expelled from large organisations? On the other hand, up to what point is the labour market not nowadays segmented or polarised, with an unbridgeable gap between a relatively stable 'primary' sector of jobs and labour in the internal markets of large enterprises and a less stable, more externalised 'secondary' segment typical of small enterprises?

One thing is certain: the countless surveys of SMEs' supposed skills needs (as of their training 'needs') have shown their limits. Most often commissioned by economic and political decision-makers in a hurry, most of them have resulted only in false certainties ... and in measuring the gaps between the avowed intentions and actual practices of SME managers. Conversely, the more general research into *manpower management practices* in small firms (including job and training management practices) have often proved to be much more illuminating (see in particular Bentabet et al., 1999).

4.3.1 A privileged role in finding young people their first jobs ... and helping 'older' workers back into work

Most European statistics stress the fact that there is always a higher proportion of young workers (aged 15-24) in small enterprises (with less than 50 employees), especially in commerce and hotels and catering (European Commission, 1998: pp. 102-103). For the EU countries as a whole, this would in fact represent about 26% of the persons employed (or around 13% in VSEs and the same in enter-

prises employing between 11 and 49 persons), compared with only 10% in enterprises employing more than fifty.

In France, even though the DMMO-EMMO⁶⁸ surveys have not so far been used very much for this purpose and even though micro-firms (under 10 employees) remain outside their scope, they do provide a good picture of the flows of labour and jobs (entries and exits) by size of enterprise. They again show that it is the smallest establishments in the service, commerce, education/health and social sectors and in personal services that absorb the most entrants, with 18.8%, 18.4%, 13.5% and 11.7% respectively (i.e. 62.4% of entries for all these sectors together). These are however also the sectors with the most exits.

If we take SMEs to be enterprises with fewer than 200 employees, we find that they absorb nearly three-quarters of young people under the age of 25 (73.5%) and even more older workers (77%), 42.7% of them in SEs with fewer than 50 employees alone (Table 4.1)⁶⁹.

Looking at the levels of training shown in the Employment Survey data, we find that 42.2% of young people completing vocational training of levels V and V bis are taken on by VSEs, compared with 28% for levels III, II and I, most of whom (51%) are recruited by large enterprises with over 500 employees. There seems therefore to be quite a clear break between the two groups of beginners and of enterprises: there is a larger proportion of the

⁶⁸ The Monthly Return of Labour Movements (DMMO) for establishments of 50 employees and over and the Survey of Labour Movements (EMMO) for establishments of 10 to 49 employees allow us to establish, among other things, both the number and the type of contracts concluded and the reasons for cancellation or leaving by occupational categories during each month or each quarter preceding the survey.

⁶⁹ The data in Table 4.1 and the figures that follow concerning the Employment Survey (Trouvé, 1996) are taken from personal processings of the DARES files (*Direction de l'Animation de la Recherche, des Etudes et des Statistiques* [Directorate for the Promotion of Research, Studies and Statistics], Ministry of Employment).

⁶⁷ According to the INSEE definition, 'older workers' are those over the age of 50.

Table 4.1: Breakdown of entrants by age and size of enterprise in France

Age groups	Size of enterprise				Total
	10-49 employees	50-99 employees	100-199 employees	200 employees and more	
14-25 years	36.5 %	18.5 %	18.2 %	26.8 %	100 %
51 years and over	42.7 %	17.1 %	17.1 %	23.1 %	100 %

Source: Dares, DMMO, EMMO surveys, 1996.

less well qualified (levels V and below, i.e. V bis and VI) in SEs, while persons with higher education (especially vocational qualifications: levels III and above, i.e. II and I) are more easily absorbed by SMEs with more than 50 employees and especially by large enterprises employing more than 500. Young entrants of level IV (that is, leaving secondary education with the equivalent of ISCED 3 (International Standard Classification of Education in the European nomenclature) are more or less equally divided between enterprises of less than 50 employees and those with more than 50, but while this level seems to be a 'floor' for the larger enterprises, it looks more like a 'ceiling' for the smaller ones.

4.3.2 Internal markets and dualisation of labour in SMEs

The opposition between large enterprises and SMEs has all too often been superimposed on the dualist segmentation of internal market and external market and, even more, associated with the primary market – secondary market split. To simplify a little, we could therefore distinguish between large enterprises providing internal stability and mobility, high wages, good working conditions and career prospects and where the organisation would contribute to training for recognised qualifications ('primary market') and small enterprises where the opposite characteristics prevail, that is making much use of the external market, paying low wages, individualising the wage relationship and neglecting working conditions and the lever of continuing training ('secondary market').

This is without counting the fact that, in theory, internal markets are not confined to

the administrative unit of the enterprise (there are trade or sector internal markets in which SMEs are involved and which allow employees to pass from one establishment to another without leaving their trade or profession, as in hotels and catering or building and civil engineering) or the physical boundaries of the establishment (e.g. establishments belonging to a network or forming part of a group). True, the alternative: renewal of the workforce / internal mobility is still statistically relevant for contrasting SMEs and large enterprises at least in part (Podevin, 1990; 1994), but an over-stylised reading of dualism fails to take proper account of a number of empirical observations that reveal an internal market and indeed a dualism of labour even within SMEs (Trouvé, 1995: pp. 148-150). Thus, it is not rare, even in very small enterprises, to see the coexistence of, on the one hand, a relatively stable and generally old market segment (employees of 10 to 15 years' standing), loyal and well trained, the hard core of the workforce, and, on the other, a segment of rather young workers moving on the periphery and whom SEs have a lot of difficulty in retaining (Bentabet et al., 1999: pp. 78-79) and it is no doubt in this light that the famous 'skills needs' of SMEs ought to be examined.

This is the 'mixed market' concept advanced by Gambier and Vernières (1991) and which would seem in the end to be the most appropriate for understanding that several forms of market may exist side by side in the same SME. Thus, 'the enterprise's employment practices would be the articulation of two aspects – internalisation and externalisation – that could at any given moment predominate to a greater or lesser extent'. Considering 'human

resources management' to be a border function on the intersection between the external and internal market, Hendry et al. (1991: pp. 37-39) are saying nothing different when they state: 'many of the SMEs possess a variety of skill groups and operate simultaneously within a number of labour markets', concluding by identifying no less than seven categories of market in their nevertheless small sample of SMEs (idem: pp. 28-36). If they are to be believed, there would be even more if a greater number of units were studied.

4.3.3 The hypothesis of SMEs as a 'transitional market'

Note also that while 22.6% of the young persons starting in VSEs in France are apprentices, no more than 3.4% are in large enterprises with more than 500 employees (Trouvé, 1996), which is also confirmed by the annual German panel surveys conducted by the IAB (*jährliche Betriebsbefragung des Instituts für Arbeitsmarkt- und Berufsforschung der Bundesanstalt für Arbeit*): small craft enterprises currently take on twice as many apprentices as large enterprises.

We should of course distinguish here the SMEs that take on the greatest number of young people according to the former's sector of activity and the level of qualification of the latter. We know, for example, that vast numbers of young unskilled building and construction workers join VSEs (54.8%) or enterprises with fewer than 50 employees (74.6%). Similarly, 48% of unskilled engineering workers start out in VSEs and 61% in Ses with less than 50 employees. On the other hand, unskilled handling workers tend to join firms with more than 50 employees (68%), especially medium-sized enterprises (employing 50-499), which themselves take on 46% of unskilled handling workers. Moreover, it is SMEs that take on the most new young sales staff (69.5%), especially VSEs (47.6%), while enterprises with more than 500 employees take only 17.4%. New young hotel workers are taken on by SEs (74%) and especially VSEs (44.7%).

However, if we add the not insignificant role of SMEs in re-employing jobseekers (Leicht

points out, for example, that three-quarters of unemployed persons recruited in Germany in 1994 were taken on by enterprises with less than 50 employees – 1997: p. 50), and especially that much use is made of them in employment policy (Gubian, Holcblat, 1999), that would be enough to allow us to consider SMEs a real 'transitional market' (Schmid, 1998: p. 12; Schmid and Gazier, 1999) between training and employment (including the use of assistance schemes to get young people into work), between unemployment and employment (as we have just seen), between employment and withdrawal from working life (as we saw earlier), and between domestic work and employment (see the status of home helps in the configuration of one-person businesses). Such a hypothesis would, among other things, involve articulating analysis of SMEs' behaviour on the labour market with that of their role in individuals' career paths, not only when they first start work, but throughout their working lives.

Other French observations deserve to be mentioned and checked out for European comparison purposes. Among these one might single out that by Bruand (1991) based on Céreq career pattern surveys during the 1980s, according to which a significant proportion of young people starting out in the smallest enterprises (one third) move to a larger establishment in the first five years of their working lives. This would be in line with the DMMO and EMMO surveys already mentioned, which showed that the 'reasons for leaving' given by young persons under 25 included 18.5% 'resignations' in small enterprises compared with 8.5% in enterprises employing over 200 people, or with the comparison of first job stability rates arrived at by Céreq: 17% for VSEs and 47% for large enterprises. Which means that while SMEs play a considerable part in providing young people with their first jobs, the posts that they offer are far from being the most stable and therefore the most 'desirable' from their point of view. That is why many still regard them as 'staging posts', and the SMEs have a lot of difficulty in retaining staff. Other sources also confirm this kind of drift of young workers from small enterprises to medium-sized and large enterprises as they go through working life (Bruand, 1991).

Another finding could be stressed: despite their greater capacity to accommodate young persons with low skill levels, the pivotal role of SMEs and VSEs in particular in introducing young people to work has for some years now tended to extend to all young people, regardless of their initial level of training. Thus, Céreq's *Observatoire des Entrées dans la Vie Active* [Observatory of Entries into Working Life] showed that 30% of young people leaving higher education in 1992 were in 1994 working in enterprises with between 1 and 49 employees, and 13% in VSEs alone (Bentabet et al., 1999: pp. 45-46). Could this trend towards higher levels be connected with sectoral effects (development of high-value-added services), the shifting of Ses in the value chain, with, for example, the development of VSEs as part of large groups (franchising, retail chains, division into subsidiaries), the arrival of a new entrepreneurial class, or the greater loss of status of young graduates on the labour market? The work done by Dares and the Céreq's Generation 92 Survey should enable us to give a better answer to questions of this kind, but it is unfortunately not yet available.

4.3.4 The question of 'crossing thresholds'

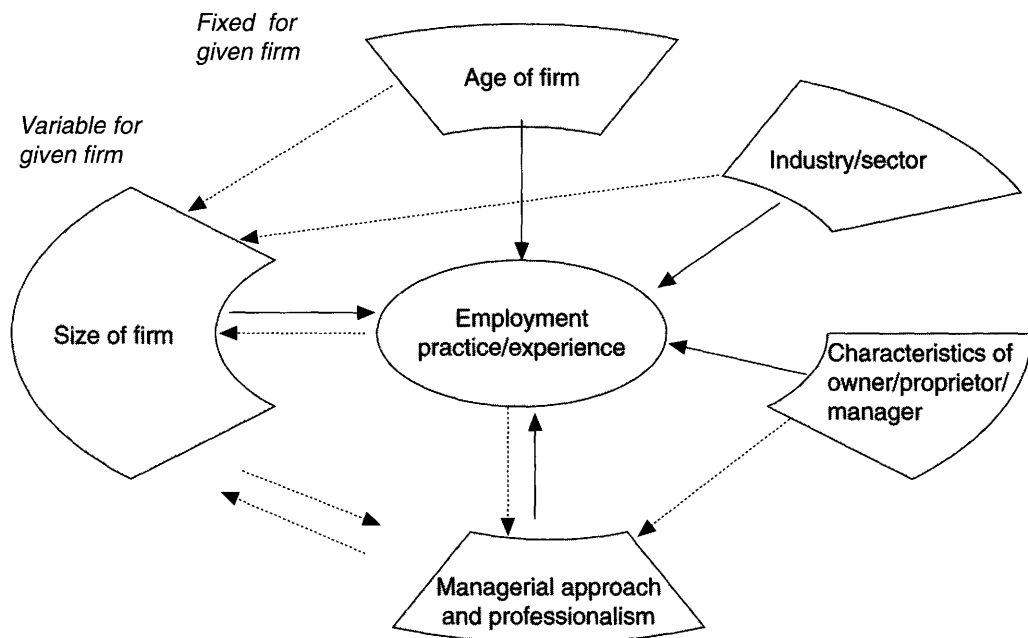
The statistical data on the labour market and on the integration of young people into working life are not however enough to explain totally the recruitment practices observed in SMEs. If we are to understand them better, we must reintegrate them into a more general understanding of the methods of labour management in small structures. This is what we said in a recent publication (Bentabet et al., 1999) and it is supported by a number of Anglo-Saxon authors who consider the most important fields of human resources management in small enterprises still to be 'the selection and retention of staff' (Hornsby and Kuratko, 1990). That is why they are particularly interested in the required manpower characteristics, the sources used for recruitment, and the selection tools deployed by SMEs, most often comparing them with Les (Golhar, Deshpande, 1997), without for all that overlooking the 'motives', that is the representations underlying the behaviour of their managers.

A good example is given in a particularly thorough study by Atkinson and Meager (1994). Taking up an hypothesis formulated in their earlier work (Atkinson, Meager and Wilson), the two authors state that, in the course of their development, small enterprises have to cross four successive thresholds, each representing things that have to be taken into account in policies of assistance to SMEs, for example:

- *The 'entry threshold'*, which corresponds to the decision to take on an employee, especially for a self-employed person who crosses the threshold when he engages his first employee. Most of the time, he then uses casual workers, members of the family, or works long hours. This threshold is situated at zero employees.
- *The 'delegation threshold'*, which represents the moment when the owner-manager (the 'one man band') is no longer self-sufficient and leaves production or direct sales, for example, to concern himself with management. This threshold does not lie at a particular level of workforce, but at the time when the small firm's quantitative growth is accompanied by a qualitative change in its method of organisation.
- *The 'formalisation threshold'*, which is the point where the organisation's complexity demands systematisation, both in order to organise the internal labour market and to have recourse to the external market. It is, for example, the moment when planned recruitment procedures appear.
- Finally, *the 'functional threshold'*, where the activity's development demands a personnel policy based on professionals and specialists and the emergence of specialist functions. In particular, we see the appearance of formal and ongoing relations with the labour market.

According to the two authors, while the SME's workforce is the 'inescapable' variable of its specific 'labour market behaviour', it is not the only one. That is why they propose an empirical analysis grid including four other key factors (Figure 4.2).

Figure 4.2: Characteristics of firm



Source: Atkinson and Meager, 1994: p. 35

The influence of the foregoing five variables on the behaviour of small firms is also affected by many factors reflecting the characteristics of the environment in which the enterprise moves, according to the following scheme, which is self-explanatory:

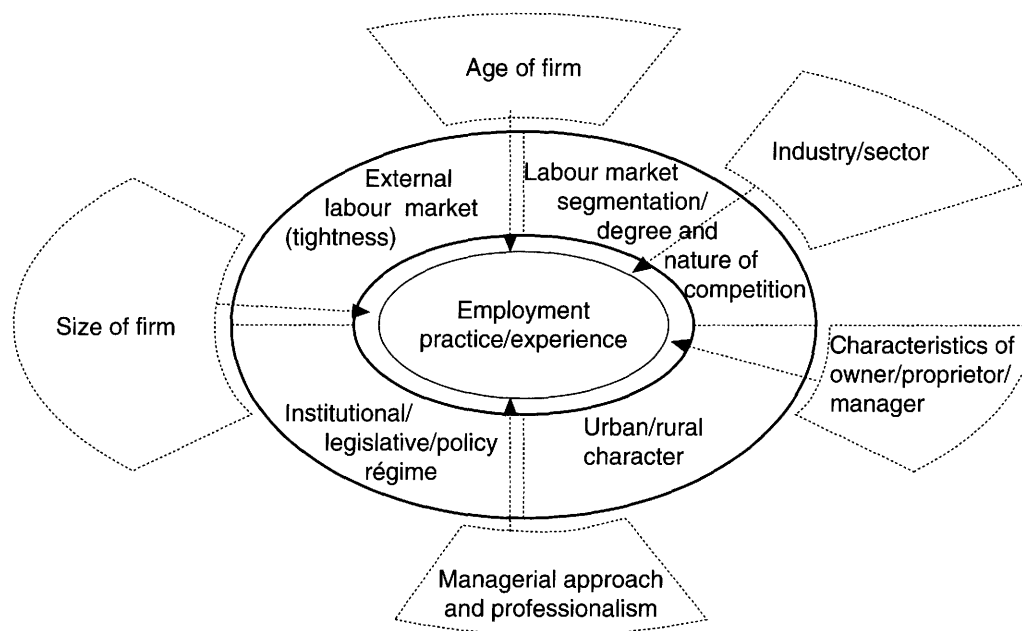
The two authors state that, contrary to what is generally believed and unlike the financial problems that remain predominant regardless of their size, the recruitment problems encountered by small firms increase regularly with their size. Thus, Very Small Enterprises have fewer difficulties on this point (since they can take on family members or relations) than firms with 10 to 50 employees, for which recruitment is the second cause of problems with the environment.

As for the players who take the recruitment decision and the procedures they follow, they are closely dependent on the 'managerial structure and practices' current in SMEs. In a survey covering 2 836 units, the intervention of the one owner-manager, who is always the majority shareholder, can nevertheless increase from 50% to 83%, depending on the size of the enterprise, its location (rural/ur-

ban) or sector. However, the demand for labour is generally quite far removed from the conventional deterministic models derived from large organisations: apart from the powerful inertia of small structures to preserve their autonomy, we note in particular the lack of planning, the predominance of short-term influences over employment decisions and the use of more informal local selection procedures in the smallest SMEs or for the least skilled manpower needs. Thus, for manual workers access to the workforce 'by word of mouth' is still going strong in large enterprises (Atkinson and Meager, 1994: p. 70) and the area of the labour market explored depends closely on the occupation of the persons recruited: whereas managers tend to be recruited from a distance⁷⁰, three-quarters of

⁷⁰ *Small rapidly growing firms* are more willing to recruit managers from outside with experience of large enterprises; *'typical small firms'* tend to recruit internally, but when they do have recourse to the external market, they tend to recruit people who have worked or are working in small firms; finally, *small slowly growing enterprises* tend to recruit managers from within their sector because they are less likely 'to rock the boat'! On this point see also Ardeni and Vrain (1999).

Figure 4.3: Environmental characteristics



Source: Atkinson and Meager, 1994: p. 37

manual workers are contacted within a radius of 5 miles.

4.3.5 Extending the analysis to forms of labour management

More widely, we could look at work analysing the specific forms of labour management in SMEs⁷¹ and including the employment (and training) practices found in them. Some authors have made this their speciality, such as Mahé de Boislandelle in France (1998 a and b), McEvoy in the United States (1984) or Pettigrew, Arthur and Hendry (1990) and again Hendry, Jones, Arthur and Pettigrew (1991) in Great Britain. In what is in the end quite a small stock of publications (at least in the opinion of Julien, 1997: p. 260), we might, with Mahé de Boislandelle (1998 b), pick out two other directions: firstly, the empirical analyses of the practices and representations

of 'human resources management' (hereinafter HRM) in SMEs; and secondly, the attempts to formalise and construct theoretical concepts and frames of reference. Let us briefly look at these two groups.

Empirical studies: results tending to contradict the specificity theory

Most conventional research into HRM practices in small enterprises is essentially *evolutionist*, since most of the time it makes them into a smaller and incomplete model of the large enterprise. The conclusion then drawn is that there is some backwardness in their functional structure (only very rarely do they have a dedicated 'personnel management' section), inadequate planning and a failure to integrate human resources into the enterprise's strategy. A number of older authors have attributed the inefficiency or even the failure of certain SMEs to these failings (McEvoy, 1984).

Closer to our own position, on the other hand, some authors have argued for the *specificity theory* and have shown that there was far from being a consensus on the link between the

⁷¹ We prefer to use this term here rather than 'Human Resources Management' (HRM) used by many authors, since the latter seems to have more overtones of the rational technologies of the large enterprise.

degree of formalisation, professionalisation or differentiation of HRM and the success of SMEs (Julien, 1997)⁷², since the labour characteristics and needs of small enterprises are very different from those of the large enterprises (Deshpande and Golhar, 1994). And while some researchers (e.g. Hornsby and Kuratko, 1990) have sometimes highlighted a recent coming together of personnel practices between the two types of enterprise, SMEs are likely to owe this less to their internal progression than to their increasing integration into groups, the emergence of new managers (Ardenti and Vrain, 1999) or the spread of new forms of organisation like just-in-time and Total Quality Management (Deshpande and Golhar, 1994).

The theoretical models: convergence towards a contingency model

The theoretical models are geared towards approaches of the quota type, which in the end are the only ones able to take account of the extreme diversity of forms of labour management and their present dynamics in SMEs (Fabi, Garand et al., 1994). An almost impossible multitude of factors (internal and external) are involved in their organisation, activities and HRM practices, and Julien attempts a fairly exhaustive compilation of them from the literature (1997: pp. 293-299). He mentions: organisational size; field of activity; the enterprise's financial and material resources; organisational strategies; the sociodemo-

graphic profile of the entrepreneur, the managers and the employees; the entrepreneurial vision; the presence of trade unions and the SME's production system (idem: p. 300).

More or less the same idea is developed by Mahé de Boislandelle in France; he includes in his 'social mix' model (1998-a: pp. 113-114) *personal variables* concerning the manager, *contextual variables* (internal) of the organisation and *environmental variables* determining 'the SME's HRM system' and which are all pointers for future empirical research (idem: p. 72).

According to all these authors, like Julien and Marchesnay (1988: pp. 70 et seq.) who already distinguished between entrepreneurs whom they designated by the letters P.I.G. (perenniality, independence, growth) or G.A.P. (growth, autonomy, perenniality), the managers' vision and their system of representation play a particularly determining role in the nature, complexity, diversity and degree of formalisation of HRM (Garand, 1993, and Figure 4.4). Moreover, the *degree of formalisation* of HRM practices seems to be a key indicator of SME development. On this point, we should not, of course, overlook '*imported practices*' (resulting, for example, from the use of outside consultants or the subcontracting of certain HRM activities such as payroll management, employer training, the use of payroll software or training management) or '*induced practices*' for the purpose of contractual cooperation with other SMEs, such as franchising, relations with prime contractors, or ISO 9000 certification. These are very important dynamics capable of transforming HRM practices radically (on this point see Ardenti and Vrain, 1998). This is what makes Bentabet et al. (1999) say that all the conditions are now present for the emergence, even in a VSE context, of a managerial model of rationalised or 'modernised' human resources management.

Like these last authors, Hendry et al. (1991) consider it essential to locate the practices of HR development in SMEs in relation to their market and competitiveness strategies. They stress the importance of these strategies and of the process of organisational development, that is the life cycle and age of the enterprises,

⁷² If Aragón Sánchez and Sánchez Marín (1998) are to be believed, nothing can be taken completely for granted about the relationship between methods of HRM and competitiveness, either. In an empirical study of 602 industrial SMEs in the Murcia region, they ask whether the SMEs that are the most competitive according to the resources and skills theory (technological capital, reputation, quality, size, internationalisation) have HRM practices that are significantly different from the less competitive enterprises. While some findings confirm what was expected (the most competitive SMEs are the ones that give the most training and have put in place a system of staff appraisal), others appear more paradoxical: for example, the most competitive enterprises are the ones with the highest proportion of jobs on fixed-term contracts, they do not particularly value independent working or job security, etc. This deserves to be examined in greater depth.

Figure 4.4: Manager profiling axes

Action	Operation	<----->	Development
Involvement	Low personal risk	<----->	High personal risk
Methodology	Logical analysis	<----->	Intuitive approach
Representations	Immediate tools	<----->	Long-term vision
Values	Collective ideology	<----->	Individual ideology
Relations	A priori trust	<----->	A priori distrust
Ownership	Willingness to share	<----->	Refusal to share
Continuity	Short-term gain	<----->	Quest for perennality

The arrows (<----->) indicate that the position on each axis lies on a continuum stretching from one extreme to the other.
 Source: Mahé de Boislandelle, 1998: p. 20.

for understanding their skill needs. That is without a doubt an extremely fruitful avenue of research for the future if we are to gain a better understanding of the articulations between strategic behaviour, performance and methods of human resources management in SMEs.

4.4 The current outbreak of work on job quality

So far, we have looked at the contribution that SMEs make to employment only from a quantitative point of view and it must be said that most research in Europe and elsewhere has given particular precedence to this point of view. However, we have for some years now been witnessing the opening of new areas of investigation into *the quality of jobs and of working conditions* that are radically changing the reading of the specific contributions made by SMEs to employment. These have grown particularly in Germany, the United States, Canada and the United Kingdom, as well as in Spain, where, as we have already seen, the most 'weighty' statistical studies (concerning the economic and financial performance of SMEs in particular) seldom overlook the data on the structure of their jobs and the skills of their workforce.

4.4.1 Comparison between small and large enterprises

We have to begin with a first set of works that try to compare the quality of jobs in small and large enterprises and that most frequently

show the former at a disadvantage. Their wages are generally lower, their use of continuing training less frequent, their level of unionisation and therefore of employee protection lower, the security of the jobs they offer less evident. This was found in the United States by Brown, Hamilton and Medoff (1990), for whom 'workers in large firms have a superior employment package'.

In the case of Great Britain, Scott et al. (1989) stressed the effects of enterprise size on wage differences, and Curran and Stanworth (1981) argued with many others that job satisfaction, often presented as compensating for the lower level of wages in SMEs, in fact depends more on the sector of activity, and the age or qualifications of the workers than on the size of the enterprises. Rainnie (1989) concluded in the matter of labour relations that 'small isn't beautiful'.

In Spain, Camisón Zornoza (1996-b) has underlined the higher percentage of temporary workers (*'eventuales'*) in SMEs, and the Impi for its part regularly notes a greater number of hours worked, lower wages and an overall lower skill level than in LEs (1995: p. 63). Another salient feature of SMEs that contributes directly to making employment contracts less stable is the lower seniority of the workforce. In 1995, 59.7% of workers had been there for less than 2 years and only 10.7% longer than 8 years (Para et al., 1995: pp. 29 and 64). This would seem to confirm the existence of a hard core and a periphery for jobs and labour within SMEs.

In Germany, with the exception of the work by Scheuch (1976), a great scientific defender of SMEs who, basing himself on *Bundesministerium für Arbeit* [Federal Ministry of Employment] surveys (1973), claimed that out of a set of 11 variables, only wages and working hours were more favourable in LEs than in SMEs, most research confirms the same findings. For example, the research by Wagner (1997) shows the 'effects of size' on wages, other benefits (end-of-year bonus, 13th month, profit-sharing), job security, opportunities to improve qualifications/skills, continuing training, participation, etc. Considering that most enterprises in Germany are SMEs employing a large proportion of the workforce while remaining outside the conventional joint management system, she recommends the adoption of a minimum wage and administrative barriers to dismissal rather than directly gearing public policies to improving the quality of jobs in SMEs.

4.4.2 The hypothesis of a link between job creation and job quality: 'do more jobs mean worse jobs?'

Today, studies are tending to converge towards the idea that working conditions in SEs and large enterprises cannot be compared and that the accent should be placed on the relationship between the growth of employment in SMEs and the process of deregulating the labour markets and making them more flexible in the developed countries. This theory is supported in particular by Sengenberger (1988) and by Baldwin (1998).

Sengenberger asks whether the trend for jobs to move towards SMEs is not closely linked to the reduction in the quality of working conditions and jobs and in wages. He notes that the abolition of protection against dismissal (*'kollektiver Kündigungsschutz'*) for SE employees since 1985 is likely to have perverse effects: it will now be more difficult for SMEs to find skilled staff. Another possible counterproductive effect of Government policies is that the strategy of reducing wage costs may result in lower productivity in SMEs and encourage LEs to use them as 'cost absorbers'. This is because deregulation is built on short-

term market efficiency, but neglects longer-term productive efficiency. Overall, the author does not find the policies of encouraging SMEs by making the labour market more flexible very convincing. On the other hand, a renewed efficiency in SMEs could come from improving their manpower skills and from strategies of inter-enterprise cooperation as in the example of 'third Italy'.

Baldwin, for his part, uses a study of the manufacturing sector in Canada between 1973 and 1992 to maintain that if SMEs have absorbed most jobs in recent years, it is because the changes that have taken place in relative factor costs are more favourable to them and because they traditionally use the labour factor more than the capital factor (1998: p. 363). He then formulates the strong hypothesis that 'to some extent, growth in the small plant segment has probably been the result of wage flexibility in this sector' (idem: p. 363). In other words, if SMEs make such a big contribution to job creation, it is because the jobs they create are of poorer quality than in large enterprises. From the research point of view, this means that we need to articulate the quantity and quality of jobs in SMEs conceptually and empirically and to pay greater attention to industrial relations in SMEs than European work has done hitherto.

In France, authors like Grasser, Lhotel and Sacher (1999) have come close to this hypothesis. In fact, according to these authors, a parallel should be drawn between SMEs' current success and the changes on the labour market and the increasing fragility of the wage relationship, which is more widespread in SMEs than in large enterprises, where there is still a strong internal market.

In reality, the somewhat hasty nature of these hypotheses (or rather of the interpretations we give them) overlooks a whole series of questions surrounding the methodological difficulty of precisely defining the concept of *job quality*, and international comparisons could be very useful for making them operational. It is these two elements that a study by Cowling and Storey (1998) attempts to tackle on behalf of the Dublin

Foundation⁷³. According to these authors, *job quality* cannot in fact be grasped one-dimensionally. It is in fact a composite concept, constructed empirically from a number of indicators, some of which reveal the deficiencies and others the superiority of SMEs. The question is not therefore a simple one and it no doubt calls for further investigation. They also note that international comparisons (European ones especially) are at present more of a research programme for the future than a present-day reality.

4.4.3 The work of the Dublin Foundation

It was in 1998 that the Dublin Foundation embarked on a programme of research into 'job quality' in SMEs. In this connection, it has already held two workshops (17-18 September 1998 and 22-23 April 1999) with the aim of reviewing European research in the field.

The subjects of the workshops were 'Employment conditions in EU micro-firms' and 'Jobs in EU micro-firms: a trade-off between quantity and quality?'. Still very much articulated around the debate about job creation in small enterprises, these sessions sought to define the research priorities and the instruments for collecting data (key variables) on employment conditions in SEs. Among the workshop's conclusions and recommendations, we can note:

- ❑ the urgent need for particular examination of the micro-enterprises segment of SMEs, since these account for 1/3 of jobs and 93% of establishments in the EU (including firms with no employees);
- ❑ that decision-makers often put the emphasis on pay and the length of contracts, although these two variables are not among the priorities expressed by either employees or employers;
- ❑ that in micro-firms, the employer is also a 'worker' or one of the workers. His own

working and employment conditions therefore probably have an effect on the success of his business and on how he sees his employees' working conditions;

- ❑ that information on total employment and especially on net job creation is very hard to obtain because of the high staff turnover in micro-enterprises;
- ❑ that international comparisons are even more difficult because there is no harmonisation of the indicators and concepts used in the socioeconomic approach to labour and employment problems;
- ❑ that the nature (or absence) of contracts in micro-enterprises (whether or not family firms) requires specific approach methodologies for studying employment conditions. Researchers will therefore have to make a clearer link between quantitative and qualitative methods and use their imagination to identify new indicators and go beyond the limits of the databases hitherto available;
- ❑ that multidisciplinary approaches are also essential.

4.4.4 The Cowling and Storey report (1998): from the elaboration of indicators to the difficulties of international comparison

In their report to the Dublin Foundation, Cowling and Storey note first of all that there is at present no database capable of providing full comparative information on all the job quality variables in the 15 European countries that they analysed. The Foundation for its part tried to create a European corpus in 1996, but this does not contain any information on the wages and remuneration variable, which is probably one of the most important.

Choosing to confine their exploratory analysis to the case of Portugal, using the database compiled by the Dublin Foundation, they look in turn at the registers of the macro-economy and labour market dynamics, the demography and composition of the workforce in the market sector (by sex, age, sector of

⁷³ European Foundation for the Improvement of Living and Working Conditions (Dublin).

activity, degrees of job stability, wages and methods of remuneration, quantities of hours worked, the relationship between training and employment, training levels, working conditions, job satisfaction, etc.), and the study of 20 job quality indicators (dependent variables) by size of enterprise.

It emerges very clearly from this study focused on one country that while SEs are at a disadvantage compared with large ones in four job quality variables, they are capable of doing better than them in four other variables. For the remainder of the 20 other variables used, however, there seems to be no significant difference between large enterprises and SMEs. It is, however, sometimes necessary to make a clear distinction between enterprises with no employees ('self-employed'), micro-enterprises (1 to 9 employees) and small firms (10 to 49 employees). Likewise, other independent variables may play a not insignificant role alongside that of size: for example, the sector of activity, the job characteristics, the personal characteristics of the employees (sex, age, level of training) and their occupational category.

In the final part of their report, Cowling and Storey nevertheless review the principal dimensions or factors that should be taken into account when measuring job quality:

- wages and other benefits: 'no doubt the most indisputable factor in measuring job quality' according to the authors;
- the ability to acquire training;
- pay structure (the measurement of performance and productivity has an effect on the variability of the compensation of employees);
- type of contract (fixed-term contracts increase employee uncertainty);
- working hours;
- job security and permanence;
- working conditions (health, safety, autonomy, involvement in decision-making, subjective well-being).

After proposing a conceptual analysis framework for examining the relations between job creation and job quality in detail (pp. 69-73), they suggest focusing on SMEs, calling for future studies of all sectors of activity (not

just industry), using the series of 20 variables identified in their own work and drawing on the Dublin European Foundation's databases, the gaps in which could be plugged by national monographs, especially for the study of wages.

4.5 The galaxy of self-employment: alternative to unemployment or optical illusion?

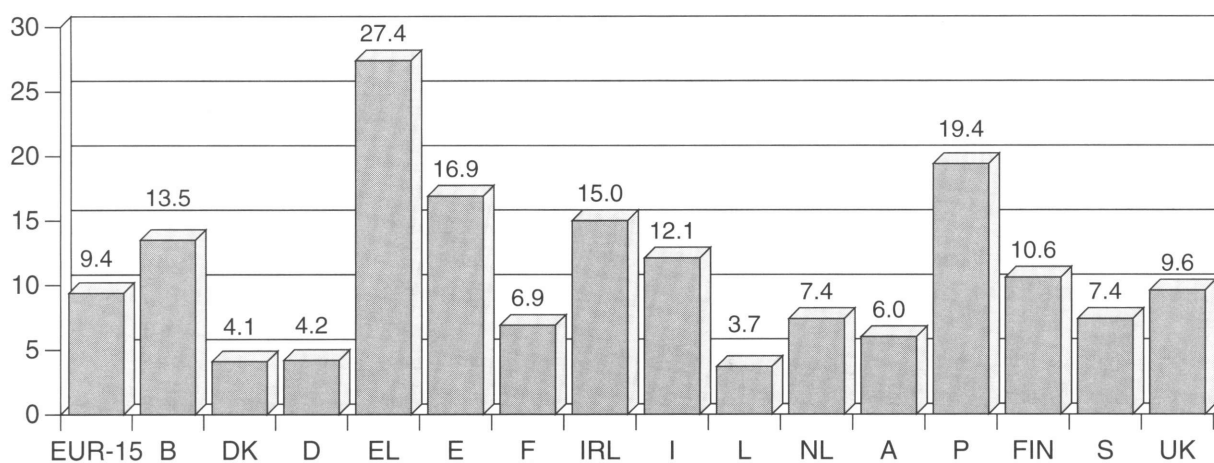
Our approach to SME behaviour on the labour market would not be complete without giving special place to 'self-employment'. The interest shown in this phenomenon by both labour market policies and academic research is the result of its considerable growth over the last 20 years in many developed economies (OECD, 1998-a). Today, especially, it is considered an important source of new jobs and an alternative to paid employment. Self-employment is also seen as a possible solution both for new entrants to the labour market and for the jobless. Finally, we find that in a number of countries (France, UK, Spain) self-employment has been encouraged by policies of providing financial support and advice aimed particularly at the unemployed or persons at risk of losing their jobs.

4.5.1 The contribution of international comparisons

The self-employed are generally considered to make up about 9.5% of the workforce in Europe today (that is, the number of self-employed relative to the total number of persons with a job), but with the figure differing greatly from one country to another. Thus, although the various sources do not come up with the same figures⁷⁴, we can distinguish between Northern Europe, where the percentage of self-employed is relatively small (Denmark, Germany, France, Netherlands, etc.) and Southern Europe (with Spain, Italy, Portugal, etc.) where it often exceeds 15%, reaching as high as 30% in Greece (see Figure 4.5). However, it must be said that the criteria for

⁷⁴ The differences may in fact result either from the different definitions adopted by the various sources used, or quite simply from the difficulty of marking out the reality of self-employment statistically.

Figure 4.5: Self-employed with no employees as a percentage of all persons with a job, 1995



Source: EUROSTAT, Labour Force Survey.

defining self-employment differ from one country to another.

The proportion of self-employed was calculated by dividing the number of self-employed by the total number of persons with a job.

This distribution is held to reflect the enterprise size structure, and the high level of self-employment in the southern countries would be explained by the high proportion of both VSEs and agricultural activities in their economies. Moreover, the breakdown of self-employed by sector is not the same in the South and North of Europe. In the former case (Italy, Spain, Portugal), commerce, hotels and catering predominate to the extent of representing as much as 50% of the self-employed, compared with no more than one third in France and the Netherlands, one quarter in Great Britain and the United States and only one fifth in Germany (Luber, Gangl and Leicht, 1997: p. 4, Table 1).

4.5.2 Structural trends in self-employment

It is nevertheless true that in most countries the internal structure of self-employment is changing. For example, Germany has for several years now been witnessing a relative growth in 'modern services', knowledge serv-

ices, and liberal professions (Luber, Gangl and Leicht, 1997). This internal structural trend is also noted by Granato and Leicht (1996), who stress the growth of human capital in self-employment. They say in fact that while the proportion of employees having completed university education rose from 7% to 13% of the working population between 1970 and 1993, it rose from 12% to 21% among the self-employed. They also point out that the presence of the self-employed in services (especially business services) rose from 8% to 16% between 1970 and 1993, that it remained constant in the manufacturing sector (from 24.7% to 24.1%), and that the number of female self-employed has increased, as has that of self-employed persons of foreign origin (from 2% to 7%)⁷⁵.

In England, the growth in self-employment has often been seen in parallel with the drift

⁷⁵ Bogenhold and Schmidt draw particular attention to the creation of businesses by foreigners on German territory: around 245 000 self-employed today offer nearly 800 000 jobs (1998). For their part, Jones, McEvoy and Barrett show that self-employment varies considerably according to ethnic group. Whereas 13% of whites could be considered self-employed in the period 1989 to 1991, the figure was 7.2% for the Guyanan working population with a job and 20% for Pakistanis and Indians.

from industry to service activities, technological progress, the break-up of large enterprises, and Government efforts to promote an enterprise culture. Between 1981 and 1991, there was also faster growth (in the region of over 80%) in the number of self-employed among the youngest population groups (aged 16 to 24) than in any other age group (Campbell and Daly, 1991).

4.5.3 Forced self-employment and 'entrepreneurial culture'

Most research also points out that the rate of self-employment has increased in the majority of OECD countries (with the exception of Japan, Luxembourg and Denmark), especially since the mid-1970s (OECD, 1992). This is more especially the case in Great Britain, Spain and Sweden, but also in Germany. Could this be the sign of the emergence of a new 'entrepreneurial spirit' bearing with it the hope of many new jobs? Not necessarily, because a high number of self-employed does not necessarily imply a greater taste for risk, or greater creativity or commitment. It could just as much be the result of the state of the labour market, processes of 'downsizing' in large enterprises and rising unemployment, all of which have magnified the phenomenon of 'forced self-employment' over recent years (Granato and Leicht, 1996). Not necessarily, either, since a person going self-employed is not necessarily accompanied by the creation of a lot of extra jobs. From this point of view, Germany and Denmark are still a case apart, since in those countries half the self-employed have been able to create other jobs, compared with only a third or even a quarter in the other Western countries. In Great Britain, there has actually been a very sharp decline in the proportion of self-employed employing other wage earners, since between 1981 and 1991 the proportion of self-employed with employees fell from 40% to 31% (Campbell and Daly, 1991).

Hence the interest of work looking at the many transitions between paid work, unemployment and self-employment. One example is Carrasco for Spain (1997). Taking as his source the *Encuesta Continua de Presupuestos Familiares* (Instituto Nacional de Estadís-

tica), he compares 37 000 observations of a population of men aged 21 to 65 between 1985 and 1991 and tries to see what are the factors influencing the decision to become self-employed. Is it possible to estimate the effect of unemployment on the probability of embarking on self-employment for the long term? Is it possible to distinguish between self-employment with and without employees? What reasons can be found for moving from self-employment to paid employment or from self-employment to unemployment? Two sets of interacting variables then emerge from his study: the state of the labour market (and especially job rationing) and the personal characteristics of the individuals (family situation, age, level of training, previous experience of self-employment and former status, i.e. employee or unemployed). Like Evans and Leighton (1989), he finds that an unfavourable macroeconomic situation increases the probability that low-skilled waged individuals will become self-employed. He also finds that the enterprises created by the unemployed encounter more difficulties (high percentage of failures) than those created by persons coming from a job.

Finally, and this is no doubt a crucial result, Carrasco shows that when individuals have recently experienced unemployment, if they are driven to become self-employed, especially by the withdrawal of benefits, they are more likely to abandon self-employment after a few months to return to unemployment than are self-employed persons who were previously wage earners (Carrasco, 1997: p. 29). This seems to imply that employment policies designed to encourage self-employment among the unemployed would do well to think twice before simplifying extremely complex questions.

This problem is also addressed in much recent German literature opening a very closely argued debate, both theoretical and empirical, on the culture of self-employment (*'Kultur der Selbständigkeit'*), which might be translated and extended to mean 'entrepreneurial culture' (Bögenhold and Schmidt, 1999). It shows that independence cannot be reduced to its legal or statistical aspects and that 'the enterprise spirit' also has a cultural dimen-

sion that ought to be worked on in the context of general vocational or university training, especially by involving intermediate institutions at regional level. In this connection, Frick (1998: p. 36) considers the British culture of entrepreneurship to be inappropriate for Germany because of its ideological content and the predominance it gives to the fight for capital at the expense of dependent jobs. In other cultural contexts, the spread of the enterprise spirit would have to be a long-term social project rather than a set of defensive measures seeking only to curb unemployment.

4.5.4 Increasingly fluid boundaries between employees and the self-employed

In France, the recent work of O. Marchand (1998) also tends towards caution and tempers the enthusiasm surrounding the growth in self-employment⁷⁶. The author begins by establishing that, with the exception of the United Kingdom and Sweden, employees have never been such a high proportion of the working population, approaching as much as 90% in the main industrialised countries (idem: p. 8, table 2). However much we may debate the methods of constructing the statistics, he observes in particular that the place currently held by self-employment is part of the qualitative changes affecting the structure of paid employment in the long term. From this point of view, what we are witnessing today is a blurring of the traditional split between the status of paid work and self-employment, especially with the externalisation of activities on the periphery of enterprises, subcontracting and hiving off: 'work on the margins of the paid workforce is growing, either in the form of jobs with the weakest of links with employee status... or in the form of bogus self-employment or bogus subcontracting. In the building industry, for example, firms have been very successful in encouraging certain workers to set up on their own, which may enable them to save on wage overheads by

getting around the regulations; but these new self-employed workers are in most cases completely tied to their former employer who is their only source of work' (Marchand, 1998: p. 9). On the other hand, 'some paid activities may consist of the provision of services where, conversely, certain tasks can be externalised to persons not on the payroll, while nevertheless maintaining ties of subordination between the two parties'. In other words, at the same time as the wage link is being loosened, we are seeing the appearance of new forms of dependence based on commercial contracts. Is this not the case, for example, of integrated or franchised small businesses whose wage 'independence' is paid for by economic dependence (Bentabet et al., 1999)?

5. The role of SMEs in training and in generating professional skills and status

National and European literature on initial and continuing vocational training is particularly prolific. This third section will be concerned less with mobilising this immense source than with focusing more particularly on work highlighting the relationship SMEs maintain with vocational training, either as users or as a specific forum for generating manpower skills. Special attention will be paid to examining the quantitative defining data that have recently been trying to make international comparisons, to the main factors determining SME training practices and, finally, to the main changes taking place in most European countries to make vocational training the foremost source of SME competitiveness.

We have just looked at the research into SMEs' contribution to employment and human capital formation, which is a crucial factor in competitiveness for the developed countries (Ridinger, 1997). However, we now know that the quantity of manpower alone is not the only important factor in determining the process of growth and competitiveness in an economy, but the skill level of its workers. From this point of view, as Kucera (1997: 57) notes, entrepreneurship and skilled labour

⁷⁶The self-employed are initially defined negatively here as 'those who do not draw a wage or who pay it to themselves'.

(*Qualifiziertheit der Arbeit*) go together. That is why it has become necessary to examine the role of SMEs, not only in job creation but also in the mobilisation and development of labour qualities.

The question is not new. As early as in 1986, a seminar organised by Cedefop and coordinated by I. Drexel sought to take stock of training in SMEs, and in many respects, this constitutes an excellent point of reference. The question has undoubtedly become more complex, however, given the pressing nature of the underlying issues (see the European Commission's *White Paper: Enseigner et apprendre – vers la société cognitive* [Teaching and learning: towards a cognitive society]) and the many national initiatives to which this has given rise in most EU countries over recent years (Aventur and Möbus, 1999).

The field of scientific research is not exempt from this complexity. First, as A. D'Iribarne (1993) points out, there are many areas of knowledge. They may, for example, be concerned with 'initial training for young people, continuing training for people of working age, whether or not in work, work itself, which allows us to relate questions of 'qualifications' and skills to those of training, staff selection by enterprises and the place of the diploma, training techniques and the cognitive processes of apprenticeship [...] and how all the above should be seen in the light of the general operation of the labour market (occupational integration, exclusion from activity, etc.).'

Moreover, when the researcher takes a transnational interest in all these phenomena, he comes up against familiar but particularly stubborn difficulties: how, for example, to achieve sufficiently reliable comparability between analytical categories that are highly marked by national contexts. What is there in common, for example, between the concept of apprenticeship in Germany and that in France? What relationship is there between a skilled worker in Italy, France or Germany when the basis of training, methods of selection, or their place in labour organisation and in career prospects or social status are not the same? How should we re-

spond to the present instability of our main points of reference resulting from the reconfiguration of the institutional edifices of vocational training in most European countries? While it is true that statistical sources like the *Labour Force Survey* or the *Community survey of continuing vocational training in enterprises (CVTS)* have enabled tremendous progress to be made, they are still recent and in need of further development. At least, that is what emerges from the publications that deal with them.

We propose here to begin by using this corpus to distinguish between SME behaviour in the matter of initial vocational training (5.1) and then of CVT (5.2). In fact, despite the present 'easing of the separation between initial training and continuing training' noted by Aventur, Campo and Möbus (1999: 2)⁷⁷, the distinction between these two registers, 'which *together* help to produce the qualifications and skills of the working population', is maintained in most of the work consulted.

Then, building on a critique of the statistical tools, we shall investigate the specifics of SME training practices (5.3). Finally, by looking at the biggest trends at work in the new forms of regulating vocational training systems in most EU countries, we shall try to interpret them as opportunities to be grasped to enable SMEs to develop their training potential in the future (5.4).

The first two sections will describe the most striking studies on the demand for vocational

⁷⁷ It will in fact be noted that this tendency to overlapping of the initial and continuing vocational training systems is shared almost unanimously in all the countries of the EU. For example, alternating training arrangements (sandwich courses) have been available to adults in Denmark ('recurrent training') since 1992; in other countries, like Finland and the Netherlands, training systems including apprenticeship are accessible to adults. Similarly, in the new *Länder* of Germany, 'conventional' apprenticeship has been extended to young adults over the age of 27. In France, combined work and training contracts are financed by the Continuing Vocational Training funds, while new forms of skill validation are available both to young people and to adults in the course of their working lives (Aventur and Möbus, 1999).

training by SMEs and the use they make of it, either on the basis of their skill needs in their recruitment practices (especially relating to young people) or in terms of initiatives for the development of their existing workforce. The resulting table shows a wide variation.

It is true that in most EU countries small structures play a key role in getting young people into work and are very much involved in apprenticeship schemes. However, they are finding it increasingly difficult both to absorb and retain the most highly qualified of them and to complete their initial training. Moreover, in the southern countries in particular there is a gap between the specific skills they demand and the qualifications produced by the vocational or technical training structures (as in France, Spain and Italy, for example). Their use of Continuing Vocational Training, if not always characterised by an 'inertia' that leads Verdier (1991: p. 42) to describe them as 'extras' rather than 'players', at least shows a kind of deficit or withdrawal as compared to the largest enterprises when observed at European level. Behind this overall analysis, however, most research work encourages us to measure national, sectoral or size category differences very carefully, paying particular attention to the factors explaining the (small) use made of training by SMEs.

As we said earlier, from a statistical point of view comparative European research into vocational training has made some important breakthroughs in recent years. One might mention, for example, the Report by the European Commission (DG XXII), Eurostat and Cedefop (1997) concerned both with initial vocational training from an analysis of 167 programmes in 15 Member States (VET-Eurostat) and the survey of continuing vocational training within the firm, which collected information from a representative sample of 50 000 enterprises (CVTS – Eurostat). See also the supplementary dossiers of the European Commission (1999) or the University of Sheffield's Centre for Training Policy Studies (European Commission, 1999) and the study produced by Céreq (Aventur and Möbus, 1999), which is exemplary in its depth and exhaustiveness. It is however much

to be regretted that these databases, which tell us about both the structure of the initial training system in each country and enterprises' in-house training practices, cover only enterprises with 10 or more employees and at present disregard training for jobseekers. The result is that Very Small Enterprises (VSEs), which account for the greatest number of establishments in Europe, are once again excluded from the official statistics for technical reasons.

5.1 SMEs and initial training: providing a job and/or training?

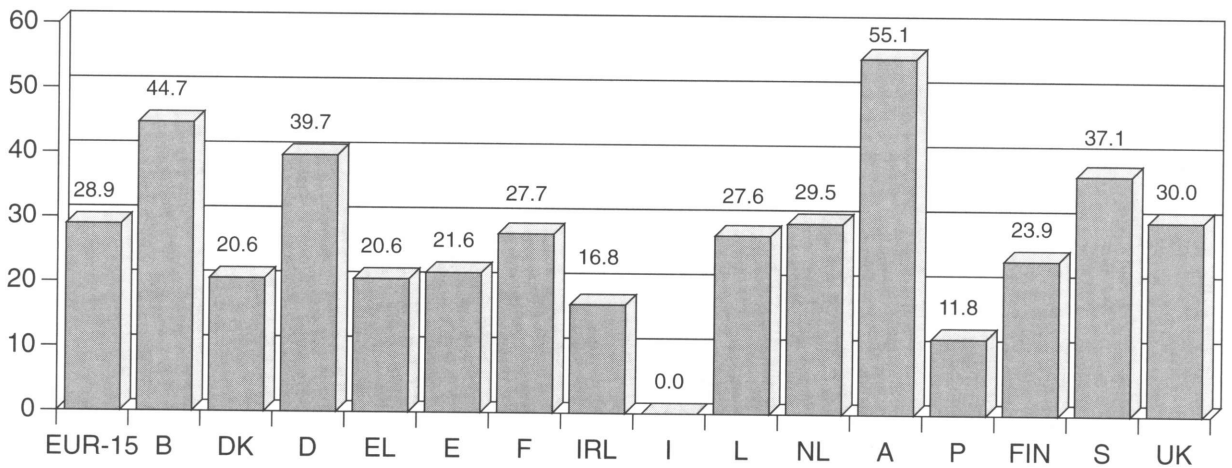
Political and economic decision-makers have for many years striven to make vocational training a major axis of the fight against unemployment among young people and to upgrade the average skills that service and craft SMEs more particularly need. If the statistical data produced on the subject at European level are to be believed, this kind of training seems in fact to be a form of protection against the difficulties of occupational integration.

5.1.1 The general effectiveness of vocational training on the labour market

In the countries of the EU, almost one third (29%) of young Europeans between the ages of 15 and 19 are today enrolled on an initial vocational training programme. This encouraging figure, however, masks major disparities between countries, since participation is very high in Austria (55%) and Belgium (45%) but less so in Ireland (17%) and Portugal (12%), the situation of young persons in the other Member States being between 20% and 40% (Figure 5.1).

Like the proportion of young persons involved in initial vocational training, the combination of general and vocational training varies enormously from one country to another. While in some countries vocational education predominates over general education (as in Germany or Austria, where 78% of pupils are engaged in vocational education at ISCED 3 level, in Italy with 73% and the Netherlands with 70%), in others it tends to be general training that prevails over vocational with the lat-

Figure 5.1: Rate of participation in initial vocational training among the population aged 15-19 years. 1993/1994, %



Source: European Commission, Eurostat, Cedefop (1997)

Box 5.1: The International Standard Classification of Education (ISCED)⁷⁸

Isced 0 (Pre-primary)

Isced 1 (Primary): begins between 4 and 7 years, is always compulsory and normally lasts 5 or 6 years;

Isced 2 (Lower secondary): forms part of compulsory schooling in all EU countries. The end of this level often corresponds to the end of full-time compulsory schooling;

Isced 3 (Higher secondary): begins around the age of 14 or 15 and is either a general, a vocational or a technical education. Level required for access to higher education or end of schooling;

Isced 5, 6, 7 (Higher education):

- without university degree (5)
- first university degree (6)
- programmes leading to a post-graduate qualification (7)

ter engaging for example no more than 41% of young persons at ISCED 3 level in Spain, 33% in Greece and 23% in Ireland and Portugal. Between these two extremes we find France (with 53%), Denmark and Finland (with 54%) and the United Kingdom with 58%.

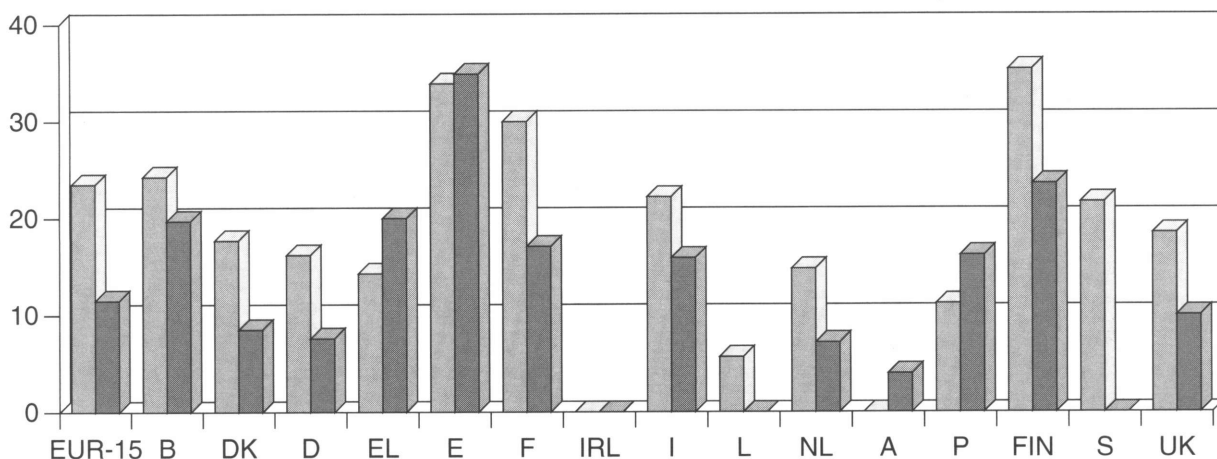
In the same publication (European Commission, Eurostat, Cedefop, 1997), we also find that, for an equal level of initial training, vocational training is more effective on the labour market than general training alone⁷⁹. In Europe, in fact, while 23.5% of young persons are unemployed after undergoing only general training corresponding to ISCED 0, 1 and

2, only 11.5% (one half the number) of those who also have some vocational training are jobseekers (Figure 5.2). Vocational training therefore seems to speed up integration into working life, especially for young people with

⁷⁸ This nomenclature used in international comparisons at present has a few imperfections and is to be revised in the near future (European Commission et al., 1997).

⁷⁹ With the exception of Sweden, however, where vocational training is institutionally independent of the production system. In this case, the school system alone is responsible for getting young people into the right jobs.

Figure 5.1: Rate of unemployment among young persons aged 20-29 having only a basic education and among those with further vocational education – 1995 – %



	EUR-15	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
ISCED 0,1,2 General	23,5	24,3	17,7	16,2	14,3	33,9	30	0	22,2	5,7	14,8	0	11,2	35,4	21,7	18,5
ISCED 0,1,2 + Vocational	11,5	19,7	8,5	7,6	20	34,9	17,1	0	15,9	0	7,2	4	16,2	23,6	0	10

Source: Labour force survey, Eurostat

low levels of qualification. It also offers them better prospects of being taken on and greater job security, except in Greece, Portugal or Spain, where the proportion of young persons with a general education predominates at ISCED 3, that is the level immediately above compulsory schooling (Box 5.1).

5.1.2 Growing interplay between training policies and employment policies

Strictly speaking, analysis of SME behaviour in relation to the education and initial vocational training structures would involve a close articulation not only between the problems of training and occupational integration but also between training and employment and labour market policies, firstly because the absence of an internal market in SMEs means they have greater recourse to the external market than do large enterprises; and secondly because the imbalances observed on the labour market have in most EU countries resulted in the adoption of policies designed to make employment standards more flexible, especially for young people experiencing dif-

iculties in finding work and to encourage firms to recruit them. There are generally two aspects to this ‘structural adjustment’, and they are particularly well analysed by Lefresne in a recent thesis (1999):

- firstly, *the employment status is made more flexible* and/or financial incentives are introduced to encourage the integration of young persons, which are of particular advantage to SMEs;
- at the same time, vocational training needs to be developed or upgraded with the introduction of *new ways of bringing school and enterprise closer together*, that is of managing the training-employment transition, with particular use made of apprenticeship and alternate training.

There is no shortage of examples on both these fronts:

- for the first one might, for example, quote the case of Spain, where they have for several years been relaxing the recruitment rules by making greater use of temporary

employment contracts for getting young people into work. There is also the United Kingdom, where wage costs have been reduced by breaking the link between the wages of young persons and adults, especially through the Youth Training Scheme (cf. Box 2.2) adopted in 1982, which has enabled many enterprises, especially the smallest ones, to take on juvenile labour at lower costs. We should also mention Italy, where new rules have introduced a 'starting wage' below the collectively agreed rate of pay for new entrants to the labour market and where there are now financial incentives for enterprises to recruit young persons on a part-time basis. Or even Germany, considered exemplary so far as the training-employment transition is concerned, where, given the growing number of young people without jobs on completing their apprenticeship, the *Employment Promotion Act* (1985) allowed enterprises to use fixed-term employment contracts (18 months) or to offer young persons completing their apprenticeship jobs unrelated to their training specialisation. Not to mention the introduction of 'exchange programmes' allowing large enterprises, which are increasingly unwilling to retain apprentices even though they helped to train them, to make them available to craft trade enterprises (Zedler, 1994).

- In the matter of bringing the educational system closer to the production system, we could highlight the development of apprenticeship and alternate training courses: in Italy with the *training and employment contract (CFL)* introduced by the Law of 1983; in the United Kingdom with the *Youth Training* scheme; in Sweden with the vocational integration courses; in Spain with the introduction of *training contracts* for graduate students or of the (reformed) *apprenticeship* proper. In all these cases, training strategies overlap with strategies for the vocational integration of young people; reforms of the education and training system go hand in hand with reforms of the labour market. Specifically, in exchange for financial assistance, enterprises agree – in theory, at least – to contribute to the training of young people. We find however that in most

European countries SMEs have been expected to play a key role in these arrangements. We could go further, and say that just as training has increasingly found a place in active employment policies (as Join-Lambert et al., 1997, show for France), so the greater attention being paid to getting people into or back into work has more clearly shaped the initial or continuing training programmes for which SMEs have been the preferred vehicle.

5.1.3 The contribution of SMEs to the occupational socialisation of young people: between tradition and new deal

Despite the great diversity of national traditions, SMEs have long been making an established contribution to the occupational socialisation of young people coming out of education. Whether their contribution has formed the basis of a highly institutionalised system of career organisation (as in Germany and Austria), has been taken over and strengthened by occupational structures (as in the United Kingdom), has served to pick up those who have fallen by the wayside in a social system dominated by educational qualifications (as in Spain and especially in France), or the ground SMEs occupy has been neglected by the public player (as in Italy).

Apart from the disparities between countries (Aventur and Möbus, 1999), research reveals the importance of sectors (Curran, 1990; Curran et al., 1996; Dti, 1995), territories and local labour markets (Sperling, 1993) and the recent changes in production systems (Christe, 1998; Leicht, 1995; Campinos-Dubernet, 1999). In the rest of this chapter we shall try to show how all these factors work together.

In simple terms there could be said to be two types of national tradition in Europe as regards initial vocational training: countries where it has historically been socially discredited (as in France, the United Kingdom and also Italy and Spain) and countries where it has been highly structured and has become the centrepiece of the training system as a whole (Germany, Austria, Netherlands). A few examples will suffice:

Box 5.2: The place of apprenticeship in French small enterprises

In France, small units are the main enterprises making use of apprenticeship contracts (72% in 1996). The rise in hirings on assisted contracts since 1987 plays an important part in raising the level of qualifications within small enterprises. Apprenticeship in particular may be a 'Trojan Horse' of the first order (Bentabet et al., 1999). Already, 24% of young persons taken on by such firms are engaged as apprentices but, in particular, this method of training under a contract of employment alternating periods of schooling with periods in the enterprise, is no longer the preserve of young persons preparing for a CAP certificate. It is also open to persons wishing to take a vocational '*baccalauréat*' or a higher technical certificate (*brevet de technicien supérieur* - BTS) and now even for some future engineers (Pérot and Simon-Zarca, 1998). Finally, apprenticeship contracts are a crucial factor in the hiring of young unskilled workers in small firms in France. Having recruited them, however, do those firms nevertheless help to train them or help them to complete their training?

□ In *France*, for example, vocational training has traditionally helped to provide workers for craft trades and large industrial firms. The modern form of apprenticeship, based on the law of 1971, recognises this as a type of initial training 'marked by a school-type diploma (issued by the Ministry of Education) and which sets all the base rules: employment contract, work in the enterprise alternating with training at the apprentice training centre (CFA)' (Aventur and Möbus, 1999: p. 195). It operated in parallel with the technical branches, which have become much more developed in recent years and which have frequently proved more appropriate for continuing studies.

Because it recruited from the lowest levels of education, vocational apprenticeship was in France long considered the 'way of failure'. For that reason, it still occupies a minority position by comparison with general education, which is considered the 'royal route' if not to social success then at least to a secure job and, above all else, to avoiding unemployment (Box 5.2).

Despite the many attempts to upgrade this type of training in recent years, we have seen a rapid growth in numbers pursuing studies beyond *baccalauréat* level (especially technical) and short vocational courses (DUT-BTS)⁸⁰ which were originally intended as a fast route

to vocational integration for young people. In other words, with the exception of long-term higher education, whenever training became vocationalised it failed in its initial task (Trouvé, 1996). At the same time, we see a rapid structural change in the populations taking apprenticeships: whilst training in preparation for the basic levels of qualification (CAP: *Certificat d'Aptitude Professionnelle*) is on the decline, that leading to the highest level diplomas (Bac + 2 and beyond) is growing rapidly. This trend is highly significant for our subject: while the former – sometimes after a few adjustments – was relevant to SME needs and more especially to those of the smallest among them, the latter, which may now lead to qualification as an engineer, are probably more suitable for large enterprises.

However, this SME / LE distinction is not perhaps the most relevant today, because another split – along sector lines – has appeared within the SME category. It is true that small, even very small, establishments (hotels & catering, building, small retailers, agri-food industry and car repairs) continue to dominate the sectors that take the most starters with the lowest level of initial training. There are however also small enterprise sectors that are growing and demanding higher and higher skills acquired during initial training, such as business, legal and management services, computer engineering, social work & health, tourism & leisure, education, etc.

⁸⁰ Equivalent to ISCED 6 at European level.

There is therefore a great danger that we will see a dualism developing at the 'young' end of the labour market, not necessarily involving a distinction according to enterprise size (the smallest always taking young people with the lowest level of training), but according to their position in the production system, which would allow some SMEs in innovative growth sectors to recruit the best-qualified young people coming out of the training system. This point remains to be further considered and explored in the future on the basis of Céreq's 'Generation 92' career pattern survey of 1992-leavers polled in 1997.

□ In *Italy*, attention has only recently been paid to initial vocational training. Here, too, the young people engaging in national (at vocational institutes) or regional vocational education from the age of 14 are the ones who have failed to gain access to the general or technological streams. Vocational training course attendance rates nevertheless vary enormously from one region to another.

The alternate training system available to young people offers *apprenticeship* and the *work-training contract* ('*Contratto di Formazione-Lavoro*'). The former scheme is provided directly and in the majority of cases by enterprises⁸¹ and is 'concerned almost exclusively with training manual and non-manual workers' for SEs in the industrial sector (Margirier, 1999: p. 275): in 1994, 57.7% of apprentices were in fact in manufacturing industry, compared with 17.9% in commerce and tourism and 13.4% in construction. The latter was created in October 1984 to combat youth unemployment and offer a qualification to academic failures. It therefore acts as a 'safety net'. In most cases, training is dispensed by enterprises internally and a certificate is issued by the employer at the end, which is endorsed by the local employment agency, but it is not really a qualification. Despite its usefulness, this formula, like apprenticeship, is in decline, since 220 000 young persons were involved in 1994 compared with 530 000 in 1989. It must however

be said that it is used mainly by 19-24 year olds most of whom have no more than the compulsory level of schooling and 73.3% of whom are taken on by SEs with fewer than 50 on the payroll.

□ At the other end of the scale from the above two countries, in *Germany* the apprenticeship model seems to have stood up better as a vector of vocational socialisation for young people, and SMEs have not always been 'condemned' to accepting the least-qualified young persons. It is nevertheless true that the dual system is at present undergoing a crisis because of a drop in the number of training places available and especially because young people are finding it more attractive to continue their studies (Möbus, 1999: p. 24). As in Italy, there are more young people in industry than elsewhere, but numbers are no doubt declining by comparison with the craft trades and especially the liberal professions, which are gaining ground⁸². In this country, too, there is therefore, alongside the changes in volume, a structural change in the subjects taken, by sector.

On this point, however, it would seem that many sectors dominated by SEs are still marked by a great need for training and for highly skilled workers (*Facharbeiter*). Thus, all sectors taken together, Leicht (1995) notes an increase in the proportion of skilled workers as well as in the proportion of enterprises employing 50 or less. Above that, the proportion stabilises at around 26%. The proportion of unskilled workers increases in line with size, from 7.8% in SEs of 1-4 employees to 32.4% for enterprises employing more than 500 (Table 5.1).

Also, according to the same author, it is SEs with between 5 and 19 employees (which have the greatest employment growth) that contribute the most to young persons' apprenticeship (10.7% of apprentices, compared to 4.8% in the over-500s). The author states that the manpower with the highest skills in relative

⁸¹ Whereas the *State Vocational Institutes* and the *Regional Vocational Training Centres* serve only a small proportion of the 14-18 and 19-25 age groups.

⁸² Unlike Austria, another mecca of apprenticeship, where the craft trades predominate (55%), compared with 17% in commerce and 'only' 13% in industry and 11% in tourism and transport.

Table 5.1: Distribution of occupational statuses by size class in West Germany - 1987* national economy / %

Occupational status	Total (employees)		By class size 1987 (employees)					
	1970	1987	1-4	5-19	20-49	50-199	200-499	> 500
Active proprietors	9.6	9.2	43.5	9.9	1.9	0.5	0.1	0.0
Assisting family members	3.0	2.2	10.4	2.4	0.2	0.0	0.0	0.0
White collar workers/ officials	30.0	38.1	28.8	41.1	41.0	40.8	39.8	36.4
Skilled workers	22.1	20.9	5.9	19.5	26.1	24.7	22.7	26.4
Unskilled workers	29.7	22.9	7.8	16.4	22.3	27.7	32.0	32.4
Trainees	5.6	6.8	3.6	10.7	8.4	6.2	5.4	4.8
Total (million)								
100%	21.259	22.055	3.304	5.295	2.576	3.766	2.469	4.645

Source: *Statistisches Bundesamt* [Federal Statistical Office], own calculations.

* In workplaces; not including local and regional authorities, social security and PNPIs.

terms is found in an environment characterised by growing employment (craft trades, investment goods, material services). On the other hand, SEs in sectors dominated by LEs have a higher proportion of unskilled workers, which, according to him, means that the extraordinary growth of SEs is neither due entirely to a relatively lower skill level than LEs nor attributable to a 'shift' in unskilled activities from LEs to SEs (1995: p. 232). In some cases, therefore, the professionalism of highly skilled workers and craftsmen is indeed a prosperity potential even and especially in small enterprises, since their level of adaptability is a precondition for non-Taylorist concepts of flexible work organisation.

Like Christe (1998), Leicht puts particular stress on the sectoral and regional heterogeneity of SME situations. Hilbert and Sperling (1993), like Mendius (1988), say precisely that from their study of a sample of enterprises in the Paderborn area of Germany, noting that in Germany craft enterprises and highly structured large enterprises make the biggest

contributions to apprenticeship (Table 5.2). This would mean there are sectors that do more than is strictly sufficient to meet their own needs (engineering, metal structures) and others that do less (wood, plastics, clothing). Moreover, the reason why nearly 60% of SMEs in the area studied do not train apprentices would quite simply be that they have no need for skilled labour or that they can easily recruit apprentices trained by other enterprises.

In Germany, as elsewhere, however, it is worth taking note of recent work presented by other authors. Kucera (1997), for example, comments that the craft trades are finding it increasingly difficult to get skilled manpower, because young people are abandoning apprenticeship for higher university studies. We are therefore seeing a kind of 'negative selection' (p. 69), now reinforced by a trend among skilled workers trained by apprenticeship to change trades (40% according to Henniges, 1994) and to move from the traditional craft trades and small firms to larger enterprises.

Table 5.2: Average rate of apprenticeship* by establishment size category in Germany, 1994

	%
1-9 employees	7.9
10-49 employees	6.6
50-499 employees	4.6
500 employees and over	4.5
Total	5.6

* Rate of apprenticeship: number of apprentices/total workforce

Source: *Schaubilder zur Berufsbildung*, 1996 edition, Vol 1: Training, BIBB (Former West Germany).

This calls into question the efficiency of the apprenticeship system as a whole, which is apparently confirmed by three BIBB and IAB surveys quoted by Kucera (1997: p. 71) showing that the use of initial vocational training has declined in the working population and that the gap between the content of apprenticeship and the demands of working life is widening.

It is clear from a reading of all these studies that the apprenticeship system is today facing difficulties of adjustment where the place of SMEs seems to be very much weakened, if not called into question. There are two main, convergent, reasons for this:

1. firstly, the general raising of the level of education over recent years in most EU countries, with 66% of the population aged 30-34 having in 1995 reached a level of studies equivalent to at least the second cycle of secondary education, that is ISCED 3 or above (Box 5.1). This is accompanied by a sociological change in the aspirations of young people, who are choosing either to continue their studies or to join large enterprises where working conditions are more favourable over all (on this point see Modrow-Thiel, Roßmann and Wächter, 1993).
2. Secondly, the crisis in the traditional forms of apprenticeship or, rather, in apprenticeship preparing for traditional trades, resulting from the effects of structural changes in the economy on the skills/qualifications required.

In the former case, it is to be feared that SEs will, for the best qualified young people leaving the training system, become at best a *stepping stone* to larger enterprises (as a number of surveys of early career paths in France have shown: Mansuy et al., 1999), or, at worst, *something better than nothing* and, possibly, an 'escape hatch' for the most resourceless among them. Such alternatives may be formulated differently depending on the national context, either, for example, because the stress is on the extreme inertia affecting recruitment in the smallest enterprises (as in Spain, for example, where they still discriminate against young people leaving vocational training, since this is not highly valued), or because of the weakness of the institutional frameworks (as in Italy, where the certificate on completion of apprenticeship is issued by the enterprise alone and there is no legal requirement governing the precise breakdown between time spent on training and on work), or as a result of the far-reaching sociological changes affecting the mentality of young people, who are increasingly being attracted to longer and more prestigious forms of training. Such is the case in Germany, for example, but also in France, where recent changes in the structure of 'user' enterprises and *apprenticeship* populations or in '*assisted places*' in the market sector⁸³, clearly illustrate this problem. In the case of *apprenticeship*, for example, while very small enterprises in the traditional user sectors are tending to decline in number, enterprises with more than 50 employees are growing the most. This must also be seen in

⁸³ Apart from apprenticeship the French combined training and work system includes the *contrat de qualification*, *contrat d'adaptation* and *contrat d'orientation*. Only the first two are of interest here, being based on the conclusion of a contract between the employers and a public or private-sector educational establishment setting out how the sandwich course will be organised. While the first type are fixed-term contracts (6-24 months) for young people aged 16-25 who have been unable to acquire a qualification during their schooling or whose qualifications do not provide access to employment, the second type are fixed-term or permanent contracts (6-12 months) for young persons aged 16-25 leaving the education system after completing a full cycle of initial training that needs to be complemented by general, vocational and technological education.

the light of the trend in the educational attainment of apprentices: while the lowest levels of training are static, the higher levels of education are growing (Sanchez, 1999-a). As for *combined training and work*, that is so-called 'assisted' jobs in the market sector in the French terminology, they seem to be going the same way. While in 1998 most such contracts were still being signed in establishments with less than 50 employees (72% of *contrats de qualification* and 49% of *contrats d'adaptation*)⁸⁴, they are making particular headway in units with more than 50 employees and are of interest to populations of increasingly skilled young people (Sanchez, 1999-b).

The analysis of the structural changes to systems of production in turn leads to a variety of possible developments, almost all of which may exist side by side. It explains, for example, the increasing difficulties encountered by SMEs in continuing to play a preferential role in training and vocational integration and an increasingly evident *dualisation* between small enterprises in the traditional sectors (sometimes condemned to be the only place where the least qualified young people can find their first jobs or where people in difficulty can get (back) into work) and small enterprises in high-technology sectors or intellectually sophisticated services with the highest skill needs. On the first point, the detailed investigations made by Campinos-Dubernet in France (1999) are highly illuminating: while SMEs take 80% of young secondary-school leavers (Levels V and IV)⁸⁵, they are less and less able to provide the additional training in practical skills in some sectors of activity (mechanical engineering, plastics technology) where know-how is induc-

tive, that is building on in-depth theoretical knowledge already obtained. According to this author, the *incompleteness of the professionalisation profiles* produced by the school system obliges some SMEs to take responsibility for completing young people's education. However, the constraints of competition and the growth of subcontracting are now making them less able to do so, especially given the risk that the young people they train will then be recruited by other enterprises. Hence the development of the use of intermediate formulae to test young people's abilities before taking them on (interim, apprenticeship, assisted contracts with the cost of the vocational apprenticeship recovered from the public authorities).

5.2 SME use of CVT: low use of formalised training

The greatest paradoxes of SMEs are well known: while characterised by less favourable skill structures than LEs, they seem to make less use than LEs of structured continuing vocational training programmes. While they apparently play a key role in getting young people into work, especially those with low skill levels (see above), most of them seem to be incapable of developing their skills and improving their long-term employability. 'Although owner / manager attitudes to vocational education and training are largely positive, its actual provision fails significantly to keep pace with the perceived needs of small firms' (Matlay, 1997: p. 587)⁸⁶. We have already seen that most present-day research seeks to complicate the most unequivocal opinions about initial vocational training. So what about continuing vocational training? Can any useful conclusions be drawn, not only from national studies but also from those on a European scale?

According to D'Iribarne (1988), the basic 'ingredients' of continuing training systems are similar from one country to another (players with their roles and objectives, intervention structures, operational structures, instruments and levels of intervention), but they are

⁸⁴ It is interesting to note that in addition to training/employment schemes, some measures taken to help jobseekers aged over 25, such as Employment Initiative Contracts, have also been used on a massive scale by VSEs with 1-5 employees (44.4% of persons recruited in 1995) and SEs with less than 50 employees (83% of persons in the same period) (Charpail and Zilberman, 1999).

⁸⁵ That is the equivalent if ISCED 2 and 3 at European level (cf. Box 5.1).

⁸⁶ At least, this is what appears from a survey conducted by the author of over 2 000 SMEs.

Figure 5.3: The employer's role in initial vocational training and continuing training

Employers role	In continuing training		
	Weak	Medium	Strong
<i>Little weight</i>	Spain	Belgium	Finland Sweden
<i>Not very formalised</i>	Italy Greece Portugal		United Kingdom
<i>Minority and institutionalised</i>		Ireland Luxembourg Netherlands	France
<i>Dominant and institutionalised</i>		Germany Austria	Denmark

Source: 'Initial and continuing vocational training in Europe', March 1999.

often very strangely combined, with strong coherences peculiar to each country, since they are generally 'heavy social constructs'. For example, the articulation between initial training and continuing training at the employer's initiative often proves highly discriminating.

5.2.1 The articulation between initial and continuing training: great differences between countries

The use made of CT is in fact the result not only of the extent to which it is institutionalised in each country, but also of the links between CT and the initial education system and the labour market. In other words, the practices of continuing training at the employer's instigation have to be placed in the context of how initial vocational training is organised in the country concerned. That, at least, is the hypothesis advanced by Aventur, Campo and Möbus (1999).

Several situations can then be distinguished (Figure 5.3). Roughly speaking, the first case is where *enterprises invest heavily* in continuing training in addition to initial vocational training focused on apprenticeships and academic qualifications. Here, CT is seen as a way of 'catching up' or a 'second chance'. That is the route taken by France, and also by Sweden, where, for other reasons (there being no

apprenticeship), employers need to initiate the individual into the specific knowledge/skills of an enterprise or branch.

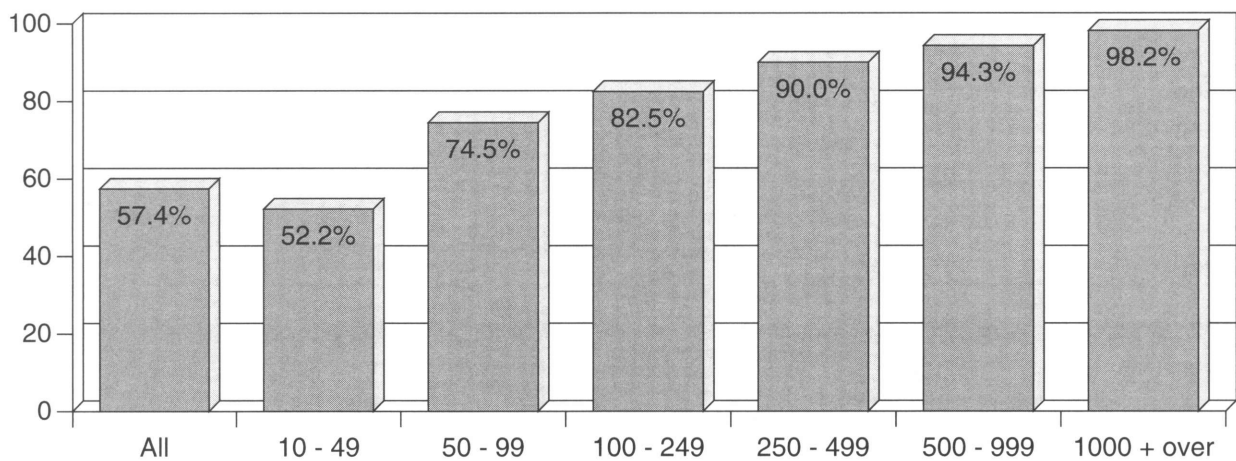
The second case is that of Germany. Here, enterprises are very much involved in initial training (by way of apprenticeship) and *invest less* in continuing vocational training (on this point see also Gehin and Méhaut, 1993). The picture is much the same in Austria and, to a lesser extent, the Netherlands.

The third situation is that found in Italy, Spain, Portugal and Greece. In these countries there is a *progressive complementarity* between the efforts to structure initial vocational training and the emergence of rules for the organisation of continuing training.

Looked at in this light, Denmark's position seems unique, since apprenticeship and employer's initiative continuing training exist on an equal footing, the two types of training being considered very much complementary.

Other work, however, (see in particular European Commission et al., 1997 or European Commission, 1999), based on the findings of the Continuing Vocational Training Survey (CVTS) covering 12 Member States of the EU, stresses the inequalities of access to continuing vocational training between different sizes of enterprise.

Figure 5.4: Enterprises offering continuing vocational training by size of enterprise – EUR 12 – 1993 – %



5.2.2 European work on inequalities of access to CVT

According to this research, while more than one half (57%) of enterprises with more than 10 employees organise continuing vocational training courses for their employees (representing a participation rate of about one third: 28%), this figure masks great differences between enterprises according to their size (Figure 5.4). In fact, in those with more than 1 000 employees, almost one in two employees has the benefit of a vocational training course during the year. On the other hand, in the smallest enterprises (between 10 and 50 employees), only one in ten has that opportunity.

Of course, the use made of CVT also varies considerably from one sector to another. Thus, the rate of staff participation is approaching 60% in enterprises in sectors that have experienced rapid organisational and technological change over recent years (energy, posts and telecommunications, banking and insurance). In hotels and catering, construction, retailing and repairs, on the other hand, sectors where small enterprises predominate, the participation rates are only 23%, 14.7% and 27% respectively.

We shall see below that courses are the preferred type of CVT offered by enterprises,

even in the smallest of them (Table 5.3). But it is worth asking whether the survey methods used (administrative survey, questionnaires, etc.) do not favour this configuration. It is true that training 'in work situation' accounts for a significant proportion and that the use enterprises make of training increases with their size, regardless of its type. In other words, contrary to what is commonly believed, apprenticeship on the job operates less as a substitute than as a complement to formalised training in all enterprise categories.

Moreover, there is a marked distinction between the rate of participation (volume of training received by employees) in enterprises offering CT courses and in enterprises as a whole. For this reason, not only are employees of small enterprises less likely to be employed by one that offers training, but even where training is provided, they have less chance of taking part than do employees of large enterprises.

On a qualitative level, finally, SEs make less effort than LEs to assess their manpower and skill needs (European Commission, 1999: p. 53) and fewer of them have staff specialising in training management (only 15% of enterprises with 10 to 499 employees against 93% for enterprises with more than 2 000 employ-

Table 5.3: Enterprises offering different types of training by size of enterprise (per cent)

Size	Courses	Training in work situation	Conferences, workshops, seminars	Job rotation, etc.	Self training
10-49	36	34	29	10	10
50-99	63	50	49	21	21
100-249	76	58	63	30	28
259-499	85	69	71	38	38
500-999	93	74	76	47	43
1 000 +	92	85	80	50	52
Total	43	38	34	14	13

Source: European Commission, 1999.

Table 5.4: General data on enterprise-funded continuing vocational training by size of enterprise in France, 1996

	10-19 employees	20-49 employees	50-499 employees	500-1 999 employees	2 000 + employees	Total
Number of enterprises	30 673	53037	26 774	2 001	390	112 875
Expenditure (in millions of FRF)	892	3 826	11 735	9 619	19 404	45 476
Rate of financial participation (%) (3)	1.73	1.87	2.52	3.48	4.87	3.25
Employees	449 822	1 710 817	3 501 814	1 862 244	2 511 718	10 036 415
% of enterprises providing training (1)	26.9	43.8	76.2	96.6	98.2	48.0
Rate of access (%) (2)	8.7	12.9	29.9	47.3	52.8	35.0

(1) Having had at least one person on a course

(2) Not including combined training and work

(3) Total training expenditure x 100 / total payroll

Source: Exploitation of tax return No 24.83, Céreq.

ees). Moreover, they are less likely to have a training plan or a training budget (idem: p. 55). However, where they do have a training plan, SEs (10-49) have almost the same participation rate as large enterprises (44% compared with 49%). There is therefore probably a link of cause and effect between the existence of a training plan and the level of development of CT practices (idem: p. 60).

The French data, which are quite precise on the subject, complete the picture of CVT 'deficits' in SEs. They show in particular that the two national objectives set by the 1971 law for equalising opportunities for both enterprises and individuals have not been met. The

two registers are moreover closely linked, and the size of the enterprise in fact plays an important part in the disparities in training access between occupational categories.

1. On the one hand, SEs have difficulty in raising themselves above the statutory threshold (1.5% of the payroll) and participation by enterprises with 2 000 employees and over is three times greater than by those employing 10-19 (Table 5.4); the gap between the proportion of employees with access to VT in small enterprises and in the largest ones has tended to grow despite a higher growth in the rate of financial participation of the smallest enter-

Table 5.5: Trend in enterprises' (10+ employees) rate of financial participation in funding of continuing vocational training in France

Number of employees	1975	1985	1996	Growth 95/75	Growth 96-94
10-49	0.70	1.14	1.73	+ 140 %	+ 7.5 %
20-49	0.89	1.20	1.87	+ 103 %	+ 1.1 %
50-499	1.17	1.51	2.52	+ 117 %	+ 1.6 %
500-1 999	1.49	2.12	3.48	+ 135 %	- 0.9 %
2 000+	2.53	3.62	4.87	+ 94 %	- 3.8 %
Total	1.63	2.24	3.25	+ 100 %	- 1.2 %

Source: Exploitation of tax return No 24.83, Céreq.

prises by comparison with the largest in the long term (Table 5.5).

2. On the other hand, not only does enterprise size affect the disparity between socioprofessional categories (for example, an unskilled manual worker in an enterprise of 2 000+ employees has in fact twice as much chance of access to training as an executive in a small enterprise), but in particular, socioprofessional inequalities in the end appear greater in small enterprises than in large ones: for example, the difference between the rates of access of executives and unskilled manual workers was 5.6 in 1993 for enterprises with 10-19 employees, as against 1.9 for enterprises with 2 000+ employees (Bentabet et al., 1999). In other words, in the French context, SEs are more elitist than LEs.

There seems therefore to be a broad consensus at European level around two findings based on statistical data: overall, SMEs make *less* and different use of continuing training than do large enterprises for developing or renewing their employees' skills. While the latter tend to favour organised training, the former prefer on the job training and make greater use of new staff recruitment. Over all, they recruit more than they train (Aventur et al., 1998).

5.2.3 Two interpretations of the deficiencies of formalised training in SMEs

Two interpretative approaches are generally encountered to these two findings: the one

tries to put the emphasis on the inadequacy of *the supply of continuing training* in the respective national context; the other gives more priority to the specific nature of the *demand for training* in SMEs and the more or less spontaneous adjustments of which they are capable. We shall now look at these two aspects and try to stylise them.

1. The first interpretation harks back to *the failure of normative models*: SMEs' deficiencies in continuing training are explained by the chronic inadequacy of the institutional structures. This is the problem discussed by such authors as Verdier in France or the British analysts, who on this point have voiced the same criticism of both the old system of vocational training (corporatist regulation) and the new institutional framework of VET (see Chapter 2.2 of this paper, which is devoted to this point).

In the case of France, whether the law of 16 July 1971 is seen as 'a statist institutional edifice' (Santelmann, 1999) or the product of a 'negotiated legislative' path (Verdier, 1999: p. 11), most authors agree that in its excessive formalism it is far removed from the specific needs of SMEs. It is a common thread throughout Verdier's successive studies: there is a contradiction between the formalised nature of the law, whose model remains the course disconnected from production and work, and the specific characteristics of SMEs. By introducing an obligation to spend money on continuing training for all enterprises employing 10 persons or more without distinction, it has merely reproduced the gap

between enterprises that already trained their employees and those that were clearly lagging behind. It has also proved incapable of dismantling the structural inequalities between SMEs and LEs, most of which are nowadays almost always above the statutory minimum (Verdier, 1991).

The same author also highlights 'the relative failure of the intermediate institutions' responsible for mutualising the funding intended for CT (joint bodies or employers' trade associations) that were initially supposed to act as interfaces 'between the central norms' and the specific needs of enterprises. In most cases, they were unable to avoid transfers benefiting larger enterprises. Bentabet et al. (1999) reiterated this diagnosis, focusing more particularly on the extension of the norms to very small enterprises (law of December 1991). Despite the statistical data being less precise than for enterprises with more than 10 employees and covering a smaller field, they showed that mutualisation was of particular benefit to VSEs in certain sectors, such as business services, because of their greater ability to decipher a supply system that had become increasingly opaque and complex as time went on.

There is another possible interpretation: faced with the deficiencies in the official schemes or in parallel with them, SMEs may be capable of generating dynamic adaptive behaviour like any player on the labour market. If that is the case, *they do not necessarily train less than large enterprises, but they do train differently*, preferring in particular apprenticeships in the work situation. Before examining this thesis in more detail (cf. 5.2), it must be understood that it has been supported by a large number of Italian authors, especially those interested in the processes of constructing vocational qualifications and acquiring skills, not only by way of formal, codified apprenticeships, but in their articulations with the activity of work and social experience (on this point see Meghnani, 1992, 1995). Thus, Capecchi (1993, 1995) cites the case of local communities with a strong technical tradition that have been able to train generations of craftsmen or technicians in Emilia Romagna. We also saw earlier that in local systems of

the Italian type the career paths of both workers and employers could in many respects be seen as apprenticeships, something all the more relevant because in Italy VT, like the rest of the state-run educational system, does not inspire much confidence. Devolved to the regions since the law of 1992, some believe it has got even worse (Giorgetti, 1995). Hence the massive differences within that country and the divisions of which the North-South divide is just one example, with SMEs in the South lacking an adequate system of training (Bernardi and Trivellato, 1994).

This thesis of *SME adaptability* is also developed by some German researchers, however. Büchter (1998), for example, believes that, contrary to what is said in public, few SMEs are complaining of skill problems. The only ones to do so are those that need and already have a highly skilled workforce, especially in the high-tech sectors. But, he argues, most have shown a remarkable adaptability thanks to 'muddling through' and to existing skill reserves built up piecemeal over a long period. In an institutionally and socially stable context, moreover, they are able to 'count on their employees' to adapt ('learning by doing') and on cooperation between suppliers and manufacturers.

5.2.4 The main factors determining demand for training

More generally, a lot of European research tries to answer the question of the main factors determining training practice in SMEs. A few examples will be mentioned here.

5.2.4.1 The key variables

Curran et al. (1996) stress the importance of *size, sector, market conditions* and the *legal and institutional framework*. The size of the enterprise is certainly important in that it determines the material resources available and the likelihood that the training effort will pay for itself (the enterprise's 'internal market'). The effect is not the same in every country, however. In Denmark, for example, the link between enterprise size and the amount of use made of continuing training is not as clear as elsewhere and this 'atypical' situa-

tion deserves further analysis. Also, while the split between small and large enterprises is particularly acute in the south of Europe (France, Italy, Spain, Greece and Portugal), the same does not apply in the northern countries.

Looking at VSEs, other authors (Bentabet et al., 1999) add to the list the *legal status of the enterprises* (independent, company form, subsidiary) or their *place in the value chains*, the *methods of access to the profession* (closed / open)⁸⁷ and the *sociological profile* of their managers, not to mention the *local or territorial contexts* in which small firms operate, and their *strategic behaviour* (that is the product-service/market pairs). The researchers mentioned consider this a key variable, e.g. Verdier (1990-b: p. 299), for whom 'recourse to continuing training is linked to the enterprises' position and that of their activities in the production chain. It also depends on the characteristics of the resources deployed in the productive combination'. Drawing on a study of professional electronics, this author in fact notes with Grando that the *capital intensity*, the *technical nature of the products* and the *job structures*, which favour the best qualified levels, entail a massive use of continuing training (Grando and Verdier, 1988). Therefore, taking into account the heterogeneous nature of production structures in the French context, it is not so much the prescriptive nature of the statutory provisions that makes them particularly difficult to apply to SMEs as their excessively homogeneous nature (Box 5.3).

On the basis of a consultation of experts, Gil S., Allesch J., Preiß-Allesch D. (1993) for their part make a systematic analysis of the barriers separating heads of small firms from the world of training. They identify no less than 70 factors most commonly mentioned in specialist literature, dividing them into three categories: factors relating to *demand* (like the lack of training infrastructures in sector associations, the small entrepreneur's rejection

of 'traditional' training), those concerned with the *supply* (excessive cost of training, inappropriate training methods, lack of pedagogical skills and especially insufficient knowledge of SMEs on the part of trainers), and, lastly, those connected with the *environment* (excessive red tape involved when SMEs apply for official assistance, lack of LE/SME cooperation for training heads of SMEs, etc.)⁸⁸. All these factors are inextricably linked. The authors describe them as a 'jigsaw puzzle' and they try to complete it on the basis of 36 examples of 'good practice' and 11 sets of recommendations.

Looking more specifically at the obstacles to the use of formalised training in SMEs, Grasser et al. (1999: p. 26) summarise in this way the obstacles 'tirelessly recorded and repeated' in the literature: 'inadequate own resources for training their employees themselves; a relatively limited temporal economic perspective preventing SMEs from implementing a proper training policy; difficulties in 'releasing' staff because they cannot be replaced temporarily; the impossibility of offering career prospects and internal promotion and the fear that, once trained, staff will leave, making it difficult to encourage training or to get employees to value it'. The authors say that financial incentives have no effect on these last points.

Inadequate supply ... and the impasse of needs analysis

Inadequacy of supply has also been suggested as a barrier to the development of CT in SMEs and an ignorance of SMEs' true needs has often been blamed for this. Hence, enterprises have for some years now been the subject of a growing number of studies seeking to clarify their 'skill needs' and to give decision-makers concrete answers. However, most of these analyses have proved extremely disappointing in use. One reason for this has been methodological difficulties following the necessary

⁸⁷ In some branches of the craft trades, for example, the possession of a certificate of competency is for the manager both an operating permit and a protected way in for exercising his profession.

⁸⁸ This factor should not be underrated. In France it has in fact been the subject of a position paper containing 37 administrative simplification measures recommended by the State Secretary for SMEs.

Box 5.3: Market constraint, industrial strategies, type of qualification required and training practices in SMEs

The example of professional electronics

- subcontractors dependent on short-term orders from their clients are not able to make long-term investments in training:
- Enterprises of this kind are often involved in bottom-of-the-range products and prefer qualities like 'dexterity or tenacity' which have little to do with formalised training;
- a subcontractor who becomes his backers' 'partner' has to meet quality standards that result in formalising and/or raising the enterprise's skill levels:
- Less dependent on prices and with a longer-term outlook, he is also able to invest in training, making it part of an industrial strategy;
- a designer of specific products meeting his clients' particular demands combines great technical knowledge with skills built up over a period of time, often on the job:
- Use of courses will be only ad hoc, motivated by the desire to familiarise his employees with a new process, for example; these will then pass the knowledge on to their colleagues;
- designers who themselves place orders with subcontractors in order to concentrate use of their high skills on product design, assembly techniques and marketing. The corresponding technicians, engineers and sales staff are however often active on an inter-enterprise job market and their employer is exposed to periodic external mobility:
- The return on training is not therefore guaranteed, and these enterprises sometimes confine themselves to ad hoc training; building staff loyalty or constructing an internal market determine the enterprise's reliability in the medium term.

Source: After Grando and Verdier (1988) and Verdier (1991: p. 44).

abandonment of normative models based on the large enterprise (on this point see a whole gamut of German literature, including: Stockman and V. Bardeleben, 1993, Kailer, 1992; Paulsen 1992, Kramer, 1995), and they have also proved disappointing when it comes to implementing new training practices more tailored to the needs expressed.

Some empirical research in Germany has shown that, unlike the technocratic concept developed in regional, national or European institutions, SMEs seldom consider skills an essential part of their strategy (Höfkes and Beyer, 1995). A simple cost-benefit calculation is enough to make them reject formal, planned CT as not applicable and in the end to prefer ad hoc adjustments that are closer to the needs of a small enterprise. According to the authors, this has been encouraged by the lack of a law on CVT in Germany.

As for the famous and countless 'needs analyses', either the information collected is too vague and too general to be of any practical

use, introspection in the matter of skill and training needs not being an SME speciality, especially for the smallest of them (Lehmann, Speckmann, 1993), or the demands expressed are so specific that they would require tailor-made training, of necessity expensive, for every enterprise or group of enterprises with identical interests. Finally, even if the CT available were highly adjusted and differentiated according to the enterprises or regions concerned, that would not mean that it became a strategic part of enterprises' consideration of their future reorganisation (Modrow-Thiel, Roßmann, Wächter, 1993). Hence, some researchers say it would be better to stop looking at needs that are often artificially wrung out of SME managers and instead to use empirical studies to look more closely at how they manage their manpower (Bentabet et al., 1999).

Another point of view is taken by Hyland and Matlay (1997), who use an extensive survey of 2 000 independent small enterprises in five different sectors of activity in the West Mid-

lands as a basis for in-depth interviews with 246 of their managers. We find here a mixture of internal and external factors like *the enterprise's stance on the market* of products or services, the *prevailing economic and institutional climate*, which are described as the most important at the same time as 'the lack of training schemes relevant to their specific needs' (87% and 81% for respondents from industry and services respectively), while the availability and cost of training and the 'inevitable time constraints' are mentioned only half as often. As to the more 'personal' or 'secondary' factors affecting SME bosses' attitudes to training, the authors consider that 'by far the most important was the previous education and training experiences of the individuals concerned' (1997: p. 133). That is why it is interesting to think about manager training.

5.2.5 The importance of manager training

Special attention has always been paid to 'management resources' (Manz, 1993) as a factor explaining SMEs' continuing training practices. In general, two registers can be distinguished concerning either the initial training of the managers themselves or their continuing training. The first has been studied especially from a sociological point of view and concerns significant determinants over which decision-makers have little control. We looked at them ourselves in the context of a localised production system, examining 'the social construction of entrepreneurial behaviours' (Trouvé, 1989). The second may either be linked to the experience of the managers – by way of concepts of *self-examination* as developed by Le Meur (1993), of *sociology of action* as in Perrien (1994), or of previous *career paths* as in Ardenti and Vrain (1998, 1999) -, or be considered a preferred lever of policies to stimulate training in SMEs by way of formal training for their managers or for enterprise creators (Education Permanente, 1993; Melis et al., 1993).

In this latter field, some international literature does indeed look at the links between 'management training' for managers and owner-managers and SME performance in

terms of survival, profitability and turnover and employment growth (e.g. Bell et al., 1992; Hewitt, 1993; Kinsella et al., 1994). Nevertheless, it is 'rather sparse' according to Westhead and Storey (1996), or fails to take direct account of access to training as an explained variable. In every case it tends to be the SMEs' economic performance that is examined and the findings seem fairly inconclusive. For example, while Cosh, Duncan and Hughes (1998) do find a correlation between formal manager training and growth in turnover and employment from a survey of 1 640 SMEs employing less than 500 people over two different periods in the United Kingdom (1987-90 and 1990-95), they fail to check it against the profit level. At the same time, they develop a finely shaded opinion, suggesting that formal training affects the survival and performance of SMEs of a particular size or during some periods but not others. Kitching (1998) comments: 'in itself, this constitutes an advance over previous thinking that training necessarily leads to increased chances of survival or improved business performance for small enterprise owner-managers and suggests that policy-makers may better employ public resources by targeting training at specific kinds of small enterprise'.

Westhead and Storey (1996) go further. In a remarkably well-documented article that sets out to examine the European and non-European literature on the subject (Canada, US, Australia), they show that the link between management training for managers and the economic performance of SMEs is very 'weak' and that training in management is less relevant in SMEs than in LEs. They take up the argument adduced by Baldwin et al. (1994) for Canada, according to whom 'business success was not associated with training alone'. In an earlier publication, they had already found this to be due primarily to the methodological failings of the studies claiming to establish a relationship (Storey and Westhead, 1994). Considering on the one hand that the main characteristic of SMEs in relation to LEs is the 'external' uncertainty to which they are subject and which causes them to take a short-term view incompatible with investment in training, even in management, they think the same reason explains the low

demand from managers who are not owners and consider there to be an urgent need for 'additional carefully conducted research' in the field.

Here we have findings (or rather a lack of them) that contradict the certainties of those who defend training and HRM and that ought to be seriously considered by future research. What should we say, then, of the empirical work of Baldwin et al. (1994), who show, in general terms, that 'the most successful businesses tended to train fewer workers than a less successful group of firms. In addition, the more successful firms were more likely to provide formal training and less likely to undertake informal training'? True, these authors add that 'The results for training might disappoint the advocates of the importance of training. This should not be so. The results do not mean that training is counter-productive. They only indicate that the more successful do no more training than the less-successful firms' (1998: p. 78). Clearly, a distinction would have to be made according to the extent of the training (generalised to all staff or targeted on a subpopulation) and the differences between the formal and informal nature of training better identified. Most of the European research that we shall look at now has in fact been concerned with this latter opposition.

5.3 The ambiguities of 'Training on the Job'

As we have seen, for most of the research concerned with statistical data, SMEs make less use of training than do large organisations, especially in the most structured form, and they make inadequate use of the skills available in their environment. This is what causes Perrien (1994) to say that 'the trainer remains on the SME's doorstep'. Most of the time, therefore, it remains for qualitative monographs to show that, in small firms, the deficit would be offset by a wider use of informal or implicit training in the work situation.

Care should however be taken with this over-worked argument. While it would be absurd to deny that large enterprises have any ability to provide on-the-job apprenticeships, nei-

ther can SMEs be held to be definitely unsuitable for formalised training. This would explain why taking account of the relative importance of informal practices does not necessarily narrow the gap between SEs and LEs, as is shown by the work by Serfaty and Delame (1991) for France or the European data presented in Table 5.3. True, for the former, on-the-job training always carries more weight than official training in SEs (about three times more), but it still represents about 1/3 of the financial effort of large enterprises with more than 1 000 employees and the importance of undeclared courses increases with size. So what is the real picture?

5.3.1 The inadequacy of the tools for measuring SME involvement in vocational training

Firstly, it should be pointed out that the deficit thesis is concerned at least in part with the inadequacy of today's tools for measuring, observing and comparing continuing vocational training practices, either for comparing SMEs with LEs or for international comparison purposes.

To begin with, most national statistical systems use a restrictive definition of training⁸⁹ and find it hard to record the informal training practices that predominate in SMEs. However, the same applies to the theories on human capital formation, which more often than not look only at the number of years' schooling or the completion of a level of education as capital-forming activities (OECD, 1998: p. 88). Among the many studies that all come to this conclusion, one might mention those by Hendry et al., 1991, Goss and Jones, 1992, Vickerstaff, 1992, Nove et al., 1995 and Bentabet et al., 1999. That is why a lot of the research is given over to a criticism of the statistical sources and to defining the concept and the various types of training (Box 5.4).

⁸⁹ On the other hand, Curran et al. (1996) note that 'a wide definition of 'training' covers both in-house and informal training as well as external training including that leading to formal qualifications' (p. 17).

Box 5.4: Training typologies

1. *Formal Off-the-job Training*: all forms of instruction that take place away from the workplace and which are designed to increase knowledge and skills in relation to the job. Such training may be provided by public-sector institutions (i.e. colleges of further education) or private-sector bodies. Such training may - but not necessarily - lead to a recognised qualification.
2. *Formal On-the-Job Training*: training geared directly to the acquisition of a level of qualification necessary for the job held but which takes place separately from production activities. This training is often provided by private-sector bodies, such as equipment suppliers, to ensure that employees know how to use the equipment better.
3. *Informal On-the-Job Training*: any activity that increases the knowledge and skills of individuals in relation to the tasks they have to perform, but not requiring more than very short periods of time away from production activities. For example, new employees or the less skilled may be 'mentored' by more experienced or better-trained ones who advise them if they encounter problems.
4. *Informal Off-the-Job Training*: Activities that develop individual skills but which are intermittent and of limited duration and do not necessarily lead to clearly defined qualifications. It may mean, for example, attending trade shows, taking part in seminars or workshops, visiting suppliers or other enterprises in the sector, studying work-related documents in their own time.

We can also distinguish:

- *initial training* (formal or informal) accompanying 'induction into the job role' or for new or recently promoted employees starting their jobs.
- *continuing training* (formal or informal) designed to enable the firm's present employees to maintain or enhance their skills or acquire new ones.

Finally, the training process may be described in terms of three dimensions:

- *duration*: may vary from less than an hour to several years, be continuous or broken down into several periods, sometimes planned in advance according to precise objectives.
- *intensity*: may vary regardless of the degree of formalisation of the training. The length, complexity and stratification of the training required depends on the standard of competence defined and required by the employers (cf. the national system of vocational qualifications - NVQs in England and SVQs in Scotland). Similar distinctions may also operate in some informal training.
- *scope*: this may be divided on the basis of whether the skills acquired are easy or difficult to measure. The 'informal' label is generally applied in the latter case. However, the least well-defined and least measurable training may be of prime importance, as in the case of economic activities involving the production and handling of intangible goods.

Source: After Curran et al., 1996: pp. 2-3.

Comparative data on the subject at European level are even more difficult to come by. Felstead et al. (1998) warn us that 'the interpretation of statistics on training at European level is full of pitfalls and must be undertaken with the utmost care'. The issue here is not

only the divergent national concepts of training (Campanelli et al., 1994) but also the data collection techniques and the breaks in time series that occur despite the 'harmonisation and synchronisation' work done by Eurostat in particular since 1960 (1992: p. 53).

5.3.2 Uses and limitations of the cottage industry paradigm

The on-the-job training argument is very often used to relativise or qualify the apparently irrevocable verdict on SME handicaps in the matter of training. Such is the case of the many qualitative analyses of practices, which have at least shown all the complexity of apprenticeships in the work situation. The upshot of such investigations is most often that SMEs not only contribute less to skills formation, be it because of their different arrangements more integrated into daily production activity or by concentrating their training in particular moments in their development, such as on their creation, when making new investments, when they change hands, or when quality policies are introduced. Moreover, the skills that they create or maintain are not the same as those acquired by formal, codified apprenticeship, either. From this point of view, they are more suited to passing on initial or 'elementary knowledge and skills', just as they are 'a more favourable landscape for practical apprenticeships', or at least less abstract than large enterprises (Drexel et al., 1986).

What we are marking out here is the paradigm of the craft trades, whose advantages many researchers are trying to identify in order to see whether they might be extended to all small enterprises, whether the accent is on the particular forms of socialisation to which they give rise (Zarca, 1986; Combes, 1988; Bentabet et al., 1999), or they are trying to think in terms of their contribution to general human capital formation. This is what Kucera (1997) does in particular, drawing on the German example which shows that apprenticeship and continuing vocational training in a craft trade situation have significant advantages: on the one hand, they allow the product and the skills of the apprentice ('*Auszubildende*') to be produced simultaneously ('*Kuppelproduktion*') for a net cost (that is, the gross cost less the advantages brought by the apprentice) that increases with size; on the other, they offer a proximity to working practice that college apprenticeships cannot provide; finally, their integration into production activities makes for greater versatility.

The positive external effects of on-the-job apprenticeships are therefore considerable, and all the more so since a major proportion of the individuals trained by apprenticeship, especially in the craft trades, are able either to create their own enterprises or to go for a complete change of career, often moving to larger enterprises. Such is the case, for example, in France (Bruand, ...) and Germany, where nearly 40% of craft workers change their trade (Henninges, 1994). Should we see these processes of mobility, especially at the start of a career, as an imperfection in the training-employment relationship and a poor use of the initial vocational training, or should we, as we did above (cf. Chapter 4.3), consider VSEs to be acting as a place of transition on the labour market?

Nevertheless, it would be wrong to reduce the SME training model to that of informal apprenticeships, contrasting it without qualification with the essentially more formalised model of the large enterprise (Verdier 1990-b: p. 303), because, for one thing, large enterprises are not unaware of the processes by which skills are passed on at the workplace and, for another, small enterprises are not chronically unsuited to formal external training. What needs to be rethought are the ways in which different forms of training are articulated, so as to avoid 'courses' becoming so disconnected from the actual performance of work as to be far removed from the realities of SMEs, while at the same time preventing apprenticeship from becoming so closely adapted to the job in hand as to preclude any kind of inter-enterprise transfer or mobility.

5.3.3 SEs are not unsuited to codified training or to using outside training

Several situations are adduced in the literature to explain that the prospects for developing structured external training in SMEs are not zero, even in the smallest of them.

□ *First of all because of the heterogeneity of the field of SMEs:* highlighting three major configurations of SMEs / VSEs, Bentabet et al. (1999) stress their greater or lesser reservations about institutionalised arrangements for training. Represented in the first of these

by the most widespread traditional small firms, 'family firms' and the self-employed, where the employment relationship between the head of the enterprise and the employee is the most personalised and where the building of skills depends very little on formal qualifications and formal continuing training, enterprises find it most difficult to provide training in the form of 'courses' outside the work situation. The second configuration, described as 'ideal-typical', involves 'managerial, integrated or modernised VSEs/SMEs' at the opposite end of the spectrum. They are extremely sensitive to the market through their involvement in various networks (franchise, branch, part of a group) and the methods of human resources management are much more formalised than before with vocational diplomas being required and significant use made of external formal continuing training. Employees can be assumed to have wide access to training in this situation. The third configuration is indicative of practices half way between the previous two. It embraces 'entrepreneurial VSEs/SMEs' where the pattern of activity is marked by breaks and innovations enabling the enterprise to differentiate its products or services, where employment relationships are in the process of being formalised and where the skills required are both the product of a technical culture and the result of experience in a particular field. Here, continuing training is marked rather by a hybridisation between the two previous models: both external and formal, but also 'on the job' and most often provided by other employees through a 'trickle-down effect'.

Training practices must therefore be examined in the light of this extreme differentiation of the SME fabric as it appears in most of the most recent work. The targets and possible expansions of training in SMEs should be designed on the basis of this differentiation.

□ Then, training practices can also be differentiated according to the *time span and life cycle of SMEs*. Looking at the *supply of training* and the regulatory abilities contributed by the intermediate players (consular bodies, trade associations, public or private consul-

tancies), we find that a number of – at least partial – responses to small enterprises' training needs involve identifying specific moments and publics that facilitate investment in training in those enterprises. Thus, the transfer of an enterprise, the purchase of new equipment and its corollary the expansion of activity, as well as changes in product-market pairs, improvements in quality or the tightening of management constraints (delivery times, just-in-time) are important moments that very often open a wider breach into management problems which in turn call for training. As for the publics concerned, young people and especially husband and wife teams, they also help to structure the training supply. Thus, in the report by the European Commission, Eurostat and Cedefop (1997), based on data derived from the Labour Force Survey, a chapter is devoted to CT for the self-employed as compared to employees. Among other things, they state that, among the self-employed (with no employees) women undertake the most continuing vocational training (almost 4% of them, compared with just over 2% for men).

□ Finally, observation of innovating SMEs in the field of training could be a very great help, especially since it would enable us to understand why some small enterprises are able to adopt 'atypical' behaviours, that is training policies that are not normally very widespread in similar firms. An example of this type of approach is given in the work of Bel and Rosanvallon (1990) and Rosanvallon (1990). These authors begin by pointing out that *new training policies in SMEs* do not come about by chance but are very much based on *internal factors* or *external management* mechanisms that facilitate them.

For the former, note will be taken of the enterprise's history, the manager's personality and his ability to set a strategy ('in 2/3 of units studied, training innovation goes hand in hand with the arrival of a new manager'). Analysing innovating initiatives in SMEs in the Rhône-Alpes region, they in turn recognise that, far from ruling each other out, *formalised training* and *training incorporated into the work situation* are complementary, since innovation is an expression of the abil-

ity to formalise needs and of the specific methods of implementation: 'the most innovative enterprises recognise the limits of training on the job, especially its ability to ensure mastery of new, more complex working situations. They make greater use of formal training in the form of courses with a theoretical content' (Bel and Rosanvallon, 1990: p. 65). It is true, the authors add, that measuring the training effort in terms of courses shown in official returns (e.g. the famous 24.83 in France) does not make for a complete appraisal of the training effort, but the small amount of formal training generally shown for SMEs in national and European statistics 'is revealing of real or potential major imbalances between the content of the training policies deployed and what is needed to cope with the changes that are taking place' (p. 42).

So far as *external factors* are concerned, Rosanvallon (1990), like many others, puts particular stress on the emergence of a large number of 'new players and training skill networks', including local authorities, private companies providing consultancy and assistance with training, sundry agencies, etc. In this sense, 'the emergence of innovating training practices forms part of a wider process of integrating SMEs-SMIs into external skills networks providing aid and assistance, particularly in training', which must be seen alongside 'the rise and development of new profiles of entrepreneurs, the recruitment or arrival of engineers and managers who remain in contact with their old networks' and also alongside the current trends in the ways SMEs-SMIs articulate with large industrial groups (Bel and Rosanvallon, 1990: p. 82).

Finally, it is clear that 'the establishment of new systems of apprenticeship and skill production' cannot be reduced to ad hoc interventions targeted on enterprises alone. Innovatory schemes are of necessity complex and need to deploy a larger number of players using more diverse methods of training. Without a doubt, 'such many-sided and varied reshaping' is, potentially at least, more appropriate to the specific nature of SMEs-SMIs because of its modular nature and greater integration 'between the organisation of courses and experimentation with new

working methods, between training and needs analysis, between training and production within the enterprise...' (Bel and Rosanvallon, 1990: p. 85), but it also requires overall consideration to be given to the institutional machinery of vocational training, as can at present be seen in most EU countries.

5.4 Towards new forms of regulation...

It is not our purpose here to go back over the many examples of the reform of national continuing vocational training structures examined in detail in outstanding publications (e.g. Cedefop, 1983, for the structure of the systems, and Aventur and Möbus, 1999, for a study of their recent dynamics). It seems to us more interesting to bring out the main trends and current changes of course that may augur well for the future development of vocational training in SMEs. We shall look here at three in particular: firstly, the present swing of enterprises towards skill mobilisation; secondly, the ways of identifying, validating and accrediting informal apprenticeships; thirdly, the debates on technological and organisational innovation for a training appropriate for SMEs.

5.4.1 The shift towards a 'skills' logic: between individualisation and institutionalisation

For a number of years now, there has been a marked trend in most European countries to build enterprises' competitiveness on the 'mobilisation of skills'. Clearly, this is not something unique to SMEs. One might even say that it is inspired more by the technologies of Human Resources Management common in large enterprises. But the notion of 'skill' carries with it three ideas that are very close to the models of professional competence and status validation currently encountered in SMEs.

Following the skills logic, first of all, the specific command of work situations takes priority over both the trade-related systems of recognition that are structured by professional relationships (as in the old British corporatist tradition), over diplomas and theoretical knowledge (as in the French-style institu-

tional, statist control), over the jobs or positions held (as in bureaucratic organisations) or over socially incorporated knowledge (as in the Italian forms of local regulation).

Secondly, looking at training, as A. Vinokur notes, the skills logic corresponds to a requirement for 'downstream piloting' of apprenticeship systems, a piloting 'characterised by a separation of the skill transmission function from the certification function' (quoted by V. Merle, 1997: p. 49). From this point of view, the process of apprenticeship is less important than the result, that is the command of work situations in all their complexity. However, SME managers and especially VSE managers who are their caricature are saying nothing different: 'training takes place in the enterprise itself' and the use of professional know-how can be validated without any formal training or instruction or even diplomas (Bentabet et al., 1999). Moreover, in the British NVQ system, often held up as an example of the 'skills' approach, apprenticeship courses and their content are not specified.

Thirdly, the recent theoretical widening of the concept of skill to include social and relational know-how may be applied to SMEs in traditional commerce and service activities (sales, catering, accommodation, etc.).

Some critical analysts have said that the rise in the concept of 'skill' should be seen in parallel with the weakening of the 'qualification paradigm' (Rainbird, 1995: p. 246), which was based on strong professional, institutional or societal regulation (on the British, French or German models)⁹⁰. In fact, it appears at a time when the traditional collective regulations in the field of work and training are in crisis and the small enterprise model is, according to some, becoming established as an organisational alternative to the rigid professional relations of the Fordist era. In plain terms, in an area where trade unions are so little involved and where SMEs have such reservations about initiatives taken by the State,

⁹⁰ 'To speak of qualification', Rainbird says of the British case, 'is to speak of the role of skilled workers and their trade unions in the enterprise' (workplace) (1995: p. 231).

the skills logic could be all the more important for assuming a weakening of the wage relationship and its conventional framework and an individualisation of training.⁹¹ There is a whole series of articulations here that need to be studied and debated, while not forgetting the dangers that V. Merle refers to as 'tendential' in the European Commission's *White Paper* (1995), those of a 'free market in skills [where] only the individual and his skill remain' (1997: p. 42) with no other form of regulation than the short-term needs of enterprises.

In this extreme case, there would be the risk of excessive individualisation resulting in desocialisation, that is a failure to take into account the collective contexts in which vocational skills are acquired and, ultimately, quite simply a return to elitist mechanisms (exclusion of individuals from the labour market, aggravation of the rifts between SEs and LEs, dualisation within the SME sector). That is why we must be attentive to the new compromises built in each country between the various players on the labour and training markets, since the adoption of a skills logic would paradoxically require the adoption of strong institutional norms, be they inspired by the State or regional institutions (as in the United Kingdom, France or Spain) or born out of collective bargaining between the social partners (as in Germany).

This is how we must understand the *gradual hybridisation* of the new CVT systems being built in most EU countries. In the United Kingdom, for example, where the edifice of TECs and LECs inspired by a liberal, decentralised concept and powered by the market

⁹¹ Such individualisation of training can in fact already be seen in the concept of 'co-investment' that is emerging in several EU countries and which involves a financial sharing between the individuals in training and their enterprise or the State to adjust to new forms of employment (training partly in leisure time in Denmark and Germany, 'Youth Credit' in the United Kingdom). It is also explicitly suggested in the concept of 'individual right to training', which would operate as a system of credit throughout working life, as recently proposed by J. Delors (1999: p. 5) as part of the reform of the French CVT system.

(‘market-led training system’: Parker, Vickerstaff, 1996: p. 251) may be combined with a highly voluntaristic action by the State resulting in a kind of ‘organised laissez-faire’ (Bouder, 1999: 387). Similarly, the guidance and organisation of NVQs at national level can adapt to programmes of support for individuals (*Youth Credit, Career Development Loans*) or for enterprises to enable them to invest in human resources (*Investors in People*). Likewise, too, the leadership of large local enterprises on TECs can coexist with the quest for new balances that will allow the specific nature of SME needs to be recognised by the establishment of ad hoc committees and even a programme adopted in 1995 (*Skills for Small Business*). In France, where the skills approach is not really institutionalised as a tool for human resources management, but is recognised as an individual right (‘skill balances’), the Ministry of Education (Education Nationale) is still the dominant player for certification. The establishment of machinery for *validating vocational experience* and of *Vocational Skill Certificates (Certificats de Qualifications Professionnelles – CQP)* have however helped to get the training role of enterprises recognised and the power to oversee and evaluate employment and training reference systems opened up to other players (on this point see Feutrié, 1997). There are many other examples of new combinations of players accompanying the progressive diversification of systems of qualification and forms of certification.

5.4.2 Recognition and validation of professional or informal experience

Another movement is emerging that could prove favourable to the development of training in SMEs. We are referring to the policies adopted by the EU, in particular through the *Leonardo da Vinci* programme and illustrated by the *White Paper* (European Commission, 1995) concerning systems for the identification, validation and recognition of informal experience for improving transparency and skill transfer⁹². It is not our place here to go into the methodological and epistemological debates to which such a set of measures has given rise, or even to list the current studies or international comparisons on the subject.

These are all described and discussed at length by Bjørnåvold (1997-a; -b; -c; -d).

While not adopting a specifically SME-centred stance, he reviews the context that encouraged the emergence at European level of measures for the *validation* of skills acquired outside the formal education and training system alongside the *traditional certification procedures* based on formal education. He refers both to the calling into question of the social and professional value of qualifications in rapidly changing production systems, ‘the emergence of new organisational perspectives and practices in enterprises, requiring a more diversified approach to questions of apprenticeship and skill formation’, the development of training throughout life, and especially the changes that have taken place in the operation of labour markets where internal recruitment practices (which presuppose at least a relative transparency of professional experience) have weakened while the strategic importance to enterprises of looking to external markets has increased, which implies taking a closer interest in the formal and especially the informal or ‘invisible’ skills of candidates for recruitment (Bjørnåvold, 1997-c, pp. 5-6).

We can see here that the first and fourth arguments are the ones most in line with the SME issue, firstly because SMEs (especially the smallest among them and in some national contexts more than others) are always quick to question the value of qualifications produced by school systems, and secondly because more intensive use is made of external markets in SEs than in LEs. While the approaches to the validation of non-formal experience are appropriate to the ideas of SMEs, they are nevertheless limited, not only

⁹² A number of benchmarks may be quoted in the European Commission’s guidelines for identifying and validating existing and/or informal experience: the project launched in 1993 for an ‘individual skills portfolio’ (Individual Portfolio Project), the idea of a Personal Skills Card put forward in the *Livre Blanc* (1995), the EU Skills Accreditation system and the ‘Euro-validation project’ conducted in five countries as part of the Leonardo programme (on this point see Bjørnåvold, 1997-c, Chapter 4).

by their ability to formalise implicit skills⁹³, but especially by their sociology, that is the cultural norms they carry. In other words, going back to the three aspects suggested by Bjørnåvold (1997-d), while *the identification* of non-formal skills is going well methodologically and scientifically, and while their *validation* requires top-level decision-making authorities at European level, their *recognition* depends for its part on social values at national level and in the enterprise.

As Bjørnåvold (1997-d) suggests, a discussion of instrumental approaches (their 'validity' and 'reliability') must not neglect the questions of their *acceptability* and *credibility*, which are sociological in nature. In a way, 'creating a system for recognising non-formal experience is tantamount to changing the social definition of skills' (idem: p. 43). We know in fact that any national or European system of this kind adopted may very well not be followed by SMEs, either because they lack the means to do so or out of ideological reluctance: despite making much of their specific contribution to the construction of skills, they generally rely on the legitimacy conferred by official certification arrangements. Moreover, they have historically been kept away from the legitimisation authorities (whether or not central)⁹⁴. This, at any rate, is what emerges not only from a historical analysis of CVT systems in most European countries, but also from how they have developed, leaving SMEs little say in the most socially recognised certification and validation processes. Hence the dilemma, never completely resolved, in the

various national or European political guidelines, between a *centralised strategy* that seeks to make systems for the recognition of skills homogeneous and give them greater credibility, but which runs the risk of being far removed from specific SME practice, and a *decentralised strategy* ('from the bottom up') which, while offering pragmatic solutions and a degree of flexibility, risks lacking legitimacy and being too piecemeal.

Despite these reservations, SMEs could well be a crucial arena today as well as a potential laboratory for experimentation and for building public policies for the recognition of non-formal skills.

5.4.3 Technological and organisational innovations: mirages or a way to make SME training practices more dynamic?

While considering the questions raised above, we should not at the same time overlook the many pedagogical innovation and experimentation schemes aimed at making continuing vocational training more appropriate for small enterprises, be it by using the new distance learning technologies or by organising training in networks or enterprise or businessmen's clubs on a regional or branch basis. This is a vast new field for the systematic observation of 'best practice', so we shall merely mention it here.

5.4.3.1 Use of new education technologies: hopes and open questions

Subject to the distinction between employee training and manager training, the application to SMEs of *new education technologies* (modular, individualised, multimedia, assisted self-instruction, 'open and distance' learning) has already been widely discussed in the European literature. Some see their flexibility and accessibility as helping to spell the end of the traditional model and therefore as being better geared to SMEs' needs. However, this new multifaceted paradigm, which already has its monographs, its Netherlands-based European Federation (FFFOD), its 'abundance of local initiatives', its websites, etc. (*Actualité de la Formation Permanente*, 1998) is still far from being sta-

⁹³ Hence the relative failure of the application of the 'skills portfolio', especially in the context of transnational worker mobility.

⁹⁴ Hence their difficulty in participating directly in such bodies as the British *TECs* or the *National Council for Vocational Qualifications*, set up in 1986, in the French institutional structures for *validating professional experience* or for constructing the *Certificats de Qualification Professionnelle*, which is organised on a branch basis where large enterprises predominate (on this point see Feutré, 1997) or in Spain, where the *Repertorio de Certificados de Profesionalidad* is compiled jointly by the Ministry of Labour and the Ministry of Education.

Box 5.5: Commitments to Develop Vocational Training in France (EDDFs - *Engagements de Développement de la Formation en France*) in France

Created in 1984, the EDDFs are intended for enterprises that are under a statutory obligation to take part in the development of vocational training and which increase the quantity and quality of their training effort as part of a programme extending over several years. The aim is to support projects to raise the level of employees' qualifications and skills as required by technological and economic change.

Aid is granted in particular to small and medium-sized enterprises (be they self-employed, or group subsidiaries). Thus, 90% of enterprises involved in EDDFs have fewer than 50 employees. Two thirds of trainees are manual and non-manual workers.

Enterprises' training plans must form part of a development strategy. They are for the most part negotiated at the level of occupational branches, where problems of modernisation and competitiveness can be raised globally and coherently; they also cover a period of several years so that training schemes can take a medium-term view. They can also be decided on a territorial basis, with interprofessional organisations, for example, for local development purposes. For the most part, EDDF framework agreements are negotiated between the State and one or more trade organisations; however, employee representatives ensure they are properly implemented through their involvement in supervisory committees.

This scheme is currently under review. It could be improved in three ways: by giving greater place to local initiatives (30% of credits are still managed at national level) while preserving the benefits of branch-level negotiation; by expanding the scope of EDDFs to include experiments in e.g. internal training and skills validation; and by simplifying procedures so as to extend the scheme to enterprises normally bypassed by public intervention, especially small enterprises that are not group subsidiaries.

Source: Ministry of Labour, Employment and Vocational Training, *Les Outils du changement du travail (aides au conseil, aides à l'action) - Guide.*

ble. Moreover, it does not in itself allow SME needs to be clarified, neither does it allow us to resolve the difficult (impossible?) transition between the traditional concept of training in SMEs, where the transmission of skills symbolically requires the *proximity* of trainer and trainee, and the forms of *distance* learning encouraged by new technologies. Finally, rather than being an instigating factor, the use of the new 'training engineering' based on information and communications technologies is never really anything more than an effect of new production and skill management practices, themselves a response to innovative behaviour shown by only a minority of SME managers (Fournet and Bedin, 1998). Most of the time, the training dimension remains a determined variable. It is 'the expression and lever of more global changes affecting methods of workforce management and enhancement in SMEs-SMIs' (Hillau, 1987).

5.4.3.2 'Networks': genuine alternative, magic formula or additive?

The findings of research into the effects of inter-enterprise organisations on their training dynamics seem less uncertain. Hence, political decision-makers have come to think that the best way to influence SME training behaviour would be to apply pressure to the existing forms of cooperation, be they in the form of customer/supplier relations, partnerships, groupings, associations, clubs or various kinds of interrelating networks. That is the lesson to be drawn, for example, from observation of Italian-style industrial districts or French-style localised production systems, but which is also provided by some evaluation work on the United Kingdom's TECs and LECs. Many of these aspects have already been mentioned (Chapters 2.1, 2.2, 2.3 and this fifth section). We shall now concentrate

on the essentials, always remembering that these selected configurations are not all based on the same rationale: some are the product of a historical heritage, others are constructs or artefacts born of changing production systems and a political or entrepreneurial desire to modernise SMEs.

In Italy, local systems of inter-enterprise cooperation and competition have a training role for SME employees and bosses at the same time as collectively incorporated vocational training operates as an engine of entrepreneurial dynamics (Capecchi, 1995), and the recent development of external networks (Castaldi, 1999) or the present CVT reforms (Treu, 1997) must be analysed in the light of this initial model, either as challenging it or as continuing it with adjustments.

In the French example, the work on local development and localised production systems must be mobilised, such as the work by Laget (1994) with his 'small enterprise', 'local' and 'training' triplet, or that by Bel (1992) which, taking the mythical example of the Arve Valley, shows how the relations between the different players help to develop the skills of the workforce in a system of SMEs specialising in screw-cutting.

Another example is the in-depth appraisals of TECs and LECs made by Vickerstaff and Parker (1995). They stress the importance of inter-enterprise networks or of existing forms of cooperation between enterprises and local, regional and professional bodies in getting LECs to make greater headway with SMEs.

However, enterprise networks and the externalisation of training into networks are not a panacea for SMEs. In Germany, for example, Lehmann and Speckmann (1993) show how difficult it is to make a success of 'artificial' projects for networks of cooperation between small enterprises and public and private sector institutions.

Inter-enterprise relationships may, it is true, help to loosen the constraints on enterprises; agreements may, in part at least, take the place of market forces and widen SMEs' temporal horizons: investment in manpower and

training can then be seen as a medium-term thing (Verdier, 1990-b: p. 300).

There are however other possibilities, involving adjustments or improvements to institutional arrangements, following different national traditions that are at least as important as the major European trends and convergences described earlier. Such is the case, for example, of the French Government's contract-based training and employment assistance schemes like the *Engagements de Développement de la Formation Professionnelle* (EDDFs) [Commitments to develop vocational training in France] that have in many cases enabled the priority targeting of public action on small enterprises and the reality of their situations to be reconciled with branch and/or regional negotiations and provided a strong incentive to incorporate training into a medium-term strategy (Box 5.5).

But does such an exemplary arrangement not always favour those enterprises that are the best equipped to find 'a compromise between public norms and SME practices?' Verdier (1990-b: p. 309) asks. The institutional arrangements to encourage training have no more succeeded in reducing the inequalities of SME access to training up until now than the networks themselves manufacture training within SMEs.

6. Conclusions

The stance adopted in this concluding chapter is not entirely prescriptive: firstly because the breadth and complexity of the ground explored defies all simplification; secondly because we are strangely lacking in perspective and lucidity as we emerge from this bibliographical confusion; and thirdly because the purpose of this dossier was not so much to analyse employment and training policies in the EU and to make recommendations as to examine the research into SME employment and training practices. The political dimension has not been forgotten for all that, especially when the subject is broached by the work quoted, but also because we are trying here to present the findings that appear to us

to be the most significant and the most useful to decision-makers without stepping into their shoes ourselves.

Dealing with the question of SMEs at European level is in many ways a challenge. Despite the Community being unanimous in its sensitivity to the decisive role they play in economic growth and competitiveness, small enterprises are still approached in a great variety of ways in different countries, both as regards industrial, employment and training policy, and in the field of research. On the one hand, their very definition, not to mention their economic weight, varies considerably from one country to another. On the other, their unequal place in national traditions means that research work must always be contextualised. Finally, with the exception of Germany and Italy, SMEs have almost never been a *scientific subject* in their own right for the academic world.

Despite these three difficulties, we know that SMEs have in recent years become a preferred focus for transnational policies that have not been content with designing *funding* programmes for enterprise creation, plant modernisation, research and development and technological innovation, but have sought to draw up guidelines for *investment* in human resources, now considered the major source of competitiveness. At the same time, they have become a new field of research, with a large quantity of empirical work, national or comparative, theoretical or geared to decision-making.

We shall not go back over the reasons for this relatively recent interest in SMEs. Mostly, they have to do with their expansion in service economies, the reconfiguration of production systems marked by the crisis in large productive concentrations and by the simultaneous redeployment of small structures that are more agile and more capable of meeting a demand that is increasingly unstable and diversified. Let us not forget, either, the persistence of unemployment in Europe that has made SMEs 'harbingers of hope'.

These developments are however heteronomous, and even if the generic model of the

small independent family enterprise is still in the majority (especially in the countries of Southern Europe), it is tending to diminish in favour of small structures caught up in networks of dependency or multiple interdependency with other small enterprises or large groups. These changes must be the starting point for tackling the employment and training behaviour of SMEs, which is what most European research generally does.

6.1 The employment practices of SMEs

□ On the first field of investigation ('SMEs and employment'), research work into *the relationship between enterprise creation and job creation* is the first to be mobilised. Contrary to what is commonly thought, it shows very convincingly that such a relationship is not obvious, firstly because the proportion of newly created enterprises surviving for more than five years does not generally exceed 50%. Secondly, the rapid growth in those enterprises' workforce is a relatively marginal phenomenon subject to a number of conditions that the defenders of enterprise creation often overlook. These include the *sector or branch*, the *territorial bonds*, the *creator's previous career path*, the *strategic stance* adopted (cf. Box 3.1), and, above all, *the size of the enterprise when first created* (the potential of newly created enterprises to create jobs increases with the number of employees on start-up). There is also some uncertainty about the number and quality of the jobs created by small 'high-tech' firms. In short, in France at least, while there are more *pure creations* than *resumptions* or *transfers of activity*, they also create fewer jobs. Finally, enterprise creation does not appear to create more jobs than existing small firms do.

Hence the dilemmas surrounding political intervention to encourage or accompany enterprise creation: apart from administrative simplification ('one-stop shops') (ENSR, 1997: p. 102), should we be arguing for *undifferentiated* aid for all enterprise creation (by creating an 'enterprise culture', for example), or rather for measures *targeted* on particular small enterprises? In that case, what would be the criteria for targeting? 'Assisting employment through growth, or rather assist-

ing enterprise growth through skilled labour' (Semlinger, 1995: p. 2)? We now know that financial aid to creation alone is not enough, but that it must be accompanied by management support to avoid creators starting out with too small a workforce. In the end, should we be assisting enterprise creation or 'caring for the stock of existing SMEs' by making more counselling available, since paying attention to SE creation is justified less by their employment potential (which is frankly uncertain) than by the problems resulting from their being too small and the obstacles to their development (Semlinger, 1995: p. 21)? And to round off, should we remain with these dilemmas or construct complementarities between all these options?

□ Another widely held opinion that was to be tested scientifically and in the end proved more difficult and more complex to substantiate than expected was the claim that 'SMEs create the most jobs in our societies'. More difficult because the speed of the changes taking place in production systems today makes it increasingly hard to identify the *specific* contribution SMEs make to the creation and growth of employment. More complex, too, because the concepts of 'creation' and especially 'job/employment' are themselves being called into question. On this point, there seems at present to be a tremendous distance between the certainties of common thought (for which there is no doubt that half of Europe's working population with a job are currently employed in SMEs) and the barrenness of the methodological debates that inevitably follow when this is contrasted with the research. The overall movement of the latter is relatively clear, however:

□ It is true that the proportion of jobs in SMEs has been on an upward trend in most EU countries for a number of years. One might for all that question the *specific* role of SMEs in generating new jobs, especially since the accounting methods used to make the transition from 'stocks' to 'flows', from static to dynamic or longitudinal data, are unreliable and controversial. The main question raised here is whether the job creations observed are endogenous or exogenous. Should they be counted as creations or as the fruit of internal growth within small

enterprises? Must they not rather be interpreted, at least in part, as a consequence of the restructuring taking place in large enterprises? What emerges from all this in any case is that the behaviour of SMEs as regards employment cannot be studied in isolation from an observation of what is happening in large enterprises.

□ Moreover, while SMEs create jobs, they also destroy a lot, and this is not without significance. The example of the 'American job-creation machine' and the phenomenon of 'creative destruction' invoked by Schumpeter have often made people think they were right to consider job turnover an essential feature of a dynamic economy, a contribution to structural change and the responsiveness of the labour markets. There is, however, also a suspicion that, at a high level, job turnover generates and amplifies processes whereby the labour force, especially the frailest sections of it, becomes more insecure. It may also prevent small enterprises and workers from making the best investment in training, the former giving priority to outside recruitment (flexibility) instead of stabilising their workforce and using internal flexibility, the latter by withdrawing from vocational training and work, sometimes at the cost of exclusion, and instead going for longer and more 'noble' forms of training or towards enterprises with more stable jobs, sometimes at the risk of being overqualified.

□ Then, not all SMEs create employment, only a small number do so. Hence the crucial question: which ones create the most jobs and, more generally, what are the key factors determining employment behaviour in the specific case of SMEs? On this point, research shows that the size variable is not the most important, but that it would benefit from being combined with other variables such as *sector*, the *sociological profile of the managers*, and, more important still, the *competitiveness strategies* adopted by the managers. This is the line taken by a series of recent studies in France, the United Kingdom and Germany in particular.

In most cases, SME performance in the field of employment is then associated with

product-service/market pairs based on differentiation or even specialisation. It may however also be associated with a particular positioning of small enterprises in the value chains, enabling them, for example, to avoid being too dependent on distribution circuits or having to fight competitively on mass markets, seeking instead direct contact with the final customer. From a scientific point of view, the advantage of such approaches is that they encourage a transdisciplinary stance combining industrial economics, management and sociology. From a methodological point of view, they are based on the quest for complementarities between purely statistical studies and more empirical, qualitative investigations and monographs, the former offering possibilities for generalisation and framework data useful to decision-makers, the latter yielding models closer to reality but less easy to use because of their complexity. They may nevertheless serve to improve the former.

Other approaches again allow this analytical segmentation of the variables to be avoided by integrating employment practices into the productive combination as a whole by means of '(holistic) enterprise' or 'labour management models'.

□ Over the last few years, however, another question has come to the fore in the relationship between SMEs and employment, that the issue is not only the number of jobs but also the forms of employment created in SMEs. What, in particular, about their durability, their stability and their content? Again, such approaches require articulations between disciplines concerned with *employment* and those focusing on *work*. Bringing these disciplines together is more than mere scientific debate. It opens the door to questions that might renew aid policies for the creation and development of employment in SMEs by making a connection with issues of *job and manpower quality*, that is qualifications and the construction of skills. This is the second subject tackled by our report.

6.2 SMEs and vocational training

Like the examination of research about employment, examination of that on SMEs and

vocational training inevitably has a methodological prerequisite. The difficulty here has to do first of all with the impossibility of getting an overall picture at European level when there is such diversity of both institutions and practices rooted in 'heavy structures' and deeply anchored national cultures, and secondly with the complexity of the recent changes that have taken place in the education and vocational training systems of most EU countries. The lack of perspective here is obvious, especially with the main thrust of research in this field lying in attempts to assess the impact of the changes on SME training practices. Hence the impression that tracing the 'best practices' in both national and transnational policies and in enterprises themselves is sometimes substituted for the establishment of a corpus of scientific data that is sufficiently generalisable or reliable to guide decision-makers. From a methodological point of view, we also find a permanent tension between attempts to establish a statistical corpus, especially one where data can be compared at European level, and monographic investigations, which are more qualitative and more intensive but much less open to generalisation. Finally, the main contribution of research in this field seems to reside less in immediate and unambiguous answers to the questions put by decision-makers than in an effort to relativise what are sometimes over-sharp judgements on SME training practices.

What are the most significant points that emerge from all the work consulted?

First of all, while most research now tries to show up strong articulations (especially institutional ones) between *initial vocational training* and *continuing vocational training*, this distinction still seems very relevant for sounding out SME training behaviour. While in the former register they may be considered a key player in training and especially in getting young people into work⁹⁵, in the second they are more like 'extras'.

⁹⁵ It will be recalled that, with the exception of Denmark, Ireland, Finland, Sweden and the United Kingdom, small enterprises employ a higher proportion of young people (aged 15-24) than large enterprises (European Commission, 1998: pp. 102-103).

In the first case, it is not surprising to see research taking an interest both in the links between vocational training and the emergence of new types of employment and in the various attempts to bring school and (small) enterprises closer together. However, the training function of SMEs and their role in vocational integration now seem to be marking time in most EU countries, both because of the changes to the production apparatus and because of young persons' sociological development. There is then a great danger that we shall see a rift developing not only between SEs and LEs, but within the SE sector itself, a dualism between those capable of absorbing young people with medium to high qualification levels and the rest, the most numerous, that would be condemned to take on the most insecure people. That is why the role of public policies is absolutely central here in organising the labour market and rethinking the patterns of initial vocational training.

So far as continuing vocational training is concerned, most of the statistical data compiled at European level show what little use SMEs make of the most formalised forms of training. This deficit is moreover closely linked to the articulations between initial and continuing training in the various countries. It also shows that the training available and the normative models adopted most of the time by public policy or training intermediaries are inadequately matched, even though it is they who are responsible for making the link between enterprises' needs and institutional guidelines.

A lot of work then tries to identify the main factors determining SME demand for continuing training. It again emerges that, contrary to the interpretations given by statistical corporates, the effects of size and sector must not be given too much weight. Other factors are involved, like strategic guidance and modes of production, or the sociological profile and previous career path of the managers. Other research tries to demonstrate SMEs' *ability to adapt* outside the formal models of continuing training. Not only do these allow the measurement tools traditionally used to be put into perspective, but they also show that there are many different forms

of apprenticeship and that it is now high time account was taken of them. Hence the current work on the *recognition and validation of occupational or non-formal experience* converging with the processes of individualisation of training, the development of skills logics, the rediscovery of the notion of 'trade' (especially in craft activities) and the many experiments in new teaching technologies and networking as a way of disseminating CVT in SMEs. In any case, not all SMEs are incapable of appropriating the most codified forms of training. Some even turn out to be providing at least as much training as large enterprises (this is true of the SEs and especially the *inserted or integrated VSEs* analysed by Bentabet et al., 1999)⁹⁶, if not more (on this point see Lange and Gros, 1987).

In the field of public CVT policies, we have for several years been seeing a clear concentration on the needs of SMEs. New ways of structuring the field are appearing in most countries, generally based on a variety of combinations of several levers, depending on the national tradition, summarised by Aventura and Möbus (1999) as follows:

- a necessary arbitration between a statutory funding obligation on employers (as in France) and a *laissez-faire* where the employer is free to choose (as in the United Kingdom, but also in Germany, Austria, Luxembourg, Sweden and Portugal), with a whole series of 'intermediate' regulations involving limited constraints, flanked by collective agreements (as in Italy, the Netherlands or Denmark) or tripartite accords (as in Spain);
- the adoption of public financial incentives to enterprises in the form of subsidies and tax credits in about half the countries of the EU, including: France (with the EDDFs, see Box 5.5), but also Germany, the Netherlands and even the United Kingdom and Ireland. In Sweden and Denmark in particular, these aids allow a jobseeker to be recruited and trained to replace an employee who has gone away for training;

⁹⁶ The same reasoning may also be applied to the employment policies of 'integrated' SEs and VSEs.

- subsidies to support and structure the supply of training (especially in the Nordic countries), but also and especially incentives to improve the quality of training (ISO 9000 standards) and regulation through the introduction of vocational certificates like the NVQ in the United Kingdom, directories of vocational certificates in Spain, Portugal, etc.
- finally, the establishment of organisations created specifically to mediate between (small) enterprises, the public authorities and employees, such as the United Kingdom's TECs or the *Organismes Paritaires Collecteurs Agréés* in France.

True, none of these schemes and arrangements will solve every problem, especially the main paradox of SMEs when it comes to continuing vocational training: *those that have most need of it seek it the least*. Hence the importance of increasing empirical research into the factors that make 'reaching SMEs' easier (Vickerstaff and Parker, 1995) up-

stream of training actions and counselling. Hence the interest shown, too, in regionalisation (German researchers refer to the '*Regionalisierung der Regionalpolitik*' and '*Regionalpolitik von unten*' – Büchter, 1998), and in the diversification and transversality of actions (combining, for example, technological and/or organisational modernisation with training).

Nevertheless, we should not forget, either, that outside enterprise practice, continuing training ('throughout life') is also a matter of individual projects and that it could therefore be the subject of new research into 'employability'. This would have the merit of being deliberately at the crossroads between training, employment and mobility, between individuals and enterprises. A new field of inquiry could then be opened into the role of SMEs in the individual's career path, not only at the stage of initial training or starting the first job, but also in occupational change and mobility 'throughout working life'. But let us not try the reader's patience.

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Human resource development in Europe – at the crossroads

Barry Nyhan

Abstract

This paper examines the concept and practice of human resource development (HRD) from a European perspective. It locates HRD, which is seen to refer specifically to learning, training and development activities, within the context of underlying people management theories (human resource management – HRM) or what can be termed as ‘industrial or working life cultures’. The paper contrasts two theories of HRD derived from different ways of conceiving human resource management. The one that has more in common with classical European industrial values is the humanistic-developmental tradition. The competing model, which it is argued is growing in prominence in Europe, is the instrumental-utilitarian way of looking at human resources. The paper concludes that Europe is at the crossroads at the moment in its search for a signpost leading it to human resource management practices that are socially sustainable.

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1. Introduction

The term ‘human resource development’ (HRD) refers to educational training and development activities related to working life. Although it is often used in a very wide sense to refer to all work related learning activities, more accurately, it relates to development and learning activities of those who are at work and have completed their basic vocational or professional education and training. These activities are often referred to also as continuing vocational training (CVT). However, HRD is not a stand-alone concept, but is derived from theories of ‘human resource management’ (HRM; see Box 1 for notes on key terms used in this paper).

This paper firstly looks at the emergence of ‘human resource management’ strategies in the context of the challenges facing European companies. It traces the origins of the internationally influential Harvard ‘Human Resource Management model’ which espouses humanistic-development principles. This model gives a high priority to generative human development and learning activities as a prerequisite for long term business success. In raising the question – is there a distinctive European HRD model – the paper examines the values and policies underlying what can be loosely called a European industrial/working life and vocational education training culture in relation to the above international model. The effects of the emergence of a competing utilitarian and instrumental model of HRM radically challenging the one above, are then examined. This latter model of HRM inspired by neo-tayloristic work organisation principles and neo liberal economics portrays ‘human resource development’ as a contingent activity shaped mainly by environmental factors. The paper concludes by discussing the future direction of HRD strategies in the context of building a socially sustainable industrial/ working life society in Europe.

2. New ways of organising work

Over the last fifteen or so years European companies have had to radically revise their

attitudes to work organisation – ‘human resource management’ – in order to respond to the dramatic changes taking place in both the global and European business environments. These challenges have been outlined in countless publications, but just to recall them, four of the major change factors are briefly summarised here.

1. Firstly, world business has witnessed a major decrease in markets for mass produced goods and a significant increase in demand for more customised ‘high quality’ goods;
2. secondly, the globalisation of world trade has threatened the competitiveness of European industries;
3. thirdly the creation of the Single European Market on the one hand, and the opening up of a market economy in the eastern parts of Europe on the other hand, have forced all European companies to rethink their work organisation strategies;
4. fourthly advances in Information and Communication Technologies have raised questions about investment in and use of these technologies and the work organisation implications in introducing them.

In response to these new challenges companies began to adopt new more ‘flexible’ (both internal and external) types of work organisation which are reflected in new forms of a workforce management strategies and became known as ‘human resource management’ strategies (see Sparrow and Hiltrop 1994; Miles and Snow 1984). These theories of HRM entailed the abandonment of centralised bureaucratic work production strategies – according to which everyone had a clearly designed function, suited to an age of sustained mass production – and the adoption of a new organic workforce model which devolved wider responsibilities (both vertically and horizontally) to employees, although excluding financial control which tended to continue to be centralised. This entailed putting a heavy emphasis on HRD practices such as team building, multi-

Box 1: Notes on key terms

The terms elaborated below are interpreted by authors in many different ways. The practice often determines the theory. Below, these terms are described as they are used in this paper.

Industrial/working life cultural traditions

This refers to the guiding principles and assumptions according to which a society or a company/institution designs its work organisation and work management systems (Taylorism, for example, forms an industrial/working life cultural tradition).

Personnel management

This term which is now giving way more and more to 'human resource management' (HRM) refers to a specialist function or department within companies (or workplaces) dealing with the building of efficient and satisfactory (just) working systems from the human perspective. Initially 'personnel management' had more of a reformist purpose counterbalancing the excesses introduced by mass industrialisation. Beginning with a concern for promoting social welfare and fair employment practices, it took on board 'scientific management' practices and 'human relations' concepts.

Typical activities undertaken are:

Recruitment and selection, training and development, performance appraisal, industrial relations, compensation and benefits and health and safety.

Human resource management (HRM)

This represents a transformation of the 'personnel management' function from being an ancillary service to senior management to that of a strategic influencing role under the responsibility of a director who is a co-equal board member. Instead of being a separate and specialist (and often a kind of occasional) function the management of human resources becomes an embedded company strategy and the concern of all line management who must carry out activities formerly passed on to personnel management.

Human resources development (HRD)

This can be interpreted in a wide or in a narrow sense. For some commentators HRD is almost synonymous with HRM. More commonly however, HRD refers to learning and competence development actions, although these are integrated with other HRM actions and have an organisational learning and developmental form as much as an individualistic one.

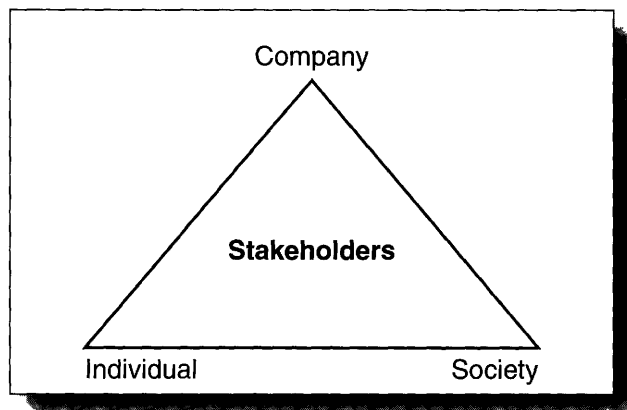
Continuing vocational training (CVT)

This is another term used which is closely related to HRD but can have a wide or a narrow meaning. Ant et al. (1996) adopt a non restrictive definition in their review of continuing vocational training in Europe taking it to cover more or less the same ground as HRD. A narrow interpretation of CVT restricts it to training activities at craft or worker level excluding management development and organisational learning actions.

skilling, work based learning in order to promote greater degrees of functional flexibility¹ (OECD 1999, p. 183).

2.1 Humanistic-developmental tradition

One of the most influential models of 'Human Resource Management' which has had a major impact on the European and the wider international business and research (Hollinstead 1995) is the 'humanistic-developmental' model devised by Beer et al (1984, 1985) at the Harvard Business School. The strength of this model is that it attempts to align the goals of a company's effectiveness with those of individual well being and positive benefits for society.



It is in the interconnected triangular dimension of the Harvard model that the notion of stakeholder interests is introduced. All of those with a stake in the company have a role in influencing company policy. This includes employees, trade unions, the community, gov-

¹ The extent to which, what are termed, flexible work organisation practices have been introduced in firms is discussed in an OECD report (1999). According to that report the position is far from clear as it is difficult to separate empirical changes from 'management fads'. According to Ellström's review of international research in this area, including OECD studies, about 25 to 50 per cent of companies have adopted 'transformed work systems' to some extent (Ellström 1999). However, a complication in estimating the degree of implementation of these practices is the lack of a clear definition of what is meant by flexible work organisation approaches. Authors often fail to differentiate between

ernment, as well as the traditional company controlling groups of shareholders and management.

From an employee work relations perspective the model represents a radical departure from the 'tayloristic' scientific management (instrumental) view based on tight *control* of employees in an atmosphere of mistrust, towards one based on winning their *commitment* in a context of mutuality of purpose. It also lays great emphasis on intensive HRD in generating high levels of employee competence. The other expected outcomes of this HRM philosophy which are seen as justifying the risk in moving from a 'control' to a 'commitment' based approach are:

- ❑ greater loyalty to one's organisation and on the part of individuals a greater sense of self-worth and a sense of belonging;
- ❑ cost effectiveness in relation to turnover of staff, low rates of absenteeism as well as societal and individual costs;
- ❑ greater congruence between management and employees, between different groups of employees, and between employees and their families and society as a whole (Beer et al. 1984).

2.2 From a 'personnel management' to a 'human resource management' perspective

One of the main implications of adopting this 'Human Resource Management' model is that

external flexibility such as outsourcing and internal flexibility based on devolved management and autonomous work groups. One of the hypotheses postulated in the OECD report (1999) is that these changes represent a pendulum swing from management philosophies based on 'tight management control' to ones based on 'employee commitment'. This paper argues that these represent two competing HRM philosophies, the one being instrumental and utilitarian and the other humanistic and developmental. Further material on this issue is to be found in the section of this paper entitled 'level of implementation' and in the papers of J. Dejonckheere and G. v. Hootegem in this report.

human resource policies are integrated with all activities of the company. This is illustrated by the fact that the implementation of 'people related' policies is devolved to front line supervisory management levels. Because this entails a shift from a compartmentalised view of the management of 'people related issues', under the responsibility of a specialised 'personnel department', to an integrated notion, the overall change has been described in terms of a movement from a 'personnel management' to a HRM perspective. The demise of the 'personnel management' approach was due to the fact that as a specialist function it failed to place human resource policies as a strategic issue in the company. In the era of HRM, a very senior management person who is normally a member of the board (a director of human resources) ensures that enlightened 'people policies' are embedded in a systemic manner throughout the organisation.

The overall effect of the adoption of this human resource strategy is that the 'human factor' is assigned a *key influencing role* with regard to the shape of the company's business, organisational and technological parameters. This entails involving all employees in company change and development actions. A prerequisite for this is the continuous building of broad competence levels through formal and non-formal learning initiatives.

This HRM model, therefore, has given a great impetus to HRD activities as one of the key objectives to be addressed in an integrated HRM policy closely linked to the issues of recruitment; career management; organisational development; work design; pay and benefits and employee relations² (Sparrow and Hiltrop 1994; McLagan 1999). Regarding the boundaries between HRM and HRD in reality, some authors such as McLagan argue for more integration seeing the distinction between them as too fine (McLagan, *ibid.*).

² In a HRM context the term 'employee relations' is preferred to 'industrial relations'.

3. HRD and competence development

In line with the theory presented above, 'Human Resource Development' objectives are focused on developing the 'competence' of employees. The notion of 'competence development', within a HRD framework, lays the emphasis on a comprehensive programme for all employees including intermediate and frontline workers as well as management. This is in contrast to a development approach that is biased towards enhancing management's skills.

The term 'competence' refers to a person's ability to carry out a series of actions (or a whole complex action) in an autonomous or independent manner. Competence gives one the ability to be able to perform in a highly proficient manner in a variety of social contexts, generalising know how and transferring it from one context or situation to another, be it related to work or personal life. According to Docherty and Marking (1997; see also Docherty and Dilschmann 1992) 'competence' relates to an individual's ability to execute tasks to meet external demands and is based on the understanding of the individual as an interpreting, acting and problem solving human being. This notion of competence is closely related to the concept of 'core competences' which entail generalist knowledge allied to a capacity for deliberation, judgement and action (Nyhan 1993). Competence gives one the ability to make connections between theoretical knowledge, practical knowledge gained from experience, constantly building up one's 'practical knowledge' to use in the different situations of one's life.

3.1 Learning organisation

This contextual/situated and 'high transfer value' notion of 'competence' has generated theories and promoted 'social innovations' related to the integration of learning and working and individual with organisational learning agendas. Senge (1990, 1997) who is one of the foremost exponents of the concept of a learning organisation as offering possibilities for professional as well as personal growth, asks why is it not possible for people to at-

tain company goals 'in a work environment that is close to the things that workers really value in life' (Senge 1997, p. 144).

For Senge all significant learning for action is social and collective by nature.³ A prerequisite for learning is the development of 'a sense of connectedness, a sense of working together in a system and an understanding of how each part of the system is affected or being affected by other parts and where the whole is greater than the sum of the parts' (p. 129). Learning is about sharing knowledge and this occurs when people are genuinely interested in helping one another develop new capacities for action.

A learning organisation can be described as 'an institution which involves all its members in increasing organisational and individual competence, through continuously reflecting on how strategic and everyday tasks are handled' (Nyhan 1999). These two dimensions, organisational effectiveness and individual competence are seen as interdependent factors. Organisational effectiveness provides an impetus for individual learning, while the latter in turn contributes to an increase in organisational effectiveness. If this model is implemented in an idealised situation, line workers are learning as a result of being assigned challenging tasks and through being assisted to continuously reflect on those tasks, so as to learn from them. The work content therefore becomes the learning content, as work and learning become part of a constant improvement spiral having an impact on the competence level of individual workers, the collective learning of work groups and the total organisation (Nyhan 1999; Stahl et al. 1993).

3.2 Level of implementation

As regards the degree to which these 'Human Resource Development' or competence devel-

³ Prahalad (1993) uses the term 'core competence' in a similar way to Senge although in a different sense to the way it was used earlier, to mean the 'collective competence' or 'collective learning' of an organisation, in particular referring to the ability to co-ordinate and integrate different skills and technologies.

opment measures are being implemented, even though sufficient research has not been carried out, and as already stated in footnote 1, according to Ellström's review of the recent findings, somewhere between 25 to 50 percent of companies have adopted them, at least to some degree (Ellström 1999). In the study of Cressey and Kelleher (1999), undertaken in the auspices of the European Commission's Leonardo da Vinci programme, it was found that there was a great degree of consensus among employer and employee representatives (the 'social partners') in large companies in the car manufacturing, telecommunications and banking sectors in the UK, Germany and Sweden about the need to adopt these new HRD models. A different rather sceptical view about the impact of this new models, however, is that the interest by the management and academic community in these concepts is perhaps more due to their attractive presentation by management gurus rather than solid research evidence (OECD 1999). Méhaut and Delcourt (1997, p. 30) argue that neither on the European nor global stage do we see convergence towards a uniform model of new forms of work and learning organisations away from the 'old' 'tayloristic' control model. According to Poell (1998, p. 6) instead of understanding the changes in work organisation in terms of the replacement of one dominant 'tayloristic' model by a new dominant one we should pay attention to the diverse ways in which work and learning is organised.

In any assessment of the implementation of these strategies, it must be acknowledged that the adoption of radical transformative learning approaches is a complex process. There is often a big difference between what people say they are doing (or perhaps what they would like to do) and what they are actually doing. First impressions can be deceptive. One has to deeply analyse companies to see the extent of the changes achieved. In one intensive study of a eleven European companies, that claimed to have introduced radical learning organisation principles (and at first sight seemed to have done so) it was found that many of the changes had an impact only of introducing new learning methodologies at the frontline (shop floor) level

or at a level of management structure without any transformation in a company's values/vision/culture (Docherty and Nyhan 1997; Nyhan 1999; Nyhan forthcoming). A genuine transformative level of change, internally driven and built on radical new insights about the contribution which employees can make to the company, was achieved by only five of the eleven companies examined. This entailed radical change at all levels of the organisation in relation to values, structures and work processes. This required the following elements – visionary leadership from the chief executive, the development of a 'shared vision' generated by everyone in the company, risk taking by management and employees, the development of a long term strategic programme and a commitment to follow it through in all its time consuming practical steps. What is more, the study also showed how fragile human resource innovation can be. Opportunities to change can so easily be let pass by, and major gains made, often after the expenditure of enormous effort in terms of time and finances, can be lost overnight (Nyhan 1999, p. 20).

4. HRD in Europe

4.1 European industrial/working life cultural traditions

Historically, within Europe, more particularly northern continental and Nordic Europe, one finds many different versions of what can loosely be called a European industrial development/working life model based on common threads running through national and sectoral traditions and common problems encountered in the different historical paths and choices taken on the road towards industrialisation. European industrial/working life cultural traditions differ from those in the US in that they place much greater emphasis on the role of skilled workers rather than managers (in particular in small and medium sized companies), on the role of social partners in the employment relationship and envisage an intervening role by Government (see Brewster et al. 1993; Guest 1990; Pieper 1990).

Albert in his book 'Capitalism Against Capitalism' (1993) contrasts the European continental economic and industrial model, what he terms the 'Rhine Model' with that of the 'Anglo-American' one. According to the 'Rhine Model', management and trade unions loosely 'share' power (in Germany 'co-determine' policies) with the state playing a major role in areas like initial vocational education and training and providing a safety net for those who lose their jobs. This model has existed for nearly a century in Germany, the Netherlands and France and in many respects, although taking a different form, in the Nordic countries. The 'Anglo-American' model, which mainly applies to the US (but also to the UK in many respects) gives a greater reign to market capitalism, stressing the state's subordination to the economy and business activities, with a consequent lesser focus on government intervention. Some of the European traditions outlined above have been enshrined in European Union legislation or agreements such as the Social Charter (in 1989) the European Works Council Directive (in 1994) and the European Confidence Pact for Employment (in 1996). Of course this is not to deny the fact that the manner in which these agreements are applied differs in line with national Member State traditions and legislative frameworks. Thus the 'principle of subsidiarity' which was enshrined in the European Union Maastricht Treaty strikes a balance between the 'unifying' policy making role of the EU and the diverse autonomous positions of the Member States.⁴

Within a common European heritage, of course, significant cultural differences exist between the different countries which affect how issues surrounding work and learning are understood and related policies and strategies implemented.

Trompenaar (1993) carried out an extensive worldwide survey of people in the business world to find out the corporate cultural fac-

⁴ Art. 127 of the EU Treaty is a good example of how this works out in practice regarding the implementation of vocational education and training policies.

Box 2: Different 'national corporate cultures'

'Power oriented' corporate culture'

A leader in this hierarchical but person oriented culture can be seen as a caring 'patron', who knows better than his subordinates what is good for them and in appealing to their deepest feelings, directs them on how things should be done. This form of leadership can be referred to as 'management by subjectives'. The ways of thinking and learning in such cultures tend to be intuitive, holistic, lateral and error correcting, and according to Trompenaar are typical of Spain and to a lesser degree France and Belgium.

'Role oriented' corporate culture'

This is based on a bureaucratic division of labour with the various rules and functions prescribed in advance. When each role is performed in accordance with the overall system then tasks are effectively completed. The approach to thinking and learning in this culture, which according to Trompenaar is typical of Germany and to a lesser extent Denmark and Netherlands is logical, analytical, vertical and rational.

'Project oriented' corporate culture'

This third category differs from the power and role oriented cultures in being egalitarian. Even though it resembles the role-oriented model in being impersonal and task oriented, it differs from it in that the jobs people do are not fixed in advance. The UK (and the US) are seen as having many examples of these kinds of companies where thinking and learning patterns are problem centred, practical and cross-disciplinary.

'Fulfilment oriented' corporate culture'

This is based on the notion that organisations are secondary to the fulfilment of individuals. These kinds of organisations which operate in an environment of intense emotional commitment are, according to Trompenaar, typical of Sweden. The approaches to thinking and learning in these organisations are creative, ad hoc and inspirational (one has to question the rhetoric as opposed to the reality!).

Source: Trompenaar (1993).

tors influencing how they perceive and design work organisation. He developed a fourfold typology – 'power oriented', 'role oriented', 'project oriented' and 'fulfilment oriented' corporate culture. A resume of how these four types apply in a European context is provided in Box 2.

4.2 Europe and humanistic-developmental HRD

Despite the American origin of the Harvard human resources model described earlier, it can be argued that its 'humanistic-developmental' perspective and in particular its effort to align company objectives with those of the needs of the individual and society as a whole, complement mainstream European in-

dustrial and working life traditions. The adoption, or at least the application of its underlying principle of embedding 'open' and developmental 'people management' and learning activities in all aspects of a company's activities, by many large European countries in the late 1980s and 1990s had a positive impact in revitalising practices that were often being implemented in a rather regimental (and Tayloristic) fashion. The dynamic and integrated organisational perspective also challenged the rather compartmentalised and rigid thinking of those in charge of vocational education and training institutes. It certainly improved the status of 'personnel' and 'training and development' functions within enterprises and gave rise to new University and Business School courses in this area.

Perhaps one of the most noteworthy effects of the HRM movement was the modernisation of peripheral countries and regions in Europe which did not have a well developed industrial development tradition. So, for example, for a country like Ireland coming late to industrialisation and cut off from progressive continental European industrial/working life traditions, the investment by American and European multinational companies with sophisticated and enlightened modern management systems, many of them with humanistic-development approaches, had an impact not only on the economic development of the country, but also offered illustrated lessons on how to design organisations that promote human systems for development and learning.

The humanistic-developmental HRM model also can be seen to share some common underlying principles with European originated innovation movements. The 'sociotechnical' systems thinking tradition is one of them. The original work in this area was undertaken by the Tavistock Institute in the UK in the 1950s and implemented in particular in the Nordic countries (e.g. the Norwegian 'Work Democracy Programme' in the 1960s) and also in the Netherlands. The work organisation design, put forward by the 'sociotechnical' school, centring on the notion of 'semi-autonomous groups', stressed the benefits to be derived (in relation to efficiency and worker satisfaction perspectives) from workers having control over and shaping their work and technological environment. There is emphasis on introducing the latest technology but designed in a way to fully harness workers' skills and motivation. The benefits to be derived from such a 'sociotechnical' tradition are seen to be superior productivity and work performance as well as a more fulfilling work environment in the form of challenging work that also offers opportunities for learning and development.

The relationship between the 'humanistic' human resource management tradition and the concept of 'social shaping of technology and work', which came from the German tradition is also worth commenting on (see Rauner 1988; Heidegger 1997). According to this concept a high degree of control ('influ-

ence' or 'shaping' – in German '*Gestaltung*') by the workforce of the work environment is essential to ensure productivity and create an environment in which people learn continuously. This concept has similarities with 'sociotechnical' thinking but differs from it in that it is derived from the discipline of vocational education and training rather than a top down 'systems design' approach. It also gives an active role to workers in continuously modifying and developing new work processes. Through this, they are also developing 'practical expert knowledge', called 'work process knowledge' which can only be learned in an experiential (bottom up) fashion. In relation to technology, this means that the know-how and the competence in the workers' heads must be superior to the 'software know how' embedded in the technology. This concept is based on the notion that the cornerstone of effective production systems is the expertise or 'work process knowledge' of the human being and not the technology. According to a related concept of 'anthropocentric technology' (or 'human centred technology') – 'it is only when the technologies allow the development of human capabilities and skills that they become optimally productive' (Wobbe 1990, p. 11).

This emphasis on the centrality of the skilled worker (intermediate level profession or craft/trade level) who has a high degree of discretion, authority and responsibility can be seen as one of the hallmarks of the more highly developed indigenous human resource policies in Europe. This gives them a clear stakeholder role within the company – reflected in the wages offered. This role is strengthened by an occupational identity through membership of a professional group and in the extended society by what has been termed an 'industrial citizenship'. Referring back to the German context, Hendry (1991) states that it is not a platitude to say that Germany's greatest asset is her people. While the German concept of HRM differs from the US originated humanistic model, both of them concur in recognising the need for a highly motivated, flexible and trained workforce. HRM, therefore, should not be considered a new or alien concept for German organisations.

5. A competing human resource strategy

A recent study of HRD trends within seven European countries (Ter Horst et al. 1999) concluded that in the face of globalisation, there appears to be a tendency towards convergence in the human resource policies of Europe, the United States and Japan. According to the study, the common aspects of human resource policies between large companies in the three most powerful global trading blocks are seen to be more significant than the differences. This conclusion is drawn on the basis that the globalisation of business is forcing all companies, who wish to compete in world markets, to adopt human resource policies focused on meeting companies' immediate business performance objectives. This emphasis on more or less short term performance objectives gives rise to a contingent and situational view of human resources along the lines of Trompenaar's 'project based' corporate business culture outlined above.

In line with this, many companies today see themselves more like loose 'market led networks' rather than organisations. These networks are constantly redefining their structures offering project based work opportunities for people in a dynamic market environment. We live in the age of the contingent worker in which jobs are being replaced by 'projects'. In the United Kingdom, Brown and Keep (1999) make the point that 'taylorism' and 'neo-taylorism' still offer a powerful model of competitive advantage, in particular within the service sector. In a large study of British manufacturing companies, Acroyd and Proctor (1998, p. 171, cit. in Brown and Keep 1999) conclude that profitability is not secured through 'the acquisition of a highly trained 'core' labour force but by a combination of relatively unskilled labour and a willingness to utilise external sources of production'.

In France, on the same day that the Michelin tyre manufacturing company announced a net profit of EUR 292 million for the first half of 1999, up 17 percent from a year ago, the company also announced that it would cut its workforce in Europe by 7,500 over the next

three years. This news received a euphoric reception in the Paris Bourse. The new finance director justified the cost cutting exercise by stating that: 'Our principal rivals have clearly announced firm intentions to target Europe. We want to react before anything happens' (International Herald Tribune, September 11-12, 1999, p. 11). This newspaper report went on to note that while 'the family controlled company has traditionally been considered as paternalistic towards employees and unresponsive to shareholders, three months after taking over as president, however, Eduouard Michelin, 36, appears eager to break away from the old school management style of his father, François, and introduce business practices he learned in the United States.'

This is an example of growth in 'shareholder power' in European companies which according to an article in *The Economist* (2000) promises to remake European capitalism. German critics of the Mannesmann hostile take over of Vodafone in early 2000 see this as the first severe blow to the country's well found Rhineland capitalism model built on consensus and close ties between bankers, business, employers, trade unions and the government. This article goes on to state that behind this trend towards shareholder power is a new generation of managers who believe that 'firms belong to shareholders, not bosses or 'society'. Germany is singled out here because it is a stronghold of the classical European social market economy, but taking Europe as a whole there has been a merger boom in response to shareholder pressures in recent years. The values of mergers and acquisitions in Europe for 1999 was 1,200 billion dollars, an increase of 50 percent over 1998 and 700 per cent over 1994 (source cited in *The Economist*, 2000 – Thompson, Financial Securities Data).

In line with the above trend, HRM policies are driven principally by the situational context in the external market environment. This entails *adapting* human resource policies to fit in with the corporate business strategy. Companies 'upskill' or 'downskill' as the market demands. Brought to its logical conclusion, human resources are a contingent, instrumental factor with no inherent value in

their own right.⁵ Accordingly, HRD as a distinct activity may or may not be a part of the HRM policy, but based on the principle of 'external flexibility', human resource stocks can be renewed more effectively through a process of short term 'project based' recruitment, outsourcing products and services, downsizing staff etc. The concept of 'business process engineering' (see Hammer and Champy 1993) entailing an overnight reshaping of one's organisation, and indeed the whole supply and sales chains with an emphasis on cost cutting and downsizing the number of employees, offers a way of implementing this form of 'Human Resource Management'.

This is referred to as the 'hard' model of human resources derived from tayloristic and neo-tayloristic/neoliberal thinking. It is contrasted with the 'soft' 'humanistic' model which attempts to match company needs with individual career development and wider societal effects. The 'hard model' is based on the 'external flexibility' (or 'numerical flexibility') of the outside labour market (the classical free market 'hire and fire' approach) as distinct from the 'internal flexibility' (or 'functional flexibility') of the workforce within the company, which is cultivated through continuously developing people's competence and capacity for change. The difference between these two strategies is that one entails a 'redundancy of parts (people)' approach in which people are constantly replaced in accordance with the tasks that need to be undertaken, while the other implies a 'redundancy of function' approach (Morgan 1986, pp. 98-100) according to which, even though jobs may change, the company sees it to be in its long term interests to retain people, within the firm, sufficiently well skilled (or being re-trained) to take over new tasks. The dominance of neoliberal policies across the world is strengthening the position of those putting forward this 'redundancy of parts' view and is strongly challenging the 'humanistic-developmental' model of human resources.

⁵ A human resource director of a major international firm, shedding much of its workforce in a restructuring exercise, facetiously referred to his job title as 'human remains' director.

While in an earlier book Handy (1989) portrayed the arrival of a flexible labour market with its flexible companies (or as he also called them 'shamrock companies') as offering people (with their portfolio of skills) liberation from rigid employment patterns and providing them with opportunities for choice and personal fulfilment, he changed his mind later on, saying that although this situation may be in the interests of the elite highly skilled professionals – the 'symbolic analysts' who comprise a small percentage of the workforce – it was not really enhancing the quality of working life for the average person (Handy 1994).

According to Sennett: 'in attacking rigid bureaucracy and emphasising risk, it is claimed, flexibility gives people more freedom to shape their lives. In fact the new order substitutes new controls rather than simply abolishing the rules of the past – but these new controls are also hard to understand' and represent 'an illegible regime of power' (Sennett 1998, p. 10). In addressing the question 'The HRM organisation – rhetoric or reality?' Sisson (1994, p. 15) contrasts the 'rhetoric' of certain HRM slogans with their 'reality' counterpoints – '*flexibility*' often means that '*management can do what it wants*'; '*lean production*' can in fact be '*mean production*' and '*team working*' can mean 'reducing the individual's discretion'.

Adler and Cole (1993) attempt to resolve the polarisation of the 'instrumental' with the 'humanistic' type of work organisation⁶. The result is the concept of 'democratic taylorism' which seeks to integrate the characteristics of efficient bureaucracy along neo-tayloristic lines with a genuine humanising environment (characterised by good working conditions and training opportunities). They see this as an 'enabling' formal system rather

⁶ This is a kind of 'third way' work organisation version of Giddens' political and societal 'third way' concept that attempts to go beyond the two dominant political philosophies – social democracy (which is rooted in Keynesian demand-management, interventionist government, the welfare state and egalitarianism) and neo-liberalism/market fundamentalism (Giddens 1998).

than a 'coercive' one. They argue that it is romantic nonsense to talk about the notion of a workplace characterised by autonomous workgroups and see the 'humanised lean production' plant of NUMMI – a joint venture between Toyota and General Motors in the US – as offering a model that can be implemented in practice. The NUMMI plant, according to Adler and Cole, represents a good balance between the exigencies of efficiency and satisfying work, making what they term a 'humanised' work environment. This environment has a good layout, is ergonomically well designed and has good worker support facilities. It combines features of 'lean production' systems with classical Fordist ones, with workers having responsibility for quality assurance and routine maintenance (see Cressey and Kelleher 1999; Ellström 1999).

6. Future direction for HRD in Europe

This raises the question about the future role of the 'Human Resource Development' policies in a European context.

In discussing the challenge of globalisation from a European point of view, Lundvall and Borrás (1997) in their report 'The Globalising Learning Economy: Implications for Innovation Policy'⁷ argue for wide transformative social innovations, laying an emphasis on building societal frameworks focusing on new forms of interorganisational cooperation and alliances between enterprises and knowledge producers. They talk of the need to build 'learning economies' which enhance the learning capability of individuals, firms regions and countries. What is more, Lundvall developed this notion further at the European Socio-Eco-

nomics Research Conference, in 1999⁸, when he spoke about creating a 'socially sustainable learning economy'. This approach appears to be in continuity with the wider implications of 'sociotechnical systems theory', which addressed the issue of building strong institutions in turbulent social environments. This means according to Emery and Trist (1965) that interconnected organisations must contribute to the creation of shared value systems that have meaning for all of them and so guide their actions.

For Lundvall and Borrás the neoliberal solution and the neo-protectionist solution must give way to the 'new new deal' which focuses in particular on the learning capability of the weak learners, people and regions (Lundvall and Borrás 1997, p. 38). In this regard the regional territorial dimension become important because 'territory and proximity play a central role in the genesis of tacit knowledge and the capacity to exploit it. The region is increasingly the level at which innovation is produced through regional networks of innovators, local clusters and the cross-fertilising effects of research institutes.' (ibid. p.39) The concept of the 'learning region' is put forward as a model for mobilising all of the actors in a region to build inclusive innovation policies addressing integrated economic and social development goals (see Nyhan et al. 2000).

The central message of Lundvall and Borrás is very relevant to the debate about the future direction of HRD policies within industries for the reason that companies cannot survive without learning from and contributing to their environment. However, to do so, innovation at the level of the company is called for. Coriat (1995) refers to organisational innovation as being the missing link in European competitiveness. He calls for new organisational models to be developed in a research process which is concurrent with experimentation by enterprises. This means research imbedded in practice that will provide practical knowledge for a new genera-

⁷ In this publication, which is an analysis and synthesis of the findings of seven major European socio-economic research projects, covering many disciplines, supported by the European Commission's Fourth Framework Targeted Socio-Economic Programme, Lundvall and Borrás have attempted to provide policy makers with an overview of the implications of these studies for innovation policies and identify the direction of further research.

⁸ This conference, organised by the European Commission, took place in Brussels on April 28-30, 1999.

tion of managers and professionals within firms.

Returning to the question of 'humanistic' versus 'instrumental' models, the need to have a more business-led focus of HRD was put forward by Harrison (1999), a European keynote speaker at the Academy of Human Resources Development Conference at Washington in 1999. To the contrary, McLagan (1999), a leading American keynote speaker at the same event, criticised the 'mechanistic, more authoritarian worldview' in which people are seen as 'resources in the sense of being optimised and even exploited'. She pointed out the 'dichotomy between this utilitarian view which is based on behaviourism with the generative view which is based on humanistic philosophy'. She went on to ask the question: should the HRD specialist become a performance engineer and systems consultant or focus on unleashing the capacity of people so that they can work for themselves? (p. 17)

In responding to the above question, it would appear to be an abdication of the role of the HRD professionals were they to adjust them-

selves or merely submit to the dictates of those espousing the utilitarian view of human resources, which is derived from perspectives and values outside of the 'human resource development' one. Having overcome most of the inefficiencies and lack of competitiveness which became apparent in European companies in the 1997s and 1980s, particularly in the face of superior Japanese innovativeness and productivity, surely the challenge now is to devise innovative solutions which look beyond the present situation and can contribute to building a 'socially sustainable learning economy'.

Perhaps the reflection of the 'business guru' Handy (1994, p. 1) should be kept in mind by the HRD research and practitioner community in building a future model: 'In the pursuit of these goals (*economic growth and efficiency*) we can be tempted to forget that is we, we individual men and women, who should be the measure of all things, not made to measure for something else. It is easy to lose oneself in efficiency, to treat that efficiency as an end in itself and not as a means to other ends'.

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Reporting on human capital; objectives and trends

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Abstract

Human capital encapsulates individuals' attributes of use in the labour market, while reporting on human capital, on the other hand, is primarily associated with the enterprise level. This apparent paradox is partly due to the fact that the identification of an individual's knowledge, competences and skills as well as their acquisition, maintenance and upgrading, i.e. the input side to human capital, is only rarely related to the output, i.e. human capital, irrespective of the former being the very substance in the latter. This lack of interconnection is primarily due to different traditions where human capital is considered in purely economic terms whereas the individual's acquisition of knowledge is primarily related to the pedagogical, sociological and psychological fields. One reason for this being, of course, that the notion of human capital does originate from within economy and, further, that economists still relate human capital primarily to the enterprise level and /or at macro-economic level while generally neglecting the individual's level.

In this paper human capital is defined as 'the knowledge, skills, competences and other attributes embodied in individuals or groups of individuals acquired during their life and used to produce goods, services or ideas in market circumstances'.¹

The paper will focus on the enterprise level and primarily with an economic perspective, but, as indicated above, other levels and dimensions will play a significant role throughout the paper. This is particularly the case when it comes to reporting on human capital, and when it comes to an analysis of the interests of the main stakeholders.

¹ For discussion of the definition, please refer to the chapter on theoretical and methodological considerations.

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1. The socio-economic context

Technological, commercial and organisational developments have changed the labour market. Shorter life cycles of goods and services, increased and globalised competition, the growing importance of intangible assets at all stages in production cycles and new forms of work organisation have transformed both the workplace and the skills required to perform a given task. This requires new qualifications from employees and a new perception of the workforce and work organisation from employers in that 'traditional' instrumental skills are no longer viewed as sufficient to maintain competitiveness; flexibility, responsibility and involvement of the workforce must be added as well as new dimensions to the management and organisation of work.

The strict distinction between knowledge workers, skilled workers and unskilled workers is thus diminishing following the more horizontal organisation of work which leads to higher utilisation of knowledge found in all employees at all levels and not necessarily limited to the employees' core work. The enterprises' knowledge base is not only identified in special units such as the management group, the R&D department or the sales division, it is increasingly being diversified covering the entire workforce.

Achieving a competitive edge for individuals, enterprises and societies alike is increasingly becoming synonymous with the notion of human capital. This is partly justified by the growing importance of intangible assets in enterprises, of which human capital constitutes a major element and by the emphasis from both public and private bodies on human capital as a saviour of competitiveness, reduction of unemployment and expansion of economic wealth.

Human capital has therefore become the focal point for theoretical and methodological considerations, and analyses as well as for numerous pilot projects initiated by practitioners, researchers and policy-makers alike. Further, and irrespective of its economic ori-

gin at enterprise level, human capital is now subject to various levels and dimensions, as illustrated in Table 1.1².

Levels and especially dimensions are to a great extent interrelated with many overlaps. This must be kept in mind while working with human capital in general and reporting on it in particular. It is therefore critical to have a clear understanding of the various stakeholders' interests as well as the specific objectives for concrete methods when also keeping in mind related levels and dimensions while exploring possibilities and limitations on the notion of human capital and the reporting of it.

1.1 Macro-economy and human capital: the endogenous growth theory

Human capital is related to the economic interaction of the labour market and it is the human knowledge as a production factor, which is of interest as opposed to, for instance, social or cultural interactions³. It is thus the human capital's contribution to economic development which is looked into. As such, human capital is closely related to physical and financial capital though it must be treated differently, both theoretically and in practice due to its intangible nature.

Although being acknowledged theoretically, human capital has tended to be hidden under residual factors in economic growth theory⁴, primarily due to the difficulties in the measurement of human capital and other intangible values. However, the exogenous fac-

² See for instance Coleman 1988, Fukuyama 1995 and Goleman 1996.

³ The notion 'social capital' refers to the influence of the social setting for the development of human capital. As such, social capital can be seen as going beyond the scientifically established boundaries between the social and economic spheres of life. See Goleman 1996, Fukuyama 1995, Putnam 1995, World Bank 1999.

⁴ A classic example is the Solow residual, i.e. the part of growth which is not explained within his growth model that is based on the growth of labour and capital.

Table 1.1: Levels and dimensions of human capital

Level / Dimension	Politics	Economy	Sociology	Psychology
Individual	Increase skills level	Increase earnings	Increase equality	Increase self-esteem
Enterprise	Comply with surrounding society	Increase competitiveness	Improve the enterprise image	Improve work environment
Government	Complement labour market and employment policies	Share the costs related to education and training	Implement the lifelong learning concept	The notion of a dynamic government/ society

NB: Different levels as well as different dimensions may have identical objectives. The examples given must, therefore, be treated as indicative rather than exhaustive.

tors, i.e. the growth of (homogeneous) labour, investment and general technical progress has become less and less sufficient to explain growth, development and productivity, both at micro and at macro levels. Mainly because intangible input into the economy has grown and may even have exceeded investments in physical capital⁵.

Consequently, endogenous growth theory has gained momentum in recent years by opposing the classical notion of exogenous factors determining growth⁶. Instead, they include explicitly endogenous factors, foremost the accumulation of human capital to explain growth and growth differentials between States⁷. The production of human capital in terms of the allocation of resources to the formation of knowledge in the labour force is thus being internalised rather than just being a 'residual' factor.

While macro economic theory has begun to include human capital as a decisive, endogenous growth factor, actual knowledge is still sparse. The most widespread method used for examining the influence of human capital on economic growth, is investment in education

⁵ See for instance Ernst & Young and OECD (1997).

⁶ For a discussion of neo-classical versus endogenous growth analysis, see McCallum 1996.

⁷ For the economic models, see Lucas 1988, Rebelo 1991 and a review by McCallum 1996.

relative to national wealth⁸. However, these are very crude measures and often only refer to school attainment and, thereby, neglect training outside the formal education system, for instance vocational training not leading to formal qualifications or informal training. Further, they do not include the quality of the output.

This perspective conflicts with the demand from governments for international comparisons of national educational achievements, which focus on the quality of the output. While this perspective focuses predominantly on the formal education system and primarily the general education segment, it is not directly related to economic growth. Benchmarking has taken place for a long time, for example through surveys by IEA⁹.

As Steedman phrases it: 'growth economists are concerned principally with human capital as an *input*, that is, one among a number of independent variables influencing economic growth. Until now, they have had little interest in how (efficiently or inefficiently) those inputs have been produced. Governments and policy-makers view stocks of human capital as outputs of educational provision – that is, as a dependant variable – and their questions

⁸ See OECD's annual publications *Education at a glance*, Psacharopoulos and Ariagada 1986, Barro and Lee 1993, Psacharopoulos 1994 and 1995.

⁹ The International Association for the Evaluation of Educational Achievement (IEA).

largely concern relative efficiency in the way resources devoted to education are used.¹⁰

Bearing in mind the practical and methodological limitations to both approaches, it is still a long way to go before the creation of human capital outside the formal educational system will affect macro-economic thinking and be visible to wealth creation at macro level. This is to a certain degree paradoxical to the intense promotion of investments in human capital formation outside formal systems notably through the notion of lifelong learning, which has taken place since the mid-1990s.

1.2 Micro-economy and human capital: the returns to human capital

As opposed to the macro level, calculating costs and returns on human capital at micro economic level has a long history which dates back to at least the Roman times and includes calculations on slaves, soldiers and workers. However, it was in the 1960s that the human capital theory in its present meaning was introduced. The theory was originally based on the assumption that investments in human capital do pay off because the correlation between years of schooling or on-the-job training and income demonstrates that there is a positive rate of return¹¹. This correlation was soon questioned both from a theoretical perspective as well as from empirical findings. Nevertheless, it is still the dominant method used to indicate returns on investments in human capital to individuals although supplemented by screening and signalling theories¹².

Still, returns to individuals are fairly easily captured through the correlation of education and life earnings at an aggregate level. There are serious limitations, though. Methods do

not, generally, provide any indication of the returns on investments in education and training outside the formal education and training structures, such as continuing vocational training, training supplementing initial vocational training, etc. This is particularly important for decisions on further investments by individuals, since the return on such investments may be invisible or even non-existent, especially in money terms. Theoretically, a higher level of human capital embodied in individuals, i.e. the increased level of labour market relevant knowledge obtained through additional training, should be reflected in the income. However, just as an increase in income does not necessarily stem from increased productivity, increased knowledge does not necessarily result in higher income.

Above all, the human capital theory does not identify the stock of human capital but merely the correlation between input of education and the return. At enterprise level, this is inadequate since their primary objective is the operational utilisation of human capital; hence, generalisations and abstract correlation between measures are of relatively little use.

This leads to the most underdeveloped research area: the meso-economic or enterprise level, where the same uncertainty regarding returns on investments can be identified. While the input side or the investments in maintaining or upgrading the human capital in enterprises is fairly easy to identify through measuring the direct and indirect costs, little is known about the output side and especially the returns on such investments¹³. Even if this is not a new problem, no reliable evaluation method has so far been developed¹⁴. Human resource accounting which originated as a response to this 'black spot' has not yet provided an adequate response.

More limited approaches, such as utility analyses on the cost and benefits of employ-

¹⁰ Steedman 1996.

¹¹ Refer to Blaug 1985, Flamholtz 1985 and Schultz 1961 for further details on the roots of the human capital theory.

¹² For screening and signalling theories, see Weiss 1995. One serious attempt to expand the human capital theory can be found in OECD 1996, p. 19-23.

¹³ See Barrett, Hövels, den Boer and Kraayvanger 1998.

¹⁴ See for instance, Kirkpatrick 1959, one of the founding fathers of modern evaluation methods.

ment strategies and of health and security policies, have, however, developed into standard practice in many enterprises¹⁵. Although these elements play important parts in current thinking on reporting on or accounting for human capital, they too do not measure the stock of human capital. However, they do provide an input-output relation in specific areas related to human capital; that is, the costs and benefit of maintaining a good safety and health environment and by outlining the costs and benefits of strategies where enterprises rely on a high staff turnover. This is information of direct relevance to enterprises and although human capital cannot be reduced to a technical issue about cost and benefit alone, it does provide an easily understood and relatively simple method of evaluation.

Nevertheless, utility analyses, despite their practicability, do little to capture the maintenance and upgrading or a specification of the enterprises' stock of human capital. In other words, equivalent methods for measuring the stock of human capital or returns on investments in training have not been developed.

The increasing use of benchmarking is therefore partly the cause for the lack of information on the return side, in that they primarily focus on investments/processes or the input side rather than the output side. Hence, benchmarking will only compare the enterprises' input to human capital formation and not how these investments are capitalised. However, benchmarking does provide the tool for providing information on the correlation between, say investments in training and net profits. Hence, some indirect measures on the returns of investments can be established through benchmarking.

Benchmarking does not, however, provide a method for measuring directly the returns to training investments in enterprises.

Proposing increased investments in continuous or lifelong learning by policy-makers, researchers and some practitioners is therefore

¹⁵ For the latter, see the European Agency for Safety and Health at Work 1998.

Table 1.2: Correlation methods at different levels

Level	Methods
Society	Investment in education relative to national wealth
Enterprise	Investment in training relative to enterprise performance
Individual	Years of schooling relative to life income

based on a high level of uncertainty and lack of actual knowledge. This is even more the case when discussing the cost distribution between individuals, enterprises and the public sector and, further, how to find additional funding for the perceived need for an increase in the total level of investments in human capital.

Lack of reliable and precise information on the return side of investments in human capital formation is one of the basic reasons why indicators other than financial ones are being used to capture the positive returns. This is also the reason why, ultimately, non-financial reporting methods and benchmarking are being utilised as proxy measures.

1.3 The abstraction of human capital within economic theory

As mentioned in the introduction, human capital cannot be captured in economic terms alone. The fact that human capital, and especially its acquisition, maintenance and upgrading can only be measured indirectly is not satisfactory from economists' points of view. Especially, since the return on investments is only captured indirectly, as exemplified in Table 1.2 below.

The ongoing sophistication of methods does overcome some of the weaknesses in using proxy indicators. However, to capture fully the notion of human capital, a more stringent theoretical and methodological framework must be established and for the enterprise level in particular, standard methods for reporting on human capital must be developed both for the input and the output sides.

2. The theoretical and methodological context

2.1 Defining human capital

Human capital can be defined strictly within an economic context, i.e. as a production factor, or it can have a more universal meaning. Treating human beings as economic entities in a purely market related context often causes some confusion and opposition since it is viewed as a simplification of human values. It is, however, necessary to differentiate between different sets of perspectives and objectives. This can be illustrated with the distinction between general and vocational education: general education provides the individual with knowledge in order to participate in society, i.e. the social, cultural, economic, etc. life spheres, whereas vocational education is targeted entirely at the demands of labour markets, i.e. the economic sphere only.

As indicated in Chapter 1, human capital will be defined within an economic context; further, human capital is embodied in both individuals and in organisations, and the acquisition of human capital is a process which also has a fixed value albeit not necessarily in economic figures.

Given these considerations, human capital is defined as *'the knowledge, skills, competences and other attributes embodied in individuals or groups of individuals acquired during their life and used to produce goods, services or ideas in market circumstances'*¹⁶.

This is the basic understanding of human capital being formed around the formation and utilisation of knowledge, be it in individuals or in organisations. A third level can also

be identified, i.e. the societal level, which in effect is the crude accumulation of individuals' and organisations' human capital¹⁷.

2.2 A theoretical framework for reporting on human capital at enterprise level

Since human capital at enterprise level is relatively underdeveloped within economic theory building and at the same time emphasis for reporting on human capital at enterprise level is growing, it seems necessary to go beyond economic theories to explain this development. This can partly be captured by the emerging distinction between managers' perception of enterprises' relations with the surrounding world.

Three approaches can be identified¹⁸:

- the shareholder approach;
- the enlightened stakeholder approach;
- the stakeholder approach.

2.2.1 The shareholder approach

The shareholder approach equates the traditional identification of the management of a company with the shareholders of an enterprise. The approach follows the logic of enterprises being established and managed for the benefit of shareholders and for the benefit of actual and potential creditors.

Following this logic, accounting and disclosures are provided both for shareholders to exercise and maintain full control over the enterprise and for actual and potential creditors.

¹⁷ See the discussion in 1.1 above, or refer to Rouhesmaa and Bjurström from the Finnish Ministry of Labour 1996, Serageldin from the World Bank 1996, the European Commission 1996 and OECD 1996.

¹⁸ The following part is primarily based on a consultation document from the Company Law Review Steering Group under the British Department for Trade and Industry 1999.

¹⁶ This definition is based on OECD (1996) and OECD (1998) with two important deviations; collective human capital has been included whereas the non-market relation has been excluded. See also Gröjer and Johanson (1996) and Bullen, Flamholtz and Sackman (1989).

Given that shareholders are identified as those having an actual or potential economic interest in the enterprise, disclosures are primarily if not entirely related to the economic performance of the enterprise reported by means of figures.

Shareholder values thus reflect that it is the owners (and to a certain degree also the creditors) of an enterprise that exclusively define the objectives of the enterprise within the limits of public regulations and that the ultimate objective is to secure the maximum value for shareholders.

2.2.2 The enlightened shareholder approach

The enlightened shareholder approach also recognises that the ultimate objective of an enterprise is to secure the maximum value for shareholders; however, the means to achieve this end differ. This approach emphasises that an exclusive focus on the short-term financial bottom line may result in a suboptimum result for shareholders since sound long-term investments and, hence, long-term gains will not be sought.

This approach emphasises long-term relationships with employees, subcontractors, customers and others who may affect the long-term objectives of the enterprise. Further, they will respond proactively to trends and developments in society and to public regulations.

Still, the shareholders decide on the objectives of the enterprise.

2.2.3 The stakeholder approach

A contradictory argument summarised as the stakeholder approach, is that the ultimate objective of maximising shareholder value will not achieve maximum prosperity and welfare for neither shareholders nor other stakeholders or society as a whole.

This approach overrides the notion of shareholders as the sole and ultimate stakeholder of an enterprise. Rather, other stakeholders such as employees, subcontractors and per-

haps even customers should provide equally relevant input into the formation of the enterprise's objectives and its management. It follows that companies cannot be identified through their shareholders alone. Instead, enterprises are identified as entities in society with their own ethos which management of the enterprise must comply with.

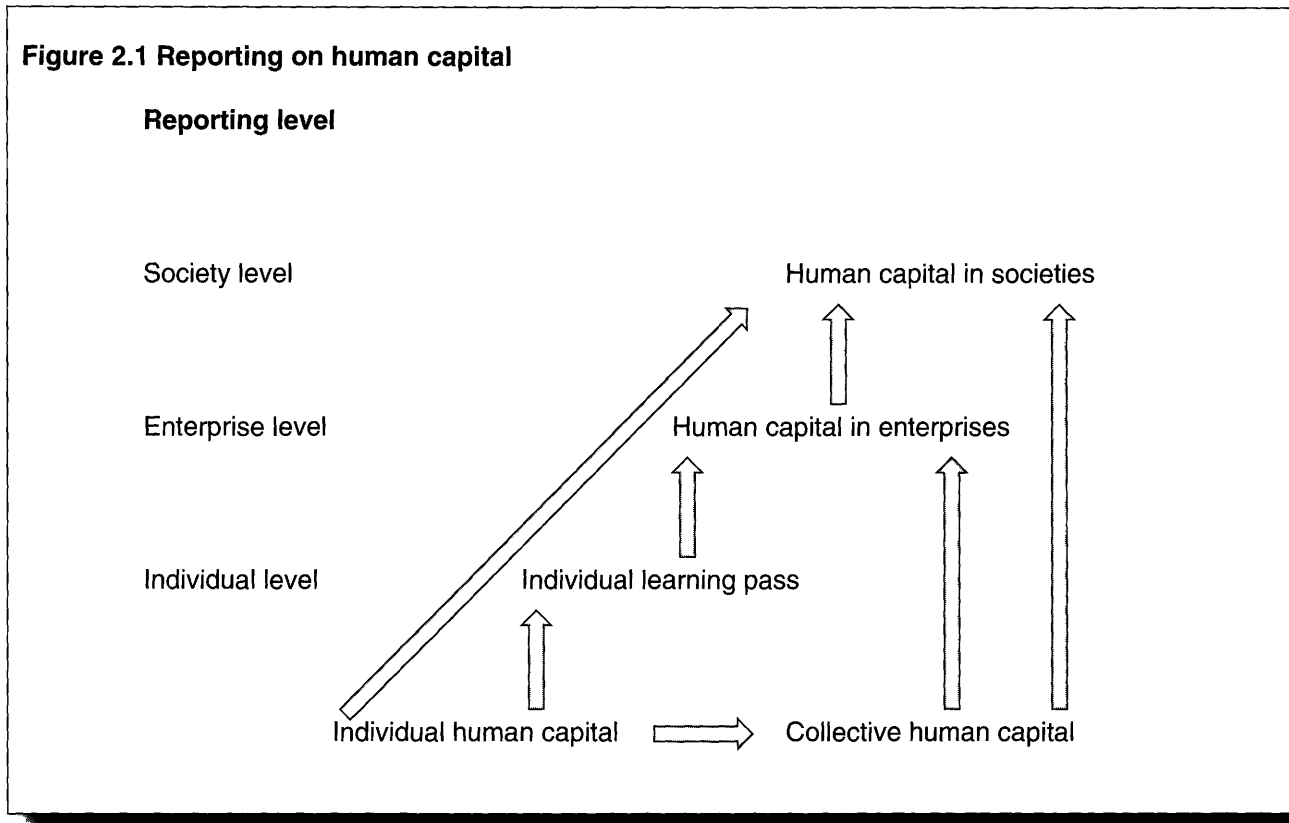
It follows from the three approaches that it depends on the management perspective of the company, the interests of the company as well as the best means to achieve these objectives, whether non-statutory reports and accounts will be developed and utilised.

Growth in non-compulsory reporting at enterprise level suggests, however, that the traditional shareholder approach is diminishing in importance, and that the enlightened shareholder and the stakeholder approaches are growing in importance. This is reflected in many analyses of enterprises' roles in societies as well as in enterprise and government initiated initiatives focusing on the roles of enterprises outside those of money generation and provider of workplaces.

2.3 Reporting on human capital

Reporting on human capital is one of the means used by enterprises to address the dual aims of maintaining traditional shareholder values and also complying with the interests of stakeholders. As indicated in Figure 2.1 below, reporting on human capital can take place at three levels.

However, following the different approaches to enterprises, as discussed in 2.2 above, reporting on human capital is gradually changing its focus. Newly developed approaches link reporting on human capital within broader issues, such as internal management or external information provision, rather than focusing on accounting frameworks. The shift can be illustrated by saying that reporting is now becoming the means rather than the objective. This also implies that the notion 'reporting' must be interpreted in its widest meaning, i.e. a systematised disclosure of information rather than being associated only with financial statements.



Clear cut demarcations between different approaches cannot be made, since most approaches tend to overlap. Nevertheless, even a primitive division of main approaches, as provided in Table 2.1, indicates the gradual shift of orientation.

This broad overview must be broken down to each level presented in Table 1.1 to understand recent developments better.

2.2.1 Reporting at individual level

Reporting on human capital does already take place at individual level, both formally and informally, by means of diplomas, certificates, written statements, curricula vitae, etc. Much work is currently taking place to provide even better reporting mechanisms for individuals' knowledge, for instance the European Union's promotion of the cross-national Europass for apprenticeships. Other initiatives include the identification, assessment and recognition of non-formal learning¹⁹.

Complementary to individual human capital is collective human capital, the latter reflecting knowledge obtained in groups of individuals, be it in organisations or outside, which accumulates in individuals and perhaps also in organisations. Some researchers and practitioners refer to intellectual capital as the total of human, organisational and customer capitals. They define intellectual capital as follows: 'human capital is the knowledge that each individual has and generates; organisational capital is that knowledge that has been captured/institutionalised within the structure, processes and culture of an organisation; and customer capital is the perception of value obtained by a customer from doing business with a supplier of goods and/or services.'²⁰

While organisational capital relates to the enterprise level alone, it does not encompass collective human capital formed outside the organisation. Inclusion of the organisation's culture is, however, interesting and may have connotations to other intangible assets, such

¹⁹ For the latter, see Bjørnåvold 1997.

²⁰ Edvinsson 1997.

Table 2.1: Main approaches to reporting on human capital

Approach	Calculating costs of personnel policies	Human capital accounting	Human accounting management	Strategic management
<i>Period of origin</i>	mid 1960s	early 1960s	late 1970s	early 1990s
<i>Characteristic</i>	Financial utility of personnel selection	Financial value of enterprises' human capital	Learning and dissemination of knowledge as internal management strategy	The combination of financial indicators, human capital, internal business processes, customer relations and innovation
<i>Methods applied</i>	Utility analysis	Human resource accounting Human resource costing and accounting	The learning organisation Knowledge management	The Balanced Scorecard
<i>Reporting framework</i>	Cost and benefit calculations	Financial statements	Non-financial statements (if any)	Generic performance measurements

NB: period of origin indicates when the approach was introduced. The methods mentioned may, therefore, be much younger.

Table 2.2: Stages for reporting on human capital at enterprise level

Stage	Characteristics	Period	Methods
Stage 1	Human capital within accounting frameworks	From early 1960s	Human resource accounting Some utility analyses
Stage 2	Human capital within internally oriented management frameworks	From late 1970s	Learning organisation Knowledge management
Stage 3	Human capital within globally oriented management frameworks	From early 1990s	The Balanced Scorecard
Stage 4	Human capital as audit systems	From early/mid 1990s	Investors in People Benchmarking measures

NB: Each of the stages still exists, although Stage 1 in its purest form is declining, while Stage 4 is only just becoming apparent.

as goodwill. Still, it is outside the notion of human capital.

2.2.2 Reporting at enterprise level

Reporting at enterprise level is, as already stated, gradually moving from accounting to

management principles and beyond. Four stages are thus observable, as indicated in Table 2.2.

Originally, the ambition was to put value on human capital within an accounting framework, i.e. to put a value on human capital and

include it as an asset in financial statements. While this element is still being debated among scholars, it is largely being deemed unrealistic, simply because the measurement problems seem unlikely to be overcome and, further, even if they were to be overcome, human capital does not generally qualify as an asset within accountancy standards²¹. Though some methods and approaches still consider this to be a viable path, the notion of enlarging financial statements with human capital assets is quickly fading away. The economic dimension still plays a dominant role, though.

The first stage is predominantly based on accounting principles, while the second stage is initiated from a management perspective focusing on the optimised use of human capital as a means to gain a competitive edge. The third stage operates with a global perspective, i.e. the enterprise and, consequently its human capital, interacting with the surrounding world. Human capital is a dominant element upon which strategies are formulated and implemented and forms a major input to the assessment of enterprises' total value.

The fourth stage combines basic information on investments in human capital with human capital strategies and evaluation of returns. At the current standing, this approach is fairly less ambitious than for instance the Balanced Scorecard and other, advanced management approaches identified at Stage 3. On the other hand, the more pragmatic approach seems to gain more momentum in that it can be a useful instrument internally and be used to benchmark enterprises within and across sectors as well as across countries. As such, it seems to be more applicable than other methods and, further, is more readily comparable to quality management systems and other alternative reporting mechanisms.

However, methods to be identified with the fourth stage leave out some of the black spots, which other methods have tried to respond to. Consequently, the fourth stage does not provide a solution to all relevant information

needs related to the growing dominance of intangible inputs to production. The fourth stage must therefore be considered to be a pragmatic but also an incomplete solution to the demand for improved information on human capital at enterprise level, seen from the perspective of researchers and policy-makers. However, growing utilisation of audit systems and participation in benchmark programmes by enterprises indicates that the methods have a practical usability, which overrides theoretical and methodological concerns.

2.2.3 Reporting at society level

Estimations on the stock of human capital at society level is primarily done by measuring educational attainment – the highest level of education completed – of members of the adult population. As mentioned under 1.1, this method tends to overlook other important inputs to human capital not visible through formal education, such as work experience, non-formal learning, etc. Another more reliable method is to test individuals for certain abilities. However, this is possible only as spot which is difficult to attribute at national level.

Most reporting on the stock of human capital at society level has been linked with the societal returns on investments in education, i.e. human capital is defined as education or an input factor²². Consequently, these surveys do not provide a measure on the totality of human capital stock in societies, they merely reflect the societal investment level in formal education.

As was the case at enterprise level, incomplete proxy indicators and benchmarking rather than output measures are utilised to estimate and report on the stock of human capital at society level. However, some have started to push forward the need for a more sophisticated human capital account at national level, such as the Federation of Danish Trade Unions²³. Further, the regional level is being introduced, among others by the World Bank.

²¹ See International Accounting Standards Committee 1998.

²² See Psacharopoulos 1994 and 1995.

²³ See Federation of Danish Trade Unions 1999.

2.3 Methodological considerations

From the previous sections it has become apparent that many weaknesses of reporting methods originate from lack of adequate measuring techniques. This relates primarily to identification of human capital and especially how to measure it.

2.3.1 Identification of human capital

Identification of human capital can be stratified into three elements: first, a consistent framework must be established which captures both the definition of the term itself and the levels and dimensions related to the term, e.g. as outlined in Table 1. Second, identification of the processes related to the acquisition, maintenance and development of knowledge at individual level must be established, since it is at individual level that knowledge is acquired, maintained and developed through learning, be it formal, informal or non-formal learning, and work experience²⁴. Third, one must differentiate between individual and collective human capital. Collective human capital encompasses work organisation and processes, information networks and other forms of intangible, non-visible knowledge embedded in a group of persons rather than in individuals. It can to some degree be defined as knowledge that remains in the organisation even if individuals are replaced²⁵.

Identification of human capital and the various forms it takes to acquire, maintain and develop it have undergone considerable research in recent years, notably within the in-

formal and non-formal segments of learning. Even though some theoretical and methodological difficulties are still present²⁶, it is justifiable to conclude with Hartog that '... the main problem is not so much how to define human capital as how to measure it'.²⁷

2.3.2 Measuring human capital

Identification of human capital does not in itself imply that it will be measured. Given the intangible nature of human capital and the difficulties in establishing reliable measuring techniques, crude proxy indicators such as market value over booked value²⁸ or costs of input over output activities at enterprise level have been used rather than actual measurements²⁹.

Essentially, two different methods can be identified, one used to measure the stock of human capital and one used to measure the costs related to acquire, maintain and develop the stock of capital.

Non-economic measurement methods can be linked either to formal or to real human capital. Formal human capital will be measured through proxy indicators, such as educational attainment, years of schooling and/or other indicators such as job positions, number of years in job positions, etc. This is primarily related to individual and society levels. Real human capital can be measured directly at individual level by means of interviews, tests and/or examinations.

Economic measurement methods are related to the costs and benefits of acquiring, main-

²⁴ See Bjørnåvold and Sellin 1998, Bjørnåvold 1997.

²⁵ Scandia, a Swedish insurance company, has been one of the pioneers within organisational intellectual and structural capitals. For further details, see Edvinsson and Malone (1997). It must be noted that collective and organisational human/intellectual capitals do not merge totally, although for simplicity it is presented as such in this paper.

²⁶ See also Bjørnåvold 1997, European Commission 1997, Bjørnåvold and Sellin 1998, Frederiksen and Westphalen 1998. It should be noted that the focus on informal and non-formal learning should

not be overemphasised given that the dominant feature on the labour market and related to competitiveness at individual, enterprise and society levels is still the level of skills identified through formal learning. Formal learning is thus also likely in the future to be the guiding determinant for competitiveness and job creation as illustrated by Pfeiffer (1997).

²⁷ See Hartog 1999.

²⁸ See Ernst & Young and OECD 1997.

²⁹ Refer also to Chapter 1 of this paper.

Table 3.1: The stakeholders at different levels

Level	Main stakeholders	Other stakeholders
Society	International state organisations Governments	International organisations
		Local governments
Enterprise	Trade unions Investors	The 'political consumer' Employers' associations
	Enterprises	
Individual	Employees	Subcontractors Potential employees Dependants

taining and developing human capital. This is related to all three levels, individual, organisation and society. This includes direct and indirect education and training and alternative costs as well as returns on any given investment, be it time and/or money. Further, it also includes returns on existing stock of human capital and depreciation of it.

The inability to establish reliable and verifiable measurement systems is the biggest challenge for reporting on human capital. However, despite the shortcomings so far in establishing a coherent measurement methodology, less technical hindrances also add to the reasons why such methods are not better developed, at least when it comes to measuring returns on any given investment in training:

- ❑ the cost-effectiveness of the training may be so obvious that formal evaluation is unnecessary;
- ❑ it may be impossible or prohibitively expensive to obtain the data necessary for a formal evaluation of training³⁰.

Identification of the stock of human capital may therefore to some degree be sufficient to identify future needs and demands, be it at individual, organisation or society levels. However, this leaves the economic dimension unexposed, and without measuring the economic consequences, over- and under-invest-

ment in human capital is less easy to detect as is choosing between alternative strategies related to human capital and, not least, the distribution of costs between different stakeholders.

3. Political considerations and the stakeholders

There are ultimately two paths for introducing reporting on enterprises' human capital on a large scale; public regulation or market forces. If both fail, i.e. if there is not sufficient political support or not enough market incentives, reporting on human capital will remain a technical exercise at macro-economic level and a description of knowledge, competences and skills at individual level.

In this process, the interests and dedication of the main stakeholders become vital.

3.1 The stakeholders

A stakeholder is defined as an individual, private organisation or public body having a direct interest in or being able to influence the widespread use of human capital reports. Table 3.1 provides an overview of stakeholders at various levels³¹.

³¹ See Frederiksen and Westphalen 1998 for an in-depth stakeholder analysis. Table 3.1 is partly copied from this report, p. 24.

³⁰ See Dougherty 1992, p. 551-552.

3.1.1 International state organisations

International state organisations are generally very active within the area of human capital. But even though the OECD has promoted investments in and to a certain degree reporting on human capital, it has so far abstained from clear recommendations and has not provided specific frameworks. The European Commission favours treating capital investment and investment in training on an equal basis. In this respect, the European Commission proposes that support structures be established at European level for the measurement of investment in education and training and promotion of investment in human resources³². However, the European Commission too, has abstained from specifically influencing development, i.e. they have not provided or supported specific frameworks³³.

3.1.2 Governments

Governments' interests can be summarised as a concern for efficiency of educational provision, cost sharing on further development of society's stock of human capital and internal optimisation of its own stock of human capital. Consequently, they have a self-interest as well as a societal concern for establishing reporting mechanisms on human capital. Governments may, therefore, be a driving force for popularising human capital reports or, ultimately, installing regulation for compulsory reporting at enterprise level. The Danish government has summarised as follows: 'We have to contribute to creating a basis for companies', consultants' and investors' use of intellectual capital accounts in Denmark by actively participating in international development of guidelines³⁴. Until now, however, it is primarily Scandinavian governments and the Netherlands, which have supported pilot studies on how

to report on human capital, both in private enterprises and public organisations³⁵.

3.1.3 Trade unions

Generally, trade unions are not deeply involved in reporting on human capital. Still, concerns on the approach to human relations at enterprise level have been raised. For instance, ILO has, in the context of the crisis of trade unions globally, stated that 'The inherent risk is one of focusing attention on a purely economic – even econometric – approach to human relations' (ILO 1997, p. 222).

Exceptions to this observation are, again, to be found in Scandinavian countries where trade unions have developed policies on reporting on human capital as well as participated in the development of framework models and the testing of them. LO, the Danish Confederation of Trade Unions, has been involved because: 'LO has certain reservations about tying employee development too closely to technical principles of accounting; and for that very reason, one of the critical points in the knowledge account will be whether we can manage to include the right things.³⁶ Further, LO sees reporting on human capital as a means not only to fulfil economic requirements but also to meet social and ethical objectives and, furthermore, see it in connection with lifelong learning and the learning organisation, i.e. as a means to improve the workplace.

To secure maximum influence for its members, LO has developed a participatory strategy, i.e. it has developed information and training material so that members can influence the development of a HCA system. Still, it is important to note that this approach is based on the common interests of both enter-

³² See European Commission, 1995, p. 70-72.

³³ See OECD 1996, Ernst & Young and OECD 1997, OECD 1998, European Commission 1995.

³⁴ Danish Ministry of Business and Industry, 1999, p. 3.

³⁵ See for instance www.efs.dk (English version exists on the site) for information on the Danish government's project. See also Dutch Ministry of Economic Affairs 1999.

³⁶ See foreword to LO, 1998. Knowledge account is the name of a human resource accounting system developed by Jan Mouritsen, Professor, for the Agency for the Promotion of Trade and Industry under the Danish Ministry of Commerce.

prise and employees. The cornerstone of this strategy is that employees be directly involved in and exert influence on enterprises' training and development programmes through informed discussions of the outcome of such programmes. The outcome is divided into work efficiency, creativity, staff turnover and absenteeism, which reflect both the enterprises' need for profitability and the employees' interest in a good working environment.

3.1.4 Investors

The *investors'* perspective has been the focal point for most of the work initiated by the OECD in this area. The reason has been the focus on measuring the real value of enterprises given that financial statements do not fully capture the intangible assets in enterprises, notably the knowledge of employees in high-tech sectors. However, until now investors have shown relatively little interest in such information.

The empirical findings in the Danish project further underline that enterprises do not have investors in mind as the primary target for producing human capital reports (see Chapter 3.1.5 below).

3.1.5 Enterprises

Reasons for *enterprises* to start reporting on human capital generally come from a belief in management that it will improve performance. Still, external pressures exerted by investors, trade unions or governments, or internal pressures exerted by trade unions or individuals may also influence the decision. Nevertheless, the decision to start reporting on human capital is taken by management of the enterprise and ambitions differ accordingly. Skandia, for instance, a Swedish international insurance company, considers new indicators and collects new data for their human capital reports, while the Danish Environmental Protection Agency bases their human capital report on existing human resource data³⁷.

³⁷ See Frederiksen and Westphalen 1998, the case studies.

Most commonly, enterprises introduce reports on human capital to obtain:

- an external information system to attract investors;
- an internal information system on human resource issues;
- a cost-benefit analysis of investments in human resources;
- improvement in human resource management.

However, many pilot projects indicate that other objectives besides the officially stated ones play an increasingly decisive role. These include³⁸:

- maintain or improve enterprise image in society;
- indicate social responsibility and ethical values to the outside world;
- improve marketing to present and potential customers;
- benchmark human resource management and development;
- attract qualified labour force;
- retain qualified labour force.

A Danish project initiated by the Ministry of Business supports the theory that enterprises give a high ranking to human resource development in HCA. Of the 10 Danish and Swedish enterprises included in the project, nine list human resource development as the main objective in having an HCA. Only three enterprises include customers and only one enterprise lists investors and external reporting, respectively, in their objectives for HCA³⁹.

³⁸ See Frederiksen and Westphalen 1998, p.30.

³⁹ See The Danish Trade and Industry Development Council, 1997, p. 25-27.

However, when enterprises estimate the effects of their HRA, investors' and external stakeholders play a role almost equal to human resource development, productivity effects and creation of an enterprise spirit. This indicates that a non-stated objective behind much HCA is actually to acquire information directed towards investors and external stakeholders.

A more recent study provides more detailed information on the reasons behind enterprises producing human capital reports. Results of the study are presented in Chapter 4.2, Table 4.3.

Finally, it must be emphasised that use of HCA is already widespread in some countries. In a survey of human resource managers in companies with more than 200 employees located in Stockholm, Sweden, 70% of the respondents said they were applying HCA in some way. Most organisations had started at the beginning of the 1990s. An investigation conducted by the Swedish Association of Local Authorities found that 22% of the 276 respondents had decided to use HCA. Only from 5% to 15% of the personnel, accounting and financial managers asserted they were not interested in HCA⁴⁰.

3.1.6 Employees

Employees are listed as main stakeholders since they are the core element in any reporting mechanism being introduced and, further, reporting on human capital can be viewed as an instrument 'to create a new contract between company and employee. The individual takes responsibility for his or her own training. We are trying to create key figures for the new contract. The employee undertakes to seek knowledge and education, while the company undertakes to make the employee suitable for employment... This can lead to an "every man for himself" attitude'.⁴¹ On the other hand, as

⁴⁰ See Gröjer and Johanson, 1996. N.B. Johansson refers to the use of HRCA, which is one specific form of HRA.

⁴¹ Jan Mouritsen, Professor, Department of Informatics and Financial Management at *Handelshøjskolen København*, from LO, 1998.

expressed by a shop steward in an enterprise developing human capital accounts: 'There is nothing wrong with being measured and weighed, as long as it is done fairly.'⁴²

Still, employees generally are not particularly interested until after it has been introduced by management.

In summing up; generally, stakeholders do not formulate policies or strategies concerning reporting on enterprises' human capital. Exceptions come from relatively few, isolated pilot projects at enterprise level formulated by dedicated management and, notably, from Scandinavian countries where both social partners and governments are actively involved. However, not even these countries or otherwise active international organisations have formulated clear policies and most work/support is still dedicated to testing and/or theorising rather than decision-making or active promotion of reporting frameworks.

3.2 Market forces or public regulation

Despite interest in reporting on enterprises' human capital, a clear strategy for popularising reporting on a large scale has not yet emerged. The core elements for a wider dissemination are thus related to relevance, applicability and promotion.

The *relevance* is not generally disputed by insiders. Most researchers, policy-makers and practitioners see the importance of reporting on human capital as a means to improve overall performance of enterprises. But, as indicated above, relevance has many faces following stakeholders' different objectives. Consequently, it remains questionable whether all objectives, insofar as they are being formulated by a small group of experts, dedicated practitioners or in general political statements, can be captured in one framework.

It follows that if the importance of reporting on enterprises' human capital is only captured by insiders and their judgement is correct,

⁴² Danish Ministry of Business and Industry, 1998, p. 12.

Table 3.3: Methods to promote reporting on human capital

Method	Explanation	Examples
The unstructured voluntary market-based method	Isolated pilot studies are initiated by individual enterprises or consultancy companies/ researchers develop and promote approaches and methods	Knowledge accounts Social reports Human resource audit Holistic balance sheet Intellectual capital statements
The systematised voluntary rewarding market-based method	Develop a consistent framework operational across sectors and countries and promote large scale through inherent rewards and image gains	ISO 9000 standards Benchmark programmes
The voluntary rewarding method initiated by public authorities	Develop a consistent framework supported by rewarding mechanisms once introduced and approved at enterprise level	Investors in People, UK European label for innovative projects in language learning, EU
The compulsory method	Identify disclosure on human capital as a public concern and prepare (inter)national regulations and standards	Green accounts, Denmark

NB: Since there is a lack of examples directly related to human capital, examples related to alternative reporting and quality standards are used.

then other factors limit the process from proceeding beyond the testing phase.

This leads to the *applicability* of reporting frameworks; i.e. whether applicable reporting tools can be established and, if so, what information to disclose; financial or non-financial indicators or both? It can be argued that even if human capital is a powerful analytical notion, only little progress has been made in terms of its practical utility⁴³. Many pilot studies have failed when it comes to wider dissemination, either because the framework was too limited in scope, deemed unreliable for external use or because they lacked value added compared to other reporting tools.

Inevitably, wider dissemination depends on the establishment of a reporting framework, deemed both relevant, relatively easy to apply at enterprise level and subject to external audit. Further, reporting must be promoted and become available as well as attractive to a wider range of enterprises than have hitherto shown interest.

⁴³ See Schuller, 1997.

Four ways can be identified for promoting such a reporting framework, as outlined in Table 3.3.

The unstructured, voluntary market-based method has prevailed until now. This could be seen as an experimental phase where different methods and approaches are being tested. However, after almost 10 years of testing, the position is still not clear. Continuation of pilot tests indicates that either no reliable method has emerged, no consensus can be reached or that stakeholders are reluctant to commit themselves to a given standard.

Some would argue that this is also an indication that reporting on human capital will remain an internal management procedure or be part of an enterprise's external promotion catalogue with little general interest nor support. However, the Investors in People award programme, discussed in detail in Chapter 4, as well as the growing use of benchmark programmes suggest there is widespread interest in reporting on human capital when the framework for doing so is within practical reach at enterprise level.

Signals of market preferences for specific methods are thus emerging and a market standard within human capital reporting may be on its way. In contrast, there is little sign of public authorities at national or international levels, willing to commit themselves to promotion activities regarding voluntary rewarding mechanisms as is the case within other spheres of enterprise issues. It is surprising that since the European year of lifelong learning in 1996, despite governments and international organisations advocating strongly for increased investment in human capital, none – with the notable exception of the United Kingdom – have provided an awarding mechanism for reporting on such investments. The European Union, in particular, having introduced awarding mechanisms or supporting such mechanisms within environmental friendly production, quality promotion and, most recently, a European label for innovative projects in language learning, should feel an obligation to introduce such a scheme within reporting on human capital. Especially since it would supplement policies on lifelong learning which the European Union reintroduced in 1996.

Consequently, it seems unlikely that public authorities are going to issue any form of regulation in the near future. Therefore, if a standardised framework for reporting on human capital is to emerge on a similar scale as ISO standards or TQM within quality management, it must be market initiated⁴⁴.

4. Current reporting frameworks

The development of an advanced framework, which can capture the full range of human capital and report within reliable reporting mechanisms and be subject to standard auditing control systems, seems not to be a realistic option at the moment. Instead, current reporting frameworks concentrate on ele-

ments of the stock of human capital in enterprises, be it depreciation, formation or utilisation of human capital. Some, if not the majority, would not, however, classify themselves as human capital reporting tools. Rather, they are identified as management tools, cost and benefit analyses or quality training standards. This indicates that at enterprise level, reporting on human capital has to be related to practice, i.e. its usability should be clear for management. The best way of securing this is either through financial indicators, i.e. showing the relation between a given procedure and the costs and benefits or through improved management, i.e. showing that the policies introduced clearly improve overall performance.

There follows a description of approaches aiming at providing frameworks for developing some sort of human capital reports. The examples presented will only include approaches, which have already gained certain popularity or are likely to become widespread relatively quickly. Consequently, some examples are very limited in scope and may not rightfully qualify as a human capital account instrument, such as the Investors in People programme. They are included, none the less, because they do provide us with tools, indispensable in human capital accounts and because they highlight that financial indicators and overall performance are not necessarily the only reasons for undertaking investment in human resources.

4.1 Intellectual capital accounts, Denmark

The Danish Ministry of Business and Industry is testing a framework model for human capital accounts. The project started in 1997 and should be finalised in 2000 with a fully developed human capital account. Due to the time framework, there is a lack of details on specific guidelines to be developed from individual experiences. It is therefore not possible to present a human capital account framework, as such, but merely to present some mid-term experiences.

According to the Danish minister at the time, Mr Jan Trøjborg, the project should 'give an

⁴⁴ In 1991, the Swedish government proposed a legal obligation for organisations with more than 100 employees to provide an account of personnel costs in the annual report but withdrew it again.

Table 4.3: Firms own indication of motives for developing an HC report

The firm will use HC accounts to	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Retain employees	0.00	4.35	8.70	52.17	34.78
Attract new employees	0.00	8.70	8.70	17.39	65.22
Secure adequate training	0.00	0.00	8.70	43.48	47.83
Have a career planning tool	0.00	8.70	34.78	39.13	17.39
Secure updating of knowledge	0.00	4.35	21.74	17.39	56.52
Show that knowledge is the most important asset	0.00	0.00	4.35	30.43	65.22
Improve cooperation with suppliers	21.74	13.04	30.43	21.74	13.04
Attract and retain customers	4.35	8.70	13.04	8.70	65.22
Create innovation within the company	0.00	4.35	17.39	21.74	56.52
Show externally that the company is innovative	0.00	4.35	8.70	26.09	60.87
Show that human resources are the most important assets	0.00	4.35	0.00	21.74	73.91
Attract investors	21.74	17.39	30.43	17.39	13.04
Create opportunities for loans	43.48	26.09	17.39	4.35	8.70
Support strategies	0.00	0.00	8.70	26.09	65.22

NB: the survey is based on interviews with managers in 23 companies participating in the Danish project.
Source: Bukh, Larsen and Mouritsen 1999.

overview of the factors that create development within the company: the people working for it, their qualifications and the way in which they carry out their work... If things are not in order and are not consistent with the market or the strategy the company is following, this will become apparent in the intellectual accounts'.⁴⁵

The Danish ministry stresses the need for a broad interpretation of knowledge and provides some examples of figures which could be included in an intellectual capital account⁴⁶:

- costs of training,
- IT skills,
- the seniority value of each employee,
- running-in time for new organisational units,

- employee satisfaction,
- costs per process,
- customer satisfaction.

In 1999, the first report on the mid-term experiences of the project was published⁴⁷. Each participating enterprise is developing a highly individualised human capital account and, consequently, experiences are individualised. Generalisation and guidelines will be developed by the end of 2000. Consequently, the experiences gained are not systematised other than the following rough indications of the enterprises' approaches⁴⁸:

- some companies work with databases of employee competences;
- others work with systems for formalisation and sharing the company's experience re-

⁴⁵ Danish Ministry of Business and Industry, 1998, p. 3.

⁴⁶ See Danish Ministry of Business and Industry, 1998, p. 4.

⁴⁷ See Danish Ministry of Business and Industry, 1999. See also www.efs.dk.

⁴⁸ See Danish Ministry of Business and Industry, 1999, p. 4.

garding products, customers, technology and processes relating to knowledge of the different company and innovation processes, intellectual property rights, etc.;

- ❑ many companies have introduced employee and customer satisfaction analyses and thus view knowledge as more 'implicit' relations between persons;
- ❑ some companies focus on the description of organisational procedures regarding information technology, casework and other factors. Companies view knowledge as the mechanisms binding people, technologies and processes together.

A survey tried, however, to research the reasons why companies get involved in developing human capital accounts.

Based on this relatively small sample, it is clear that presentation of the company as a knowledge intensive enterprise to attract employees and customers and as support for overall business strategies are of overall importance. In contrast, that human capital reports are conceived for or aimed at investors and suppliers is of relatively little importance. This clearly indicates that human capital reports are used as much as external reporting tools as they are for internal management purposes.

The Danish government's interest in intellectual capital accounts must be seen in the macro perspective of maintaining the competitiveness of Danish enterprises. Further, they also see the testing of a framework for intellectual capital accounts as a means of establishing a common intellectual capital account internationally, thus expressing the role of governments to provide regulation.

4.2 The Finnish model

The Finnish Ministry of Finance established a project on human resource accounting in 1995 aimed at the public sector but attributable to private enterprises as well. Based on a working paper developed by the Finnish government together with its social partners, an HRA system with the following main categories was tested in the public sector⁴⁹:

a) current personnel resources:

- ❑ amount and structure,
- ❑ use of the working time,
- ❑ labour costs,
- ❑ travel expenses;

b) future need for personnel resources:

- ❑ demand and supply of the personnel;

c) development and support of HR:

Motivation and ability to work:

- ❑ work satisfaction,
- ❑ competence,
- ❑ absence due to illness,
- ❑ absence due to occupational accidents,
- ❑ personnel turnover;

Personnel investments:

- ❑ development and support of work satisfaction and work ability,
- ❑ training and educational activities,
- ❑ occupational health services,
- ❑ replacement costs of the personnel;

d) HR output and productivity:

- ❑ financial indicators,
- ❑ customer satisfaction,
- ❑ job requirements, performance, merit pay;

e) financial HCA information:

Cost and income calculation:

- ❑ balance sheet calculation,

The data gathered provides information on⁵⁰:

- ❑ how cost-effectively human resources are managed, so that the organisation benefits from its human capital as much as possible;
- ❑ how the organisation has taken care of its personnel, so that they have both quanti-

⁴⁹ See Rouhesmaa and Bjurström, 1996, Chapter 4.

⁵⁰ See Rouhesmaa and Bjurström, 1996, Chapter 4.

tatively and qualitatively adequate human resources;

- how the quality of work and working conditions, personnel resources, efficiency and personnel wellbeing has been handled.

According to a survey in 1998, HRA is implemented by 28% of respondents in the public sector⁵¹. However, the Finnish model seems closer to the French social accounts than to the Danish project on human capital accounts and the trend seems to be more and more towards broader intellectual capital accounting. Both private and public organisations are searching for alternatives to HRA and purely financial metrics and indicators⁵². Still, the HCA forms a solid background on statistical indicators for further development of the tool, be it for individual human capital reporting or supporting generic management tools.

4.3 Social accounts in France

Since 1977, enterprises have been required by law to provide social accounts in France (more than 300 employees from 1982). The social accounts are entirely for internal reasons and primarily aimed at providing information for the benefit of the employees' bargaining position towards management.

Social accounts provide a richness of detailed information on employees, education and training, etc. The number of indicators is counted in hundreds following specific descriptions and definitions. It is by far the most detailed compulsory reporting mechanism on employees that enterprises have to develop. This indicates the administrative and organisational burden on enterprises and, consequently, the problems in viewing social accounts as useful for management purposes.

Even if social accounts are not perceived as a human capital reporting method they are closely related. Presently, discussions are going on in France to improve the social ac-

counts so they can be used for management purposes⁵³. If successful, experiences from the social accounts will provide valuable information on definitions, gathering techniques, etc.

4.4 Investors in People, the United Kingdom

Investors in People (IiP) is a standard on training investments developed in the United Kingdom which has been in operation since 1991. In early 1999, more than 33,000 organisations (which include enterprises, schools, public and private organisations, etc.) covering 33% of the total workforce in UK were committed to the standard (according to statistics from DfEE). The standard has been introduced in other countries, albeit until now unsuccessfully.

The standard is a relatively simple training needs analysis within a larger framework oriented towards implementing structured training methods. The standard includes four principles (and 24 indicators) within an action line, as described in Figure 4.1 below. The standard is based on a common framework but with a high degree of flexibility within each indicator. Further, some indicators are policy- rather than process-oriented, such as management commitment. Of the four principles, one is solely devoted to commitment of management and awareness of employees.

The relatively broad framework does imply that each IiP plan is highly individualised according to the need and wishes of the individual organisation. From a standardisation point of view this is a weakness but from a usability point of view, i.e. the organisation itself, it is a strength which optimises use of the framework.

Once an organisation has been rewarded the investors award, it has to be renewed on a yearly basis. From year to year between 85 and 95% of awarded organisations want to maintain the award. The reasons are listed in Table 4.1 below based on a survey from 1995.

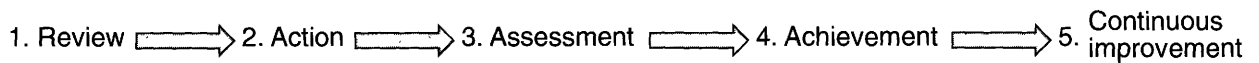
⁵¹ See Eronen and Ahonen 1999, p. 7.

⁵² See Eronen and Ahonen 1999, p. 3.

⁵³ See Fruleux 1999.

Figure 4.1 IiP principles and model

IiP's four principles: commitment, planning, action and evaluation.



It is clear from Table 4.1 that organisations generally value the award albeit most of the reasons only indirectly relate to overall performance. This highlights the perspectives for new enterprise statements as well as the irrelevance for having such information tied into traditional financial statements; reporting on human capital via the IiP focus on training and training processes is simply operating on a different level. This is underlined by the anticipated benefits realised from organisations involved in IiP, as described in Table 4.2 below.

Again, the benefits are highly visible but it is meaningless to try to present this within the framework of a traditional financial statement. The problem is whether it can be reliably reported annually at organisational level with a satisfactory degree of comparability. And whether this is relevant as long as the relevance of using the IiP is obvious for the organisation itself!

4.5 ISO quality management – Guidelines for training; ISO/DIS 10015

The ISO standard on training was planned to come into force late in 1999 and forms part of the standards on quality assurance and quality management. The standard as such is not markedly different from other methods within the area of training needs' analyses but has the advantage of being an international standard. More importantly, it gradually builds up a database of the competences of employees in the enterprise having chosen the ISO standard which – eventually – can be easily adopted as a means to report on human capital.

Consequently, the interesting aspect of the ISO model, presented in Figure 4.2 below, is

Table 4.1 Reasons for maintaining the investors award

	%
Good for image of organisation	38.9
Better management of training	27.9
Improved training processes	26.3
Improve employee moral, motivation, commitment, etc.	20.3
Business benefits	15.5
Other	18.9

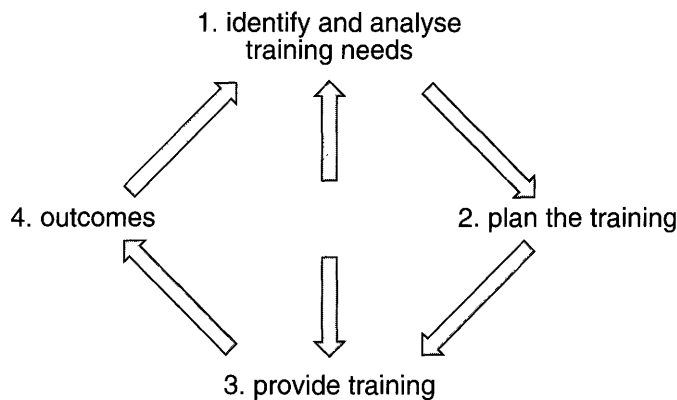
NB: multiple responses allowed.
Source: Hillage and Moralee 1996.

Table 4.2: Anticipated benefits realised from organisations involved in IiP

	%
Improved staff motivation and morale	68.7
Improved workplace relationships	67.8
Improved skills and quality of workforce	65.3
Increased quality of goods and services	65.1
Improved image	62.5
Improved customer satisfaction	56.5
Improved financial performance	43.1

NB: multiple responses allowed.
Source: Hillage and Moralee 1996.

Figure 4.2 ISO's training cycle



not the model as such but the perspectives for enterprises over time while using the standard. The standard will gradually build up a comprehensive database in each enterprise; a database which will provide a detailed overview of the competences and qualifications of the workforce, i.e. the enterprise's human capital.

It is the requirement to identify systematically the competences needed compared to the existing competence of its personnel. The ISO standard will provide a tool for standardising the information and, hence, the opportunity to store the information for future uses. It is specified that: 'the organisation should identify the competence needed for each task that affects the quality of products, assess the competence of the employees to perform the task, and develop plans to close any gaps'.⁵⁴ This provides the ultimate tool for mapping the present stock of human capital at enterprise level and constantly upgrade this information. Further, if used properly the standard will also provide information on the flow of human capital, both actual stocks and required stock, over time!

From this perspective, the ISO standard has the potential of paving the way for reporting on human capital.

4.6 The current standing on human capital reporting frameworks

Human capital reports have been developed over the past 10 to 15 years. If human resource accounting and social reports count as human capital reports, reports have existed for the past 30 to 35 years. Still, reports combining measuring and managing human capital for both external and internal reasons are a recent phenomenon.

Even more recent are attempts to systematise the development of standardised human capital report frameworks. Currently, such attempts exist in Denmark, the Netherlands and in the international Meritum project under the European Union's TSER programme. In the latter participate Denmark, Finland, Norway, Sweden, Spain and France thus underlining that structured impulses are coming from the Scandinavian countries in particular. To this must be added numerous methods developed by consultant companies most of which, however, seem to be biased towards internal management objectives. This renders them incomplete if judged from the experiences of the Danish project and from the stakeholder analysis in Chapter 3. This is why the Dutch experiment has not been described in greater detail, because they formed a project by inviting four consultant companies to develop a human capital framework, which, in its initial stages seems to suffer from traditional consultancy weaknesses. Finally, the individual enterprise approaches

⁵⁴ ISO 1998: Draft international standard ISO/DIS 10015, p. 7.

suffer from their very individual styles and lack of generalisation.

Consequently, the examples present the current state of the art outside individual attempts and consultant companies' methods. This may not look promising for the future of human capital reporting!

5. Research findings: from theoretical intentions to applicable methods

The first question is whether standard reporting tools can be developed? On the one hand, they do already exist but at such a low abstraction level that they only barely qualify as being a human capital reporting tool. On the other hand, the very problem is whether standards in an area where the process is deemed as important as the end result, i.e. the report, can be developed and made operational.

One way of solving the dilemma is establishing a minimum set of standard indicators, which will satisfy the need for reliability and comparability while still leaving room for manoeuvre taking individual requirements and perspectives into account. This is the approach guiding the Danish project although the framework as such is not yet developed.

The next question is whether reporting on human capital should be compulsory or voluntarily. This question is not yet answered definitively but it seems that public authorities are reluctant to force a reporting method on enterprises. Further, the French experience does not seem to support the idea of regulation. Having said that, it must be underlined that the intention behind the French' social accounts was to provide employees with a tool to strengthen their bargaining power against management. This approach will naturally hamper any perception of this being a tool for mutual benefit. Therefore, the French example is not of much relevance today and seems more to be an anachronism from an earlier era than being related to modern management and reporting ideas.

The final question is who is to ensure that human capital reports become widely used? Governments trying to steer development by incentives rather than by laws may pursue establishing one or the other variation of human capital reporting as a policy programme. It indicates that governments do commit themselves by supporting a specific framework but leave it to market forces supported by incentives to make it become widespread. This may be a very successful approach as in the UK case of Investors in People and is likely to be the approach adopted by the Danish government once their pilot project is finalised in 2000 and can be implemented.

But government regulation or steering is not the only way for reporting on human capital to become widespread as market forces may create their own momentum. This has been the case with quality and environmental standards, etc. Presently, different forms of human capital reporting, together with intellectual capital management, social accounts, ethical accounts, etc., are becoming inevitable elements in consultant companies toolboxes⁵⁵. This may be a first indication of things being set in motion. However, it is still not clear in which direction.

The ISO 10015 on quality management of training, as well as the Investors in People programme, are examples of a minimalist approach to human capital reporting although training and related areas constitute a major element within reporting on human capital. Business Excellence, the Balanced Scorecard and other generic management approaches are at first sight all embracing. However, a closer look reveals that they are limited in three perspectives: first, they seem to operate on a high abstraction level. They do not provide tools or indicators, which can transform them into an operational tool at enterprise level. Notwithstanding their usefulness at a strategic level they remain theoretical tools. Second, and as a consequence of the first, these tools are of relatively little use in the day-to-day running of an organisation

⁵⁵ See for instance KPMG, Ernst & Young, Arthur Andersen, ICM, etc. Accountancy organisations are also exploring opportunities.

unless they are transformed into specific tools. This requires for instance a human capital reporting mechanism. Third, the need for providing reliable and valid information externally can never be fulfilled by these tools since they remain management tools.

Consequently, between the minimalist and generic approach specific tools are necessary, which can address the specific needs at enterprise level for gathering information as well as providing the framework for external reporting. This is the reason why experimentation is ongoing. Further, different stakeholders will have different orientation points and, hence, focus on different aspects. An inherent risk, unless governments are involved, may be that only incomplete reporting tools with fragmented or highly individualised frameworks will be developed. Frameworks that will not satisfy the full range of needs and demands, as expressed by a full range of stakeholders, will fail to become more than a short-lived fad.

6. Conclusion; recent trends and likely future of reporting on human capital

Human capital is about measuring and reporting fixed values and processes related to gathering, developing and disseminating knowledge. From this very broad framework, a new approach which combines reporting on and management of enterprises' human capital is emerging. The methods being developed focus either on specific elements or on the totality of elements constituting human capital and the utilisation of it.

With the increasing dominance of intangible assets, first and foremost knowledge in production, reporting on human capital seems to be a method on which future estimates on enterprise performance as well as future strategies can more efficiently be made. This is the advantage over other reporting methods, notably financial statements, and is the constituent factor in most strategic management tools developed in recent years. The benefits of human capital reports in this connection are that

they include specific measurement elements on which most management theories fall short.

Potentially, human capital reports are therefore a complex form of measuring, reporting and acting at the same time⁵⁶ which may overcome the barriers between static measuring and active managing. However, there are substantial problems to overcome before the potential will be realised.

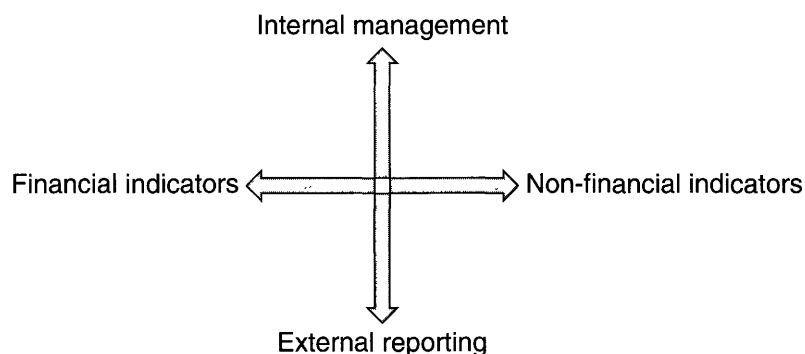
6.1 Society level

Reporting on human capital is still surrounded by a high degree of indecisiveness regarding its direction, as indicated in Figure 6.1 below. Although human capital is becoming part of mainstream macroeconomics and statistics, it still falls short of being used in a coherent manner. Rather, human capital is replacing the black holes in macroeconomic theory, which used to be covered under the notion of externalities or residual factors and, further, within macrostatistics, human capital has become synonymous with education alone.

This is primarily due to methodological problems deriving from the intangible nature of human capital indicating that direct measurement seems unlikely to appear in the near future. Instead, proxy indicators linked to factors feeding into the creation of human capital will prevail, and proxy measures related to output will remain on the level of comparisons. This may be in the form of benchmarking or through statistical observations of the correlation between input investments in human capital and output performance of economies, be it at micro or macro level.

It must not be neglected, however, that proxy indicators may be satisfactory for a number of purposes, although they may not provide a complete description. Indeed, the balance between full knowledge and operational measures does inevitably lead to imperfect information provision but also leads to constant improvements and refinements if only the scope changes. The very notion of reporting

⁵⁶ See Larsen, Bukh and Mouritsen 1999.

Figure 6.1 The crossroad for reporting on human capital

on human capital can thus be seen as a shift in orientation among economists, statisticians and other research areas on the one hand and policy-makers and other stakeholders on the other. The notion of human capital has resulted in inclusion of the enterprise level as a focal point for measuring investments in and returns on human capital formation in enterprises, which was relatively neglected by researchers and policy-makers for a long time.

6.2 Enterprise level

Enterprises are gradually showing more interest in reporting on human capital. There are a number of reasons for this development. The shift of responsibilities between the private and public spheres have made enterprises increasingly willing or under pressure to take on social responsibilities. Further, the emergence of the political consumer will force enterprises to respond to market pressures beyond the actual product being produced (e.g. working conditions, environmental protection and production methods). This has already led to pressure for reporting on human capital in some cases, e.g. as a minimum to document that child labour is not being exploited. Furthermore, in the light of a rapidly ageing population, which will make the labour force with the right qualifications scarce, enterprises are trying to find new means to attract and retain labour. Finally, the decentralised and individualised bargaining pattern will contribute to the mobility of the – well-quali-

fied – labour force, thus intensifying the need for policies to retain the workforce.

Within the area of internal reporting and management tools at enterprise level, certain developments utilising human capital as defined in this paper have arisen. Although still primarily occupied with the input side, some programmes like Investors in People in the UK and various benchmarking programmes, do evaluate the return side based on a standardised framework.

Ambitious human capital report frameworks like the Danish project try to incorporate various elements while servicing both internal management as well as external reporting needs, as presented in Figure 6.1. Gradually, it appears that financial indicators become relatively less important while indicators related to human resource management, work environment and development and dissemination of knowledge gain momentum⁵⁷.

It is thus important to maintain focus on human capital reporting as a response to societal and industrial changes, leading to more transparent enterprises and organisations. Further, the development of new products, production methods and work organi-

⁵⁷ For more detail, please refer to the papers presented at the OECD symposium in Amsterdam, June 1999. <http://www.oecd.org/dsti/sti/industry/indcomp/act/Ams-conf/symposium.htm>.

sation, both internally and across companies, has created the knowledge society, which requires fundamentally different management and reporting tools from those of the industrial age.

The question is whether human capital will develop out of economic theories into a new reporting framework for enterprises with all its consequences. And if so, whether this framework will lead to a fixed set of standards relative to those within management and quality control. Another possibility – supported by the initial phases of the Dutch and Danish governments' pilot projects – may simply be government programmes for supporting and strengthening enterprises' use of human capital!

6.3 The future of reporting on human capital: the quest for indicators

Actual development of a standard reporting framework will depend on whether stakeholders will start formulating clear policies on human capital; if not, they may find themselves overtaken by consultants and practitioners developing their own brands. Eventually, one or a few of these will become market leaders, such as at the current stage of the Balanced Scorecard or the Investors in People programme in the UK. The risk, if considered to be a risk, may be that focus will be on short-term internal management needs and thus remain in the traditional shareholder perspective, and not incorporate the need for external reporting expressed by stakeholders. If this dissemination strategy prevails, human capital reporting is likely to be short-lived, never to become widespread, since consultancy methods are too limited in focus.

On further dissemination of reporting tools and having at least some standardisation, international organisations have, until now, been dragging their feet to avoid taking a clear standpoint despite expressing strong, general

support. Scandinavian governments and social partners and the Dutch government have begun to position themselves, generally along a stakeholder approach. It seems likely that human capital reporting frameworks with a minimum of standardised indicators will emerge. They will not become compulsory, at least in the short term, but will be promoted through financial, consultative and/or political incentives.

Enterprises are increasingly operating with alternative internal and external reporting systems, from financial statements over green accounts to ethical accounts with human capital reporting being only one (sub)system. Thus, given that a single human capital reporting method has not manifested itself qualitatively nor quantitatively so far, relatively few enterprises are utilising human capital reporting. Instead, widespread management approaches like the Balanced Scorecard, the learning organisation and business excellence prevail and are often, misleadingly, believed to encompass human capital reporting, although they would greatly benefit from doing so.

Unless general approaches are developed supported by governments and/or international organisations, human capital reporting is likely to focus increasingly on the management perspective only while neglecting the measurement and reporting elements. If this is the future, other benefits of human capital reporting, such as attracting qualified employees, will not be fulfilled.

On the other hand, if a set of minimum indicators is established, which is the likely outcome of the Danish project, the potential of human capital reporting is likely to be reached for the benefit of not only management but also for other stakeholders. The Danish project has from mid-1999 become a Scandinavian project, which further underlines that human capital reporting is gaining momentum!

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Vocational training research on the basis of enterprise surveys: An international perspective

Lutz Bellmann

Abstract

Reliable information on trends in labour market demand and enterprises' skills requirements is increasingly of interest not only to those researching the labour market and occupations but also to the labour market players themselves. However, as yet only inadequate information on establishments and enterprises is available. One result of this is that research activities are concentrating on the supply side of the labour market.

The presentation of empirical studies based on establishment and enterprise data demonstrates the potential that research of this kind offers for vocational training research. This report therefore covers the skills requirements arising in the context of enterprises' increasing flexibility, in-company vocational training and the employment of trainees on completion of their training, and the trends discernible in the field of continuing in-company training. In this context, matched employer-employee data records are also discussed. With data records of this kind, it will in future be possible to analyse labour market demand and supply jointly.

The advantages, but also the disadvantages, of longitudinal surveys as opposed to cross-sectional surveys are also brought out. The advantages of longitudinal surveys lie in the survey, i.e. the fieldwork, the sampling and the questionnaire design. Longitudinal analysis, as opposed to cross-sectional analysis, offers other advantages in the shape of the allowances made for the heterogeneity of individual businesses, and consideration of the links between cause and effect and of processes of adjustment. Certain questions can be analysed only by means of panel data. The increased significance of measurement errors and selectivity problems can be regarded as a disadvantage of longitudinal data, including the panel mortality caused by various factors. As a rule, the collection of longitudinal data is considerably more costly and time-consuming, and it also takes a few years before evaluations of them can be presented.

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1. Introduction

Politicians, scientists and employers themselves have an increasing interest in reliable information on trends in labour market demand and companies' skills requirements. The main reasons for this are the persistently high level of unemployment and the associated under-utilisation of human resources, and reinforcement of the quality of locations via investment in human capital. The OECD's Jobs Study (1996), for example, cited lack of flexibility on the part of companies as one of the main reasons for the European employment problem.

However, in comparison with the data available on the supply side of the labour market, the data available on the demand side is inadequate. Hitherto, various public bodies and research institutes have concentrated on surveying individuals. Establishment and enterprise data is systematically collected, but seldom with regard to employment and skills aspects and the variables determining these.

In order to be able to analyse and possibly reduce the continuing problems in the context of the labour market and training, there is a need for reliable data on the demand side of the labour market. Hamermesh (1993, p. 400) has also drawn attention to the interdependence of research activities and data availability thus addressed.

Naturally, vocational training issues are among the most important subjects that can be researched using establishment and enterprise data (cf. e.g. Lynch 1998, p. 54).

This report will therefore describe the potential which analysis of establishment and enterprise surveys holds for vocational training research. This will be done in several stages.

The *next section* presents a review of research dealing with issues relating to vocational training and continuing training and to company skills requirements on the basis of establishment and enterprise data. The review includes both studies with particularly high-quality data records, in particular panel data

records, and studies with particularly interesting but non-representative data records. Panel data records are preferable to one-off cross-sectional surveys, not only owing to the more interesting evaluation options they offer, but also for technical reasons associated with surveys and questionnaires.

Section 3 therefore systematically compares the advantages and disadvantages of these two methods of gathering data.

Section 4 contains conclusions in the form of recommendations for structuring and evaluating company and enterprise surveys focusing on vocational training and continuing training.

2. Vocational training studies based on establishment and enterprise data

2.1 Introduction

In the field of vocational training research, there are very many questions which can really only be adequately analysed by using and combining both personal and company/enterprise data. In addition to the trend in the skills structure and skills requirements and questions relating to recruitment and the quest for staff, they include any problems arising with particular skills groups and with employment under-utilising skills (over-education), and also the increasingly important evaluation of publicly subsidised training and continuing training.

These are, of course, interesting and important topics, but are mentioned only in passing in this report, which concentrates on the following topics: skills requirements generated in the context of increased flexibility in companies, in-company vocational training and employment of trainees on completion of training (so-called second threshold), and the development trends discernible in the field of in-company continuing training. Not only do these topics cover major fields of debate, but they are also particularly suitable for demonstrating the potential of establishment and

enterprise surveys for vocational training analysis.

2.2 Promotion of flexibility in companies

The European Commission has emphasised the link between external and internal flexibility and their significance for economic growth, competitiveness and employment. In a world of increasing competition, companies are endeavouring to structure work organisation more flexibly in order to be able to respond more appropriately to external challenges and opportunities (cf. European Commission 1993). In the process, it has been acknowledged that workforce flexibility is the key to entrepreneurial success. A particularly crucial part is played by the capacity of employees to adapt in line with business needs by acquiring new knowledge and skills.

2.2.1 Business process re-engineering

Since the early 1990s, in management practice all sectors have adopted a management concept rightly described as a 'megatrend' and by some as a 'management revolution'. Lean production, lean management, lean enterprise and lean company are terms in common use. The more wide-ranging term 'lean management', or 'business process re-engineering', is superseding 'lean production', because the aim is to structure not just the plant or factory but the company as a whole in accordance with lean principles (cf. Hammer and Champy 1994).

'Lean' organisation structures differ markedly from Taylorist forms of organisation, which produce significant 'organisational waste' in the form of job and interface ballast. All reorganisations are aimed at making better use of the potential skills and motivation of on-site employees (cf. e.g. Frieling 1992). To this end, powers and responsibility are consistently decentralised.

The current range of reorganisation measures includes, in particular:

□ flattening of hierarchies (hierarchical levels, management spreads);

□ segmentation by creating autonomous and autarkic 'centres' (integration of functions, holding structures, new independence for parts of the company in their locations, fractal plant, manufacturing islands, companies within companies);

□ learning organisation in the sense of transferring improvement processes from central staff departments to specialist departments (continuous improvement process);

□ intensification of teamwork (semi-autonomous teams, project teams, work circles, coordination bodies);

□ and total quality control (TQM), i.e. monitoring and maintenance of quality at all business and production levels.

Brewster, Hegewisch and Mayne (1994) criticise the fact that labour market flexibility has usually been measured and regarded as a problem not from the corporate point of view, but indirectly via staffing increases and decreases (numerical flexibility), atypical and also precarious employment relationships, part-time work, fixed-term contracts, seasonal employment and labour-law regulations. It is true that the distinction between core and marginal workforces leads back to company level, whether it be under the segmentation theories of the 1970s (cf. Doeringer and Piore 1971, Sengenberger 1975) or Atkinson's (1985) concept of the flexible company, but it remains blurred, with little empirical foundation and strategically unclear, since it is not possible to verify that companies form and use core and marginal workforces as part of their personnel strategy.

In any case, the combination of the two arguments led to the finding that labour market flexibility outside companies is closely linked to flexibility within them. If external flexibility is too high or too common, this can have a negative impact on per capita productivity, the business commitment to efficient workforces, recruitment, and the necessary job rotation within the enterprise. There is no in-company training or continuing training for temporary staff, employees with fixed-term contracts, persons in seasonal employment, persons in

insignificant employment, part-time workers, marginal workforces, etc., one reason being that it is not economic.

This means that functional flexibility in companies and for all personnel is crucial to the ability to tackle external requirements necessitating adaptation strategically, in the sense of a company policy decision geared to the long term. Thus productivity advances must be organised, work organisation must be adapted in line with market, customer and production requirements, collectively agreed and individually desired working hours must be balanced out with the longer operating times required, and in-company skills training and participation of employees must be extended.

The slimming down of large private companies, whose depth of production has been reduced in the context of lean management concepts, has also led to hiving off of service areas and the emergence of service enterprises close to the means of production. The effect of these developments on the capacities, skills and competences required in enterprises of different sizes is therefore at the top of the research agenda.

2.2.2 Case studies

Looked at empirically, human resources management practice has been the subject of company case studies in many European countries, such as the Price Waterhouse Cranfield study (cf. Brewster et al. 1994), and studies by Hutchinson and Brewster (1994) and Doherty and Nyhan (1997). It is also interesting to compare trends in these companies and US companies, and such a comparison definitely indicates that they are converging (cf. Nyhan 1999). Case studies have also given rise to work on intellectual capital accounts (cf. Westphalen 1999, Danish Agency for Trade and Industry, Ministry of Business and Industry 1999).

Given the arguments put forward, it is not surprising that there is a widespread view that the focus on labour market flexibility is too narrow and a broader perspective based on organisation theory should be chosen. The Swedish NUTEK study (1996) defines flexible

organisations on the basis of four characteristics: organised improvement of knowledge and capacities, delegation of responsibility, flat organisation structures and individualised pay systems. From this perspective, the key interest lies in findings on the structure of the organisation as a whole, its human resources and strategy, and not simply in the way in which workers are used.

2.2.3 Studies based on the IAB establishment panel

As with the NUTEK study (1996, esp. Chapter 4), therefore, the empirical analysis in the study by Bellmann et al. (1996) focuses on the distribution of flexible organisations. Thus the authors do not simply provide an overview of increased flexibility of working hours and business processes and flexible wages, but also report on product and process innovations, research and development, and the position in respect of training and continuing training. On the basis of the employment statistics of the Federal Institute for Employment, information was also provided on the significance of newly created and altered employment structures.

There is still great scientific interest in the impact on employment – including individual skills groups – when flexible forms of organisation are introduced and extended. Bellmann (1999) investigated the impact on employment of innovative processes and organisational change for individual groups of employees with the IAB [Institute of labour market and vocational research – *Institut für Arbeitsmarkt- und Berufsforschung*] establishment panel. The IAB establishment panel (cf. Box 1) is a survey of establishments carried out annually in Germany since 1993, which provides a representative view of all establishment size classes and sectors.

Since 1996, the survey has also been carried out in the new *Länder* and East Berlin, so that in 1998 approximately 10000 establishments were involved in the panel. In order that new establishment creations and establishment closures can be included, every year new establishments entering the market are incorporated into the panel. Survey units are

Box 1: IAB establishment panel

Oral survey, annual, from 1993 onwards in West Germany and from 1996 onwards in East Germany too.

Questionnaire: standard element and changing focal points

Scope of survey: 9200 (1998) establishments

Sampling based on the establishment file in the employee statistics of the Federal Institute for Employment.

Topics in the IAB establishment panel:

- Number of persons employed and employment trend
- Skills and employee structure
- Business policy, business planning and investment
- Training places
- In-company training and continuing training (1997 and 1999)
- Wages and salaries
- Working and business hours (1999)
- Public support via wage and investment subsidies
- Contact with the employment office (1995)
- Works council and collective agreements

Sources: Bellmann (1997); Bellmann et al. (1998).

drawn from it on the basis of the employment statistics of the Federal Employment service, which are also used to weight the data collected (cf. Bender et al. 1996).

The employment trend in the period from 1993 to 1996 in the old *Länder* shows a decrease in workers without vocational training, while the other skills groups have increased. This applies particularly markedly to graduates. The findings of the IAB establishment panel also show that the employment trend is more favourable in establishments in the manufacturing industry and in closely associated services implementing innovative processes. This affects skilled blue- and white-collar workers in particular. Organisational changes (such as teamwork, flattening of hierarchies, downward transfer of responsibility, combined departments, institution of units calculating costs and profits themselves, introduction of just-in-time production) reduce the number of employees, at least in the short term.

In the longer term, however, in the wake of organisational changes an increase ensues in the employment of individual skills groups, e.g. skilled workers. There is a great potential for organisational change in small and

medium-sized enterprises (SMEs) in particular in the next few years, since there is empirical evidence that here flexible forms of organisation are much less common than in larger enterprises. It is also apparent that improvements in technical status and organisational changes have a negative effect on the trend in part-time employment.

2.3 In-company vocational training and employment of trainees on completion of training

2.3.1 Overview

This section reports on studies by Dietrich and Bellmann (1998) and Bellmann and Neubäumer (1999a, 1999b) based on the IAB establishment panel, on the subject of determinants of company training intensity and participation in training and of employment of trainees by the companies providing training on completion of training. It goes on to describe the 'early recognition system for skills trends', in which a total of nine research institutes in Germany are involved. Last but not least, it reports on the research of Bardeleben et al. (1995) on the costs and benefits of in-company vocational training.

2.3.2 Company training intensity and participation in training

Using the data from the IAB establishment panel, Dietrich and Bellmann (1998) and Bellmann and Neubäumer (1999a) investigated the attitude to training in companies in West and East Germany. The studies cited contain representative findings on enterprise participation in training, measured as the number of establishments in relation to all establishments (training company ratio) and as the number of trainees in relation to employees liable to contribute to social security (training ratio), in both cases by sector of the economy and establishment size. The determinants of the training company ratio and the training ratio are also analysed.

This shows that SMEs provide an above-average amount of training. The ratio falls with establishment size. This means that when SMEs provide training, they train a relatively large number of young people in proportion to their number of employees. As many very small enterprises provide no training whatsoever, the training company ratio rises with the size of the company. These two overlapping trends mean that in West and East Germany, more than 50% of all trainees are found in establishments with fewer than 50 employees.

In a multi-variant analysis, the number of trainees is treated as a dependent variable and possible reasons determining this as an independent variable. All data available for the years 1993-1997 is used (this means, for example, that enterprises repeatedly involved in the survey are taken into account more than once). This leads to a substantial increase in the number of cases to be incorporated into the analysis.

This analysis of the attitude of establishments to training results in the following finding: in addition to the general trend of a reduction in the number of establishments in West Germany providing training between 1993 and 1997, the sector, size and anticipated turnover of the enterprise and the proportion of skilled workers and women in its workforce, as well as the type of region (city, surrounding countryside or other) in which it is located

prove to be the determinants helping to explain ongoing training activities in an enterprise. The sectoral comparison possible on the basis of the IAB establishment panel shows above-average training activity in establishments in the production sectors of the chemicals industry, iron and steel production and vehicle manufacture, while there is below-average participation in dual training by the production-oriented service sectors.

Bellmann and Lahner (1998b) also investigated, again on the basis of the IAB establishment panel, why establishments do not provide training. Questions were asked about the possible lack of the necessary preconditions in establishments (justifiability of training), but also about training costs, later employment of trainees who successfully complete their training, and the lack of suitable applicants, as reasons why enterprises are less willing to provide training. A question was also asked about the involvement of employment offices in arranging training places.

Lastly, establishments were also asked if they wished to extend or restrict their training activities. This information can, for example, be compared with the anticipated employment trend (cf. Bellmann and Lahner 1998a). This shows that, on average, establishment training provision in the establishments surveyed has not decreased to the same extent as employment.

2.3.3 Employment of trainees in the training company on completion of training

In principle, the transition from school-based forms of training in dual training into employment is still a relatively smooth one for young skilled workers. Here, the fact that companies are involved in training is advantageous. However, the difficult situation on the labour market also affects the entry into working life of those starting out on completion of training.

Bellmann and Neubäumer (1999b) investigated employment by the training company of trainees who successfully complete their training, on the basis of the IAB establishment panel.

The study discusses the influence of the relevant sector, establishment size, the anticipated trend in employment and turnover and the technical status of machinery and plant, the proportion of turnover used for product innovations and improvements, and variables in respect of whether the establishment does its own research and development and/or market research. It also takes account of variables relating to the establishment structure, such as the proportions of white-collar workers, woman and skilled workers in the workforce and the proportion of employees with fixed-term contracts, the extent of pressure of competition, the staff turnover rate, capital intensity, and variables in respect of whether the establishment is independent and whether it is bound by collective agreements.

The empirical findings show that establishments are trying to cover their own need for skilled workers themselves in the long term, via vocational training. The wishes of those completing training correspond to this concern, since they want the training establishment to give them permanent jobs. However, if there is a short-term fall in profits or the business situation worsens, the establishment is unable to take on trainees on completion of training. The arrangements laid down in collective agreements for employment of trainees on completion of training are also important, but they often govern only fixed-term contracts and part-time employment.

2.3.4 Early recognition system for skills trends

Since 1998, Germany has had a network known as the early recognition system for skills trends (cf. Alex and Bau 1998, Kloas 1999 for a brief description), involving a total

of nine institutes¹. Not only does this network apply a very interesting mix of different methods, but it also draws on various data sources for analysis.

The activities of three of the institutes focus on surveys of establishments and enterprises. The Federal Institute for Vocational Training (BiBB – *Bundesinstitut für Berufsbildung*) has developed a system of some 1500 reference enterprises willing to take part in short-term representative surveys of topical training and continuing training issues. For example, they are asked questions about changes ensuing in the wake of product and process innovations and organisational changes, changes arising in skills, or changes in existing training arrangements required from the enterprises' point of view.

INFAS (*Institut für angewandte Sozialwissenschaft* – Institute of applied social science) studies the skills trend in the service sector, using as a tool regional case studies on the skills required by SMEs in particularly dynamic markets such as software development and sales, Internet service providers, advertising and specialised trade for information and communication technology.

The Institute of structural policy and economic research (ISW – *Institut für Sozialpolitik und Wirtschaftsförderung Halle-Leipzig e.V.*) investigates 'fashionable skills', in order to use them as a basis for early identification of skills requirements. Interviews are conducted with companies which play a trend-setting role in their sector or region or as regards their products, and therefore detect new skills requirements much earlier than their competitors. It is also important to identify skills requirements ensuing from the use of trendsetting technologies.

¹ The following institutes are involved in this network: *Bundesinstitut für Berufsbildung* (BiBB), [Federal Institute for Vocational Training], *Fraunhofer Institut für Arbeitswirtschaft und Organisation* [Fraunhofer Institute for the work-based economy and organisation], *Institut für Arbeitsmarkt- und Berufsforschung* (IAB) [Institute of labour market and vocational research], INFAS (*Institut für angewandte Sozialwissenschaft* – In-

stitute of applied social science), *Institut für Sozialpolitik und Wirtschaftsförderung Halle-Leipzig e.V.* (ISW) [Institute of social policy and promotion of economic development], *Infratest Burke Sozialforschung*, *Kuratorium der Deutschen Wirtschaft für Berufsbildung* [Board of trustees of German trade and industry for vocational training], and the *Wissenschaftszentrum Berlin* [Scientific Centre of Berlin].

2.3.5 Costs and benefits of in-company vocational training

The Federal Institute for Vocational Training (BiBB) carried out a series of company surveys to identify the costs and benefits of in-company vocational training (cf. Bardeleben et al. 1995, 1997; Kau 1994)². These were supplemented by case studies. It proved to be easier to identify the costs of vocational training than the benefits. The companies were also asked the reasons why they trained their skilled workers themselves instead of recruiting them externally from the labour market. The argument put forward was that skilled workers are only available by means of vocational training, since they are not available on the external labour market. Within the framework of the company's own vocational training, it is possible to identify the employees with the best skills and knowledge. In-company vocational training increases loyalty to the company and thus also reduces the staff turnover rate.

2.4 The trend in in-company continuing training

2.4.1 Overview

This section summarises empirical studies with differing structures on in-company continuing training, based on enterprise and company data.³ It begins with German/British studies from the 1980s, the studies of Holzer et al. (1993), Bartel (1994), Bishop (1994), Lynch and Black (1995), and Black and Lynch (1996, 1997), which are ambitious in their evaluation methods and use econometric methods to investigate the returns from continuing training. They assume a broad definition and take these as proxies for the returns from continuing training.

² In Cedefop's first report on vocational training research in Europe (Tessaring 1998), the BiBB's company surveys on the costs and benefits of in-company vocational training are covered in Part 2, Chapter 3.3.

³ In Cedefop's first report on vocational training research in Europe (Tessaring 1998), this subject is discussed in Part 3, Chapter 4.4.

The section goes on to describe the studies of Gerlach and Jirjahn (1998) and Düll and Bellmann (1998, 1999), which also use econometric methods to investigate in-company continuing training provision and continuing training intensity – including considering men and women and differently skilled employees separately. Lastly, it presents special surveys on the subject of in-company continuing training by the institute of German trade and industry [*Institut der deutschen Wirtschaft*] (cf. Weiß 1990, 1994, 1997), Eurostat (cf. European Commission 1998a), and the American Society for Training and Development (ASTD) (cf. Bassi and McMurrer 1998, 1999; Bassi and Van Buren 1999a, 1999b).

2.4.2 Studies on the returns from in-company continuing training

Prais (1987), Prais and Wagner (1988), Prais et al. (1989), and Steedman and Wagner (1987, 1989) investigated the effects on productivity of various vocational training systems in a whole series of publications based on company data from Japan, the UK and Germany. They attributed the higher level of productivity in Germany to better-skilled workers, owing to a better vocational training system and to the work organisation, while taking account of differences in real capital.

On the basis of a survey of 171/250 companies in the manufacturing sector in the US State of Michigan, Holzer et al. (1993) investigated whether allocation of training subsidies has a positive effect on the company's productivity. The reject rate was used as the figure for measuring productivity. A comparison of the trend in companies which had received a training subsidy with that in companies whose applications were rejected shows that the training subsidy reduces the reject rate by 7%.

Lynch and Black (1995) and Black and Lynch (1996, 1997) carried out cross-sectional evaluations based on the Workforce National Employers Survey (NES) of the National Center on Educational Quality of the Workforce, a telephone survey of 2,945 com-

panies, and longitudinal evaluations based on a database generated via interplay between the NES and the Longitudinal Research Database of the US Bureau of Census. In the cross-sectional analyses, although not in the longitudinal analyses, they established that productivity was influenced by the proportion of participants in continuing training. They put this finding down to relatively poor recording of in-company continuing training. Interestingly, their study shows that organisational change has a significant effect. This needs to be examined further. On the basis of a comparable survey of 654 (1993) and 215 (1997) companies in Ireland, Barrett and O'Connell (1999) were able to ask very specific questions about enterprise-specific and general continuing training. They were able to establish that general, but not enterprise-specific, accumulation of human capital had a positive and significant effect. These studies are closely aligned with the increasingly important evaluation studies in the field of publicly funded continuing training.

Supplementing the questions also asked in the other surveys, in the data records used in the study of Frazis et al. (1998), companies were asked for more precise information on training and continuing training, pay levels and productivity in relation to two employees selected at random. This procedure is intended to reduce the problems arising from the great heterogeneity of the employees in an individual company. The most important finding is the greater involvement of larger enterprises in in-company continuing training and the stronger fostering of skilled employees.

Action-oriented approaches can be regarded as an alternative to the above approaches, which sometimes involve very sophisticated econometrics. The question also arises of whether a partnership is possible between companies and scientists in evaluating continuing training measures, also in the sense of monitoring training. The way in which this could work and the conditions that would need to be met are also discussed by Büchter (1999), Krekel and Beicht (1998) and Barrett et al. (1998, p.36).

2.4.3 Determinants of in-company continuing training

Gerlach and Jirjahn (1998) research the question of the fundamental factors influencing in-company continuing training on the basis of a panel data record generated in 1993, 1994 and 1995 covering 1,022 (1993), 849 (1994) and 721 (1995) manufacturing companies in Lower Saxony. The authors show that the factors promoting in-company continuing training activities include the skills structure of the workforce, increasing enterprise size, integration with other enterprises, modern work organisation, employee participation, performance incentives within the enterprise, the existence of a works council, and a company strategy based on research and development.

The growing number of enterprises with continuing training in line with the proportion of graduates and skilled workers in the workforce is seen by the authors as evidence of a business calculation leading to greater willingness to invest in the human capital of workers from whom returns can be expected. There appears to be little likelihood that enterprises will make a greater investment in continuing training for employees with skills deficits and hence indirectly improve their labour market prospects. Against the background of this finding, one also has to take a sceptical view of the willingness of enterprises to take on the long-term unemployed, even on a trial basis, as long as they can call on jobseekers lacking the stigma of a lengthy break in employment.

Following on from the study by Gerlach and Jirjahn (1998), the IAB also carried out research into company-subsidised continuing training, adopting a similar approach. The authors take their basic data from the information in the 1997 IAB establishment panel survey, which focused on in-company continuing training. Düll and Bellmann (1998) research the determinants both of in-company continuing training provision and of the intensity of continuing training in establishments. An enterprise is subsidising continuing training if it has financed a continuing training measure for at least one employee in the first

six months of the survey year, by bearing costs or releasing employees for participation in measures. The intensity of the establishment's use of continuing training is given by the proportion of participants in continuing training in the establishment's overall workforce⁴.

The descriptive evaluations presented clearly show a heterogeneous picture for continuing training activities in establishments. An average of four in ten establishments in both East and West Germany undertook continuing training activities in the first six months of 1997. While in the smallest establishments (up to nine employees), only three in ten establishments offer any continuing training measures at all, in enterprises with up to 49 employees the figure rises to more than 50%. Virtually all establishments with 1,000 or more employees implement continuing training measures. The increasing readiness of establishments to offer continuing training as their size increases applies equally to establishments in the old and new *Länder*. A similarly differentiated picture emerges if establishments are classified by sector. Skills training measures for employees are most frequently implemented by enterprises in the following sectors: mining/energy and water supply, banking and insurance, the health sector, education/publishing and the public sector (local authorities/social security system). They are least often implemented by establishments in the agriculture sector and in the hotel and restaurant industry and the cleaning sector. This again applies equally to West and East Germany. Taken together, these findings show that there are considerable variations in continuing training provision according to sector and establishment size.

In multi-variant analyses, the most important factors are the skills structure of the workforce, the proportion of industrial workers, the

proportion of trainees, investment in modernisation in the form of EDP, and the proportion of employees working overtime. These are the key factors determining both funding and the extent of the continuing training options offered by the establishment, i.e. the intensity of continuing training in the establishment. Thus the authors demonstrate that establishment decisions on promoting continuing training are linked in particular to technical modernisation and a skills bottleneck which cannot be resolved by taking on new staff.

In another study, Düll and Bellmann (1999) move beyond their original questions in order to determine the likelihood of continuing training for a skills group on the basis of the proportion of participants in continuing training from this group in all employees with this level of skills.

In the old *Länder*, the likelihood that these employees will participate in in-company continuing training varies according to their level of skills: skilled workers are most likely to receive continuing training, and unskilled and semi-skilled workers are the least likely. This applies to both the manufacturing sector and the private service sector. In the new *Länder*, the likelihood of continuing training essentially follows the same pattern, but in a comparison of different establishment sizes, the intensity of continuing training of skilled workers is higher in smaller establishments, while on the other hand it is higher for unskilled and semi-skilled workers in large establishments. In in-company continuing training, selection can be linked to the corporate framework conditions and to the application of specific staff deployment and work organisation concepts. It may be supposed that enterprises with their own personnel management system are more likely to implement systematic personnel work in the form of continuous in-service and continuing training, while establishments with no separation of functions of this kind are more likely to tend to make adhoc adjustments in line with current needs.

The authors also offer some evidence of the relationship between training and continuing training within establishments. The higher

⁴ To achieve this, the details of cases of participation had to be translated into numbers of people. The methodological approach is described by Düll and Bellmann (1998, pp. 223f.). The time of commencement of continuing training measures can be determined on the basis of individual questionnaires on the one hand or, on the other, by recording continuing training costs in the CVTS survey (cf. OECD 1999, pp. 135ff.).

Box 2: Company surveys of the Institute of German trade and industry, Cologne

Written survey 1987, 1992, 1996, mainly covering companies with continuing training activities (1996: 98%)

Largely unchanged questionnaire

Scope of survey: 1,369 companies (1996)

Topics: types of continuing training events, duration, participants, costs

Sources: Weiß (1997).

the proportion of trainees in the establishment, the more likely skilled workers are to participate in in-company continuing training. In large enterprises, unskilled and semi-skilled workers also tend to be included in in-company continuing training. As the establishment size falls, however, in-company continuing training activities decrease. While large enterprises tend to have a strategy of supplementing knowledge acquired in vocational training with job-specific special knowledge in additional continuing training stages, in SMEs 'dual' training strategies of this kind appear to founder owing to the question of costs. The findings available suggest that large establishments implement a complementary strategy in relation to vocational training and continuing training, in which job-related continuing training supplements the vocational training of junior staff. Owing to the human and financial resources required, smaller establishments do not implement systematic continuing training of their employees. Here, initial vocational training is the only pillar of the efforts made to impart vocational skills. Responsibility for continuing training lies with employees themselves (although in some cases networks of SMEs arrange continuing training, or there are linked systems).

2.4.4 Continuing training surveys by the Institute of German trade and industry

The distinguishing feature of the written company survey implemented by the Institute of German trade and industry in West and East Germany (cf. Box 2) is the fact that it uses a largely unchanged questionnaire, to make time-based comparisons possible. Questions were asked about the following:

- ❑ the number of participants and the amount of time involved for them;
- ❑ the range of in-company continuing training activities (on the job learning, self-regulated learning, internal/external lectures, internal/external information events, re-training measures);
- ❑ the timing of continuing training;
- ❑ the level of expenditure per employee;
- ❑ developments in continuing training;
- ❑ the problems involved in releasing employees, and;
- ❑ trends in the regulation of continuing training.

It can be seen that enterprises prefer shorter events, organised in-house. In the author's view, it all amounts to organising continuing training in a time-saving and just-in-time manner (cf. Weiß 1997, p.9). The breakthrough with regard to the 'new' media that keeps being signalled has not yet come about. A look at future trends shows the greatest growth taking place in on the job learning and self-regulated learning. Two thirds of enterprises see a need to intensify monitoring of success, and almost as many want to improve the cost-effectiveness of continuing training (cf. Weiß 1997).

2.4.5 Eurostat (Statistical Office of the European Communities) Continuing Vocational Training Survey (CVTS)

In the years from 1991 to 1994, the European Commission addressed itself to companies in the private sector in the individual Member States with the FORCE action programme

(*Formation continue en Europe*), in order to support companies' efforts in the field of continuing vocational training. Interviews were carried out with 50000 representatives of companies with 10 or more employees. However, important sectors of the economy like agriculture, education and health care and the civil service were not included in the survey. In the context of this action programme, surveys on continuing vocational training were carried out in 12 Member States with the aim of acquiring data facilitating a comparison of the quality and quantity of actual continuing training activities in companies in the individual Member States.

In Germany, a two-stage survey concept was developed, consisting of a preliminary survey and a main survey. The main purpose of the preliminary survey was to obtain initial findings on continuing vocational training provision in companies. In the main survey which followed, these findings were consolidated and supplemented by further content. This stage of the survey covered all companies that had responded in the preliminary survey and had not expressly indicated that they did not wish to participate in the main survey. This was designed to ensure that it was not only companies active in continuing training that participated in the survey.

Selected findings were published by the European Commission (1998a) and the European Commission, Eurostat and Cedefop (1997, 1999, forthcoming)⁵. The CVTS contains international comparative data on

- ❑ the number of companies offering continuing vocational training by size and sector of the economy;
- ❑ the number of participants in continuing training/external courses, in-house courses (continuing training on the job), participation in lectures, specialist meetings, trade fair events, job rotation and self-regulated learning.

⁵ In Cedefop's first report on vocational training research in Europe (Tessaring 1998), the Continuing Vocational Training Survey (CVTS) is discussed in Part 3, Chapter 4.4.

In addition,

- ❑ in in-house and external courses, participants are broken down according to sex, occupational activity (managers and scientists, engineers, office and sales staff and blue-collar workers), sector of the economy, duration of course, content of continuing training, type of supplier and costs (including in relation to overall labour costs);
- ❑ the time spent on participation in courses and the continuing training intensity are measured in relation to working hours and the number of participants.

For countries which provided Eurostat with micro-data records, i.e. all countries except Germany and the Netherlands⁶,

- ❑ the assessment of companies' future skills requirements was analysed;
- ❑ the participation of certain groups in continuing training events was also described;
- ❑ the trend in forms of continuing training was assessed; and
- ❑ the reasons why some enterprises implemented no continuing training measures were analysed.

Apart from the fact that in 1994 there were (still) some differences in the data collection methods used by the countries concerned (cf. European Commission 1998a, pp. 12f.), the CVTS offers an extremely valuable potential for analysis. Above all, country-specific differences in the willingness of companies to offer employees skills training and in the intensity of continuing training can be investigated. At the same time, differences between the countries as regards sector and enterprise size structures can also be included, as can differences in types of supplier. It would also be interesting to indicate lines of development, although the topicality and relevance of the findings are impaired by delays in provision.

⁶ The corresponding findings for Germany can be found in Schmidt (1995) and Grünwald and Moraal (1996).

Since the survey and hence also the questionnaire are specifically tailored to the field of in-company continuing training, however, it is not possible to take account of important company determinants of willingness to provide continuing training and continuing training intensity, such as investment activity, the company's technical status and the existence of a works council, as included by Düll and Bellmann (1998, 1999). Admittedly the works council is not involved in the everyday life of the enterprise, but only in the event of major rationalisation, as shown in the study by Sadowski and Pull (1997).

2.4.6 Benchmarking by the American Society for Training and Development (ASTD)

Since 1997, the American Society for Training and Development (ASTD) has carried out an annual written survey of member companies on a voluntary basis⁷. Corporate investment in training and continuing training is surveyed in the first part, and the returns in the second part. In return for answering the questions asked, companies can participate in ASTD's Benchmarking Service. Evaluations based on the data have been published in individual publications by Bassi and McMurrer (1998, 1999) and Bassi and Van Buren (1999a, 1999b). In 1998, 1220 companies took part, more than one third of which had their headquarters outside the USA.

The companies were of all sizes and came from all sectors of the economy. The questions related to

- expenditure on training and continuing training;
- the proportion of participants in continuing training measures;
- the use of external continuing training providers;
- the use of modern learning technologies;

⁷ The model surveys on the subject of in-company continuing training by the US Bureau of Labor Statistics will simply be mentioned here (cf. Frazis et al. 1995, 1998).

- the significance of training in the field of technical knowledge and skills; and
- the introduction of innovative forms of training, work and remuneration.

The success of and return on investment in training and continuing training was evaluated by creating sub-samples and comparative groups. For example, Bassi and McMurrer (1998, 1999) compared companies whose per capita investment in training and continuing training was above the mean sum for all companies with those below the mean, firstly in terms of value added per employee, secondly as regards gross returns per employee, and thirdly as regards the relationship between market value and book value. More favourable findings are obtained for companies investing relatively more strongly in training and continuing training. It should, however, be noted that it was only possible to include 40 companies in these analyses, since in some cases reference had to be made to published data in the public domain.

The fact that small numbers of companies took part in both surveys considerably limits the meaningfulness of the studies. There are procedures for correcting possible distortions in selection, but with very small samples they are of very limited use (cf. Huselid and Becker 1996).

Bassi and Van Buren (1999a) report on the findings of an analysis comparing 55 companies selected, with the aid of a cluster analysis, as leading edge companies with the remaining companies. The same authors have also compared the leading edge companies and all companies participating in benchmarking with regard to expenditure on training and continuing training and the returns achieved. One criticism must be made, namely that only 85 of 754 companies in the 'other companies' group surveyed in 1998 were able to provide details in respect of the same company unit as for 1997. Interestingly, the empirical results obtained clearly supported a positive connection between training and continuing training on the one hand and company operating efficiency on the other. However, the association cannot necessarily be interpreted as a causal one, since more efficient companies also have

more financial resources available for training and continuing training than do less successful companies. In other words, the direction of the association cannot be derived from the correlations identified.

In addition, there was also a positive association with the introduction of innovative forms of training, work and remuneration. In this respect, this finding confirms research by Kling (1995) and Ichniowski et al. (1997). Admittedly the latter obtained, on the basis of only a small panel survey of 26 steelworks in the USA, the finding that utilisation of individual personnel policy measures has a lesser effect than a combined approach. OECD (1999) reviews similar studies.

2.5 Matched employer-employee data records

Willis (1986, p.598), in his contribution to the Handbook of Labor Economics, indicated that the development of matched employer-employee data records was crucial to the progress of research in the fields of pay structure theory and human capital theory.

In their contribution to the new Handbook of Labor Economics, Abowd and Kramarz (1999a) cite some 100 studies from 15 countries, most of which have been produced only in the past five years, many as yet only in the form of discussion papers. Thus this is a research field that is developing very fast.

Provisional estimates of the future trend in the number of applicants for training places in the dual system are confronted by the problem that applicants for training places take account of the trend in training place provision. Fewer people apply for training places when there is a shortage of them than at times when there is a glut. In this respect, extrapolation of rates of transition between different class stages, types of school or education systems (general education versus vocational training) is dependent on provision of vocational training places (cf. Behringer and Ulrich 1997).

In-company training rates and rates of employment of successful trainees, as well as the in-

tensity of in-company continuing training, continue to be determined not only by the structural characteristics of companies, but also by the range of vocational activities in the enterprise and changes in this. Conversely, an analysis of individual career paths, e.g. based on employee surveys, should also, of course, include factors relating to enterprise structure.

For studies of this kind, it is necessary to develop data records in which employers and employees are matched. As far as I know, however, no research of this kind is as yet available on the subjects of company flexibility and in-company training and continuing training, as covered in sections 2.2, 2.3 and 2.4. To date, the only studies available are in the field of pay structure and labour market demand. These will be discussed below.

A supplementary questionnaire in the French 1987 employee survey contained detailed questions on the use of new technologies. Kramarz (1994) and Entorf and Kramarz (1997, 1998) matched this data with the company data available for 1978-1987. In the context of a multi-variant approach, the authors examined the question of whether employees using new technologies earn better because they have better knowledge and skills than other employees or because new technologies increase productivity. The authors come to the conclusion that technologies based on the use of new information technologies have a relatively minor direct effect. Instead, these technologies are used by better-qualified employees, who also become more productive when they have acquired experience with these new technologies. Goux and Maurin (1997) also matched data from an employee survey and a company survey, in order to examine participation in in-company continuing training and the effects of continuing training on individual incomes and dismissal patterns. Troske (1999) and Bayard and Troske (1999) use similarly structured data records from the US Bureau of Census and conclude that large enterprises are in a better position to recruit skilled employees, and can organise them into teams and use them in combination with a high-quality capital stock. Schone (1999) uses Norwegian data to analyse the effect of continuing training measures on pay.

Bellmann et al. (1999) examined the flexibility of the skills structure on the basis of matched data records from the IAB establishment panel and the employment statistics of the Federal Institute for Employment. The employee statistics contain, inter alia, individual details of the pay subject to social security contributions of employees liable to pay such contributions (cf. Bender et al. 1996). On this basis, it was possible to estimate a translog cost system for six skills groups (blue- and white-collar workers each divided into unskilled/semi-skilled, skilled and highly skilled employees) in the manufacturing sector in West Germany in 1995. The substitution options ensuing from the company cost function for groups with different skills were examined. The substitution relationships identified within the individual blue-collar groups are very similar to those within the individual white-collar groups: skilled – and, to a lesser extent, highly skilled – employees prove to be substitutes for unskilled/semi-skilled employees. This finding could go at least some way towards explaining the increase in unemployment among the unskilled and semi-skilled.

At this point, mention should be made of the labour market supply and demand panels drawn up at two-yearly intervals since 1993 by the Dutch *Organisatie voor Strategisch Arbeidsmarktonderzoek* (OSA – Organisation for strategic labour market research) (cf. Allaart 1996), and of the possibility that arises, with very large data records of individuals (e.g. social security data), of aggregating the resulting personal information under the relevant enterprise number. Another good example of this is the study by Laaksonen and Vainiomäki (1997). This offers further opportunities for combining supply- and demand-side data. However, to date these have not been applied to vocational training research issues. Haltiwanger (1998) regards the possibility of surveying, in enterprise surveys, not only representatives and enterprise management, but also individual employees, as a critical one, because it involves a selection problem. The studies by Frazis et al. (1998) and Krebs et al. (1998) constitute examples of such a procedure. In the study by Frazis et al., two selected employees per enterprise were surveyed, and in

that by Krebs et al., six or seven, depending on the company size.

Another advantage of matched employer-employee data records lies in the associated opportunity to carry out consistency checks (cf. Hamermesh 1999).

Hildreth and Pudney (1999) and Abowd and Kramarz (1999b) review the econometric problems arising in the context of analysis of matched employer-employee data records and the solution to them.

2.6 Establishments or enterprises as survey units

An important question for empirical analyses is that of the suitable survey unit. In official statistics, the ‘establishment’ is understood as being the local unit in which a company’s activities, i.e. the production of goods or services, are actually carried out. The ‘establishment’ survey concept is also preferred to the enterprise level in other panel studies in the Federal Republic of Germany (the Hannover Firm panel and the NIFA panel in the mechanical engineering sector) (cf. Brand and Carstensen 1995, pp. 2f.; Hauptmanns and Ostendorf 1994, pp. 3f.), even if, in the context of individual questions on labour market policy or company policy, individual players are surveyed who are not themselves among those responsible for decision-making at company level. The ‘establishment’ is normally the suitable survey unit for the questions to the IAB establishment panel, as the unit in which employment and personnel policy and their determinants manifest themselves in the form of the corresponding business sizes or personnel structures. In the context of company reorganisations and organisational change, as discussed in section 2.2 of this article, a link is apparent between enterprises employment and personnel policy and organisation of local performance, i.e. the establishments. At the same time, business statistics such as turnover, working hours, wages and salaries and others are directly available for establishments. A similar argument can be put forward in the case of vocational training research. Interestingly, it was also apparent in the context of the 1993 CVTS

Box 3: Selected enterprise and company surveys with information on vocational training

Country	Title	Subject	Organisation	Year(s)	Publications
EU	Continuing Vocational Training Survey (CVTS)	Continuing training	Eurostat	1993	Cedefop 1997, 1999
	Price Waterhouse Cranfield Study	Management practice			Brewster et al. 1994
USA	National Employer Survey (NES)		National Center on the Educational Quality		Lynch/Black 1995
	Longitudinal Research Database		US Bureau of Census		Troske 1999
	BLS Survey of Employer Provided Training	Continuing training	US Bureau of Labor Statistics		Frazis et al. 1995
	ASTD State of the Industry Report	Continuing training Management practice	American Society for Training and Development	since 1997	Bassi/McMurrer 1998, 1999 Troske 1999
D	IAB enterprise panel	Personnel and employment policy	Institute for labour market and vocational research (IAB) of the Federal Institute for Employment	since 1993	Bellmann et al. 1996, 1999
	Hanover firm panel	Personnel and employment policy	University of Hanover	1993-1995	Brand/Carstensen 1995
	Early recognition system, skills trend	Vocational training	Nine institutes	since 1998	Alex/Bau 1998
	Costs and benefits of in-company vocational training	Vocational training	Federal Institute for Vocational Training	since 1994	von Bardeleben et al. 1995, 1997
	Continuing training surveys	Continuing training	Institute of German trade and industry	1987, 1992, 1996	WeiB 1997

survey that in-company continuing training data was often not available at enterprise level and therefore had to be collected in a decentralised way (cf. Federal Statistical Office 1996, p.4). However, certain information on business activity such as the ownership, funding and marketing structures can be collected only at enterprise level (cf. Licht and Stahl 1995)⁸, so that it is likely to be extremely

difficult to determine the influence they exert on vocational training variables, if this information is not available (in full) at establishment level.

2.7 Interim summary

In the field of vocational training research, many topics can really only be adequately covered by means of personal, enterprise and establishment data. Box 3 gives another summary of the most important enterprise and establishment surveys from various countries. The European Commission (1998b) reviews

⁸ Changes occurring here may also be important influencing factors, e.g. for business success variables, as demonstrated by McGuckin and Nguyen (1999).

Table 1: Selected results of the IAB establishment panel related to training and continuing training (proportions in %)

	West Germany	East Germany
Establishments entitled to train	58	49
Establishments entitled to train which also actually do so	47	51
Training companies (= training companies ratio)	27	29
Trainees as a percentage of all employees (= training ratio)	4.3	6.0
Trainees employed by the training establishment on completion of training	58	46
Establishments promoting continuing training (= continuing training company ratio)	37	39
Employees participating in continuing training measures	18	22
Women participating in continuing training measures	17	25
Unskilled and semi-skilled workers participating in continuing training measures	7	9
Skilled workers participating in continuing training measures	18	20
Blue-collar workers and unskilled white-collar workers participating in continuing training measures	15	24
Skilled blue- and white-collar workers participating in continuing training measures	29	36

Note: The data on in-company vocational training relates to 1998.
 The data on in-company continuing training relates to the first six months of 1997.
 Source: IAB establishment panel 1993.

other research, e.g. on company demography. This report draws attention to the potential of data from establishment and enterprise surveys for analysis.

Additional skills requirements arise in the context of establishment measures to increase flexibility. Organisational changes such as teamwork, flattening of hierarchies, the downward transfer of responsibility, departmental mergers, the institution of units which determine their own costs and results, and the introduction of just-in-time production tend to increase demand for employees with vocational training qualifications. The slimming down of large companies leads to hiving off of service areas and the emergence of service establishments close to the means of production. The effects of this trend on requirements as regards capacities, skills and competences in establishments are also on the research agenda. Here, the key concern is to obtain insight into the structure of the organisation as a whole, its human resources and strategy, and not simply the utilisation and deployment of employees.

The second subject covered in this section was in-company vocational training and employment of trainees on completion of training, in the training company. Research into participation in in-company training was presented, with participation being measured, for instance, as the number of trainees in relation to the number of employees liable for social security contributions and to the reasons for non-participation in in-company vocational training, by means of the IAB establishment panel (cf. Table 1 for a summary of selected results). Differences as regards specific enterprise sizes and sectors were also discussed, as were development trends. Studies on employment of trainees on completion of training show that establishments implementing long-term planning and investment employ more trainees, relatively speaking, but that current problems in the establishment definitely exert an influence. The section also mentioned the 'early recognition system for skills trends' network, in which a total of nine institutes in Germany are involved, and in which a very interesting mix of different methods is employed. Since 1995, the Federal

Institute for Vocational Training has been researching the costs and benefits of in-company vocational training.

The third area covered was the development trends discernible in the field of in-company continuing training on the basis of establishment and enterprise data. From the methodological point of view, studies examining the returns and above all the effect of continuing training measures on productivity, using panel-based analytical methods and establishment and enterprise data, are comparatively ambitious. These studies have much in common with studies evaluating publicly funded continuing training measures, which my report did not cover.

Other studies examine in-company continuing training provision and the intensity of in-company continuing training, including for individual skills groups. On the basis of data from the IAB establishment panel (again, cf. Table 1 for a summary of selected results), it is apparent that skilled employees are most likely to be given opportunities for continuing training, and unskilled and semi-skilled employees are the least likely. The Continuing Vocational Training Survey (CVTS) carried out by Eurostat in the years 1991-1994 is probably the largest investigation ever carried out in the field of vocational training research, in terms of data collection. Questions are asked on the form of continuing training offered, the group of people involved, the time involved for participants, future skills requirements and the estimated development of forms of continuing training. Enterprises not offering their employees continuing training are asked about their reasons for this. Another strength of these data records is the opportunity to carry out international comparisons. Improvements are required in the area of coordination of the questionnaire in the countries involved (as yet a standardised questionnaire has not been used), in the surveying of important determinants of decisions on continuing training, and in the area of the time span between data collection and publication of the results.

In addition to this most important research in the field of in-company continuing train-

ing, I have covered the research of the Institute of German trade and industry, since this facilitates time-based comparisons. Since 1997, the American Society for Training and Development (ASTD) has been carrying out surveys involving company-related questions as well as continuing training questions. The development of matched employer-employee data records is also likely to continue to offer interesting prospects for the further development of vocational training research. However, as yet there has been no research on this basis in the field of training and continuing training. Lastly, the question of the suitable survey unit was addressed. In vocational training topics, surveys of establishments offer the advantage that at this level the necessary data is directly available.

3. Advantages and disadvantages of longitudinal as opposed to cross-sectional studies

3.1 Overview

The previous section clearly showed the importance and potential of broad-based empirical studies using establishment and enterprise data for many areas of vocational training and skills research. This section will bring out the advantages, but also the disadvantages, of longitudinal research as opposed to cross-sectional research. In this context, a distinction must be made between advantages and disadvantages in respect of data collection and in respect of evaluation of data or interpretation of the results.

With the exception of the IAB establishment panel, the previous section described only surveys designed as cross-sectional studies. It must also be mentioned that the longitudinal data records cited were not usually evaluated as such. In other words, to date in most cases only the data from individual survey waves has been evaluated, and the longitudinal information has not yet been used. Thus, as yet, not all the advantages offered by longitudinal data records have been utilised, but only the technical advantages as regards the survey.

The structure of the IAB establishment panel can be used as an example demonstrating the specific advantages of repeated surveying of the same establishment unit, as well as the problems, in comparison with a survey of different establishment units in different years. The *sampling*, the *fieldwork* and then the *questionnaire design* will be discussed.

3.2 Sampling

In the IAB establishment panel, sampling is done in accordance with the principles of the so-called optimum sample (Pflanzagl 1978, pp. 162ff.), divided into 16 sectors of the economy and ten establishment size classes. Table 2 shows the enterprise size classes, the number of establishments surveyed, the selection probabilities and the response rates in the individual establishment size classes.

It is apparent that the number of establishments responding and the probability of selection increase steadily with the establishment size, measured as the number of employees (e.g. in class 1, up to 4 employees, probability of selection is 0.1%, whereas in the class with 5,000 or more employees, this rises to 91.27%). In the lower classes, the margin between the sizes of the smallest and largest establishment is much smaller than in the higher classes. Hence the establishments in the lower classes are much less heterogeneous than those in the higher classes. In order to compensate for these differences in heterogeneity, an effort is made to survey a larger number of establishments in the higher classes than in the lower classes. The number of cases suitable for evaluation is based on the establishment response rate in relation to specific establishment sizes and sectors of the economy. While this concludes the sampling procedure for the first survey wave, as from the second wave an additional sample is drawn from newly created establishments. This ensures that the data record constitutes a representative cross-section, via appropriate projections. Without the additional sample, establishments founded or employing, for the first time, workers liable for social security contributions after the first sampling procedure

(also known as the basic sample)⁹ would have no opportunity to be included in the sample.

This sampling procedure gives rise to two important aspects as regards assessing the advantages and disadvantages of longitudinal as opposed to cross-sectional surveys of establishments. Firstly, with larger establishments the probability of selection is so high that in the case of most establishments with over 1,000 employees¹⁰ it is de facto impossible to abstain from repeated surveying of the same enterprise unit, because almost all the establishments actually available for survey in the higher establishment size classes have already been covered in the basic survey. For according to Table 2, the probability of selection is 87.65% in enterprises with between 1,000 and 5,000 employees and as high as 91.27% in enterprises with over 5,000 employees. In West Germany, just under one quarter of the establishments covered by the sampling belong to these two size classes.

Secondly, with newly founded establishments the probability of survival is much lower than it is with long-established ones. Consequently panel mortality is higher for these establishments than for long-established ones, even if enterprise representatives in the two groups are equally willing to respond. Therefore, in the IAB establishment panel, a disproportionately large number of newly founded establishments are included in the sample. With a cross-sectional survey, there would be no need for this so-called over-sampling, which takes account of future panel mortality owing to possible establishment closures.

⁹ Unlike other enterprise surveys, such as the Hanover firm panel (cf. Brand and Carstensen 1995) and Eurostat's Continuing Vocational Training Survey (CVTS) (cf. section 2.4.5 of this report), the IAB establishment panel survey is not restricted to individual sectors of the economy or establishment sizes. The only condition is that the enterprise should employ at least one worker liable for social security contributions (in the private households sector, at least five workers liable for social security contributions must be employed).

¹⁰ In the CVTS, as from a company size of 1,000 employees every third company is surveyed (cf. European Commission 1998a, p. 12).

Table 2: Numbers of enterprises surveyed and responding, probability of selection by establishment size in West Germany in the IAB establishment panel

Number of employees ¹⁾	Number of establishments surveyed ²⁾	Probability of selection	Number of establishments responding	Response rate
1 to 4	1,072	0.0011	625	0.67
5 to 9	431	0.0015	250	0.64
10 to 19	466	0.0030	299	0.71
20 to 49	862	0.0089	542	0.70
50 to 99	535	0.0153	350	0.72
100 to 199	543	0.0304	376	0.77
200 to 499	923	0.0862	615	0.74
500 to 999	479	0.1504	304	0.71
1,000 to 4,999	1,497	0.8765	924	0.72
5,000 or more	115	0.9127	71	0.73
Total	6,923	0.0043	4,356	0.71

1) Total number of employees as at 30.6.1992

2) This represents the uncorrected gross sample. For various reasons, approx. 800 establishments could not be included in the survey, e.g. because at the time of the survey they were no longer in existence.

Source: IAB establishment panel 1993.

3.3 Fieldwork

The IAB establishment panel imposes particularly stringent requirements as regards data quality. This can be assured firstly by the high-quality sample based on establishments' statistical data in respect of employees, which establishments with employees liable for social security contributions have a statutory obligation to notify, and secondly by a high response rate (60-70% of enterprises surveyed for the first time, 80% of enterprises in subsequent surveys). In addition, *Infratest Burke Sozialforschung* subjects interviewers' data to a relatively intensive process of checking for completeness, consistency and plausibility, including follow-up telephone calls to the establishments surveyed. With longitudinal surveys, previous values can also be taken into account in checking data.

In the long term, the personal contact between respondents and interviewers also has a positive effect on willingness to participate. As Table 3 shows, everywhere where it has been possible to use the same interviewer as in the previous year, the response rates are markedly higher than where there has been a change of interviewer.

3.4 Questionnaire design

In the IAB establishment panel, the questionnaire is designed using a modular approach (cf. Bellmann et al. 1999). In repeat surveys, the questionnaire can be shorter if certain details of establishments do not constantly change and questions about these are therefore asked only in the initial survey and at certain intervals. The various waves also focus on different aspects.

When the same establishment units are surveyed regularly, with an establishment panel as the instrument, extensive comparability of the questions asked in each wave is assured. Since the proportion of enterprises participating in the survey also depends on the length of the questionnaire, a modular questionnaire structure was selected in the IAB establishment panel. Hence the questions in certain parts of the questionnaire are asked only every two to three years.

3.5 Evaluation

The first advantage of longitudinal data as opposed to cross-sectional data is the possibility of taking into account the heterogene-

Table 3: Response rates, utilisation and use of interviewers (basis: establishment respondents from Wave 5 (1997), excluding refusals in advance for Wave 6 (1998))

	Response rate in Wave 6 (1998)	
	Same interviewer as previous year	Different interviewer
Overall	82.1%	70.0%
West	81.2%	68.2%
East	82.9%	71.3%

Source: IAB establishment panel.

ity of the establishments and the consideration of the relationship between cause and effect (cf. Baltagi 1995). More complex and hence more sophisticated behaviour models can be formulated on the basis of longitudinal data. Establishments' behaviour as regards adaptation can be investigated much better with longitudinal data than with cross-sectional data. There are also certain questions that can be analysed only by means of panel data. There is an increase in the number of cases and of degrees of freedom, a reduction in problems as regards multi-collinearity, and an increase in the efficiency of estimates of regression. Disadvantages are the greater significance of measuring errors and selectivity problems, including the panel mortality caused by various factors. These advantages and disadvantages of longitudinal data as opposed to cross-sectional data will be discussed in more detail below.

A regression model is specified by defining variables. Distorted results are obtained from the assessment of regression coefficients if influential variables are suppressed. This is a serious problem, to which a solution unfortunately cannot always be found, since influential variables often escape notice or at least are not included in the data records available. One of these is the individual heterogeneity of enterprises. However, when panel data is used, this is not a problem if its influence does not change over time and the regression model is formulated in terms of first differences, not size levels. The influence of this variable, which is unobserved but does not change over time, is 'cancelled' out by means of first differences. With longitudinal data, cause/effect relation-

ships can be analysed, as information provided at different times is available and effects cannot precede causes¹¹.

Adjustments in line with new balances on the labour market are of great interest for economic policy, since different economic policy measures must be judged differently in terms of the time required for the intended aims to be achieved. The reason for delayed reactions is the costs arising when employee numbers change. These adjustment-related costs may extend over more than one time period (cf. Hamermesh 1993). Dynamic adjustment models therefore need to be evaluated. This can only be done by means of panel data.

Certain issues can be examined only via longitudinal data. These include the question of whether training companies simply do not train during individual time periods, or whether they make a lasting decision to institute their own in-company vocational training.

Thus it is easier to research developments over time on the basis of repeated surveys of the same business units than if different units are surveyed. In this way, it is easier to make a distinction between changes in the behaviour of the same business units and changes based on changes in the composition of the aggregate under consideration. For example, the decline in provision of training places in Germany is caused both by a display of cau-

¹¹ Nevertheless, foreseeable changes can be anticipated, which means that chains of causality can be identified to only a limited extent.

tion on the part of training companies and by the increasing importance of enterprises with no connection with training, which as yet, therefore, do not provide training, e.g. service centres, temping companies, young entrepreneurs or foreign companies. The latter are endeavouring to establish themselves on the market and are less concerned about their own possible future need for workers.

If the results of different survey waves can be evaluated in summarised form in longitudinal analyses, higher case figures ensue, so that the number of degrees of freedom increases. Thus at a given level of test statistics, it becomes easier to draw statistical conclusions. Admittedly it must be possible to pool the data records, but this is a property that can be tested for. Problems of multicollinearity are reduced, because the level of variance contained in the explanatory variables increases. This means that the results are more reliable. Measurement errors are generated by incorrect delimitations, inaccurate answers, or the efficiency of estimates and sampling errors. Incorrect information arises as a result of unclear questions, inaccurate memories (especially if questions are asked about events some time in the past), deliberate misinformation (e.g. prestige bias), information from incompetent persons, interviewer effects and processing errors (cf. Kalton, Kasprzyk and McMillen 1989).

The decision on continued participation in a survey may be dependent on the same factors whose influence on in-company training and continuing training is to be investigated, such as the answers to questions about business returns, the anticipated employment trend, the anticipated trend in in-company vocational training or the quest for staff. The ensuing selectivity represents a major problem for the modelling and interpretation of results. Kalton, Kasprzyk and McMillen (1989) examined several panels from the point of view of panel mortality and concluded that it increases from wave to wave – but at a decreasing rate. However, the research of Hartmann and Kohaut (1999) in the context of the IAB establishment panel showed that panel mortality has only a minimal influence on the results obtained.

3.6 Interim summary

To summarise, it can be stated that longitudinal surveys are more time-consuming and costly than cross-sectional surveys, but offer important advantages. This also applies, at least in part, to repeated cross-sectional surveys.

I have been able to use the example of the IAB establishment panel to show that there is no difference between longitudinal surveys and repeated cross-sectional surveys with regard to the selection group in the context of the larger establishments surveyed, because larger establishments were intended to be taken into account to a disproportionate extent in the sample. In the case of the IAB establishment panel, *Infratest Burke Sozialforschung*, which is responsible for collecting the data, subjects interviewers' data to a relatively intensive process of checking for completeness, consistency and plausibility. At the same time, owing to the longitudinal nature of the survey, previous values can be taken into account and follow-up telephone calls can be made to collect further information. In addition, the personal contact between interviewer and establishment is the most important precondition for high participation rates. In longitudinal surveys, the questionnaire can be designed using a modular approach. Therefore the questionnaire can be shorter, as in the case of certain details of establishments, which do not constantly change, questions only need to be asked in the initial survey and at certain intervals.

In the context of evaluation, the main advantages of longitudinal data as opposed to cross-sectional data lie in the possibility of taking into account the heterogeneity of establishments and the consideration of the relationship between cause and effect. More complex and hence more sophisticated behaviour models can be formulated on the basis of longitudinal data. Enterprises' behaviour as regards adaptation can be investigated much better with longitudinal data than with cross-sectional data. There are also certain topics that can be investigated only by means of panel data. However, statistical advantages are also offset by the selectivity problems occurring

in longitudinal research, including those caused by panel mortality.

4. Conclusions

The selected studies on company flexibility and in-company training and continuing training discussed have shown that in future establishment and company surveys will be an essential instrument for vocational training research. What do the ideal data records look like in this context? Similarly to the IAB establishment panel, questions should be asked about the intensity of in-company training and continuing training, as well as the skills structure and skills requirements.

A list of questions about various aspects of company personnel and employment policy must be asked, in order to cover influencing factors that are important from the point of view of vocational training research, e.g. factors influencing the intensity of in-company training and continuing training and skills development. The survey should be carried out annually on the basis of a panel, since this gives rise to major technical advantages as regards the survey, the questionnaire and evaluation. In addition, it would be productive to interview a representative group of employees in the companies participating in the survey and to build up matched employer-employee data records.

If questions of continuing training actually implemented or financed within the enterprise are also addressed, it would not be sufficient to use (only) data such as the social security data in the employee statistics of the Federal Institute for Employment in Germany. Admittedly the selection problem arising in a survey of workforce members would have to be solved. In this respect, administrative data offers advantages if it relates to the majority of employees in the enterprises covered. In this context, it would also be of great interest to include surveys of employee representatives at establishment level in the establishment and enterprise units surveyed (cf. the works council and staff council surveys carried out by the Institute of economic and social science (*Wirtschafts- und Sozial-*

wissenschaftlichen Institut, WSI) in Germany and the British Workplace and Industrial Relations Survey (WIRS). Last but not least, it is very important to resolve data protection problems, since in future both research into the demand for labour and vocational training research based on establishment and enterprise data will have greater weight only if the data collected can be evaluated not only by employees of the institutions collecting it, but also by other scientists (cf. Bender, Brand and Kohaut 1999).

In evaluating establishment and enterprise surveys, which I argue should be available in longitudinal form, the greatest potential lies in using panel econometric methods of analysis. It is necessary to include a number of questions on various aspects of company personnel and employment policy because when econometric procedures are used, the most important factors influencing in-company training and continuing training, for example, can be identified. In addition, the use of matched employer-employee data records has the advantage that supply-side influencing factors can be taken into account as well as demand-side factors. If matched employer-employee data records are built up on the basis of administrative data, no selection problem arises as regards surveying of employees, but fewer variables are available. However, the social security data in the employee statistics of the Federal Institute for Employment includes information on employees' qualifications, their occupations and their pay, in longitudinal form.

An important potential for analysis ensues if similar data records are generated in different countries, so that international comparisons are possible. Although institutions are of very great importance in vocational training, their positive or negative influence on vocational training cannot be determined in national studies alone, if they are national institutions. Ideally, data collection should be coordinated in the countries concerned, as in Eurostat's Continuing Vocational Training Survey (CVTS). The first steps in this direction have already been taken in the field of research into continuing training and company flexibility. As yet, however, little re-

search is available into questions of initial vocational training, skills requirements, recruitment and other important issues in vocational training research. Since it is likely to be at least very difficult to determine the factors influencing in-company training and continuing training, for example, in different countries, strict limits are set for the use of econometric methods. On the basis of a good register of establishments and enterprises, however, projected results for countries as a whole can be compared with one another.

5. Summary

Politicians, scientists and employers themselves have an increasing interest in reliable information on trends in labour market demand and companies' skills requirements. The main reasons for this are the persistently high level of unemployment and the associated under-utilisation of human resources, and reinforcement of the quality of locations via investment in human capital. However, in comparison with the data available on the supply side of the labour market, the data available on the demand side is inadequate. Hitherto various public bodies and research institutes have concentrated on surveying individuals. Company and enterprise data is systematically collected, but seldom with regard to employment and skills aspects and the variables determining these. In order to be able to analyse and possibly reduce the continuing problems in the context of the labour market and training, there is a need for reliable data on the company side of the labour market.

Many topics in the field of vocational training research can be adequately covered only by means of personal, establishment and enterprise data. This report has shown the potential which analysis of company and enterprise data offers in respect of three important subject areas.

Firstly, additional skills requirements arise in the context of enterprise measures to increase flexibility. Organisational changes such as teamwork, flattening of hierarchies, the downward transfer of responsibility, depart-

mental mergers, the institution of units which calculate their own costs and results, and the introduction of just-in-time production tend to increase demand for employees with vocational training qualifications. The slimming down of large companies leads to hiving off of service areas and the emergence of service enterprises close to the means of production. The effects of these trends on requirements as regards capacities, skills and competences in enterprises are also on the research agenda. Here, the key concern is again to obtain insight into the structure of the organisation as a whole, its human resources and strategy, and not simply the utilisation and deployment of employees.

The second subject covered in this section was in-company vocational training and employment of trainees on completion of training, in the training enterprise. Research into participation in in-company training was reviewed, with participation being measured, for instance, as the number of trainees in relation to the number of employees liable for social security contributions, and to the reasons for non-participation in in-company vocational training. Differences as regards specific enterprise sizes and sectors were also discussed, as were development trends. Studies on employment of trainees on completion of training show that establishments implementing long-term planning and investment employ more trainees, relatively speaking, but that current problems in the establishment definitely exert an influence. This section also discussed the 'early recognition system for skills trends' network, in which a total of nine institutes in Germany are involved, and in which a very interesting mix of different methods is employed. Since 1995, the Federal Institute for Vocational Training has been researching the costs and benefits of in-company vocational training.

The third area covered was the development trends discernible in the field of in-company continuing training on the basis of establishment and enterprise data. From the methodological point of view, studies examining the returns and above all the effect of continuing training measures on productivity, using panel-based analytical methods and estab-

lishment and enterprise data, are comparatively ambitious. These studies are closely aligned with studies evaluating publicly funded continuing training measures, which my report did not cover.

A fundamentally different path is followed by approaches involving action-oriented evaluation, e.g. in the context of monitoring of continuing training. Other studies examine in-company continuing training provision and the intensity of in-company continuing training, including for individual skills groups. It is apparent from these that skilled employees are most likely to be given opportunities for continuing training and unskilled and semi-skilled employees are the least likely. The Continuing Vocational Training Survey (CVTS) carried out by Eurostat in the years 1991-1994 is probably the largest investigation ever carried out in the field of vocational training research, in terms of data collection. Questions are asked on the form of continuing training offered, the group of people involved, the time involved for participants, future skills requirements and the estimated development of forms of continuing training. Enterprises not offering their employees continuing training are asked about their reasons for this. Another strength of these data records is the opportunity to carry out international comparisons. Improvements are required in the area of coordination of the questionnaire in the countries involved (as yet a standardised questionnaire has not been used), in the surveying of important determinants of decisions on continuing training, and in the area of the time span between data collection and publication of the results.

In addition to this most important research in the field of in-company continuing training, I have covered the research of the Institute of German trade and industry, since this facilitates time-based comparisons. Since 1997, the American Society for Training and Development (ASTD) has been carrying out surveys involving company-related questions as well as continuing training questions. The development of matched employer-employee data records is also likely to continue to offer interesting prospects for the further development of vocational training research. How-

ever, as yet there has been no research on this basis in the field of training and continuing training. Lastly, the question of the suitable survey unit was addressed. In vocational training topics, surveys of enterprises offer the advantage that at this level the necessary data is directly available.

Longitudinal surveys are much more time-consuming and costly than cross-sectional surveys, but offer important advantages. I have been able to use the example of the IAB establishment panel to show that there are only partial differences between longitudinal surveys and repeated cross-sectional surveys with regard to the selection group in the context of the establishments surveyed, because larger establishments were designed to be taken into account to a disproportionate extent in the sample, and therefore virtually all of them have to be surveyed. In the case of the IAB establishment panel, *Infratest Burke Sozialforschung*, which is responsible for collecting the data, subjects interviewers' data to a relatively intensive process of checking for completeness, consistency and plausibility. At the same time, owing to the longitudinal nature of the survey, previous values can be taken into account and follow-up telephone calls can be made to collect further information. In addition, the personal contact between interviewer and establishment is the most important precondition for high participation rates. In longitudinal surveys, the questionnaire can be designed using a modular approach. Therefore the questionnaire can be shorter, as in the case of certain details of establishments, which do not constantly change, questions only need to be asked in the initial survey and at certain intervals.

In the context of evaluation, the main advantages of longitudinal data as opposed to cross-sectional data lie in the possibility of taking into account the heterogeneity of establishments and the consideration of the relationship between cause and effect. More complex and hence more sophisticated behaviour models can be formulated on the basis of longitudinal data. Establishments' behaviour as regards adaptation can be investigated much better with longitudinal data than with cross-sectional data. There are also certain topics

that can be investigated only by means of panel data. However, statistical advantages are also offset by the selectivity problems occurring in longitudinal research, including those caused by panel mortality.

Lastly, it is recommended that company and enterprise surveys be developed and evaluated, focusing on vocational training and continuing training. Similarly to the IAB establishment panel, questions should be asked about the intensity of in-company training and continuing training, as well as the skills structure and skills requirements. A list of questions about various aspects of company personnel and employment policy must be asked, in order to cover influencing factors that are important from the point of view of vocational training research, e.g. factors influencing the intensity of in-company training and continuing training and skills development. The survey should be carried out annually on the basis of a panel, since this gives rise to major technical advantages as regards the survey, the questionnaire and the evaluation. In addition, it would be productive to interview a representative group of employees in the companies participating in the survey and to build up matched employer-employee data records.

The greatest potential offered by establishment and enterprise surveys lies in using econometric analysis methods. It is necessary to include a number of questions on various aspects of company personnel and employ-

ment policy because when econometric procedures are used, the most important factors influencing in-company training and continuing training, for example, can be identified. In addition, the use of matched employer-employee data records has the advantage that supply-side influencing factors can be taken into account as well as demand-side factors.

An important potential for analysis ensues if similar data records are generated in different countries, so that international comparisons are possible. Although institutions are of very great importance in vocational training, their positive or negative influence on vocational training cannot be determined in national studies alone, if they are national institutions. Ideally, data collection should be coordinated in the countries concerned, as in Eurostat's Continuing Vocational Training Survey (CVTS). The first steps in this direction have already been taken in the field of research into continuing training and company flexibility. As yet, however, little research is available into questions of initial vocational training, skills requirements, recruitment and other important issues in vocational training research. Since it is likely to be at least very difficult to determine the factors influencing in-company training and continuing training, for example, in different countries, strict limits are set for the use of econometric methods. On the basis of a good register of establishments and enterprises, however, projected results for countries as a whole can be compared with one another.

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Part four:

Employment, economic performance and skill mismatch

The skills market: dynamics and regulation

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Abstract

This report deals with the dynamics of the balance between the supply of and the demand for skills in the labour market in developed countries, especially those of the European Union. In a context of radical changes in the demand for labour, which have resulted primarily from the development of international trade and technological progress, the transformation of the nature and content of work is forcing the productive system to adapt to new skills within a very short period of time, which often bears no relation to the traditional timescale for the acquisition of qualifications. At the same time, as the average number of years of study per head of population in Europe continues to rise, generations of increasingly highly qualified young people are finding it no easier to obtain employment. On the basis of this twofold observation, the aim of our research is to examine the way in which adjustments are made in the skills market and the role of initial and further-training systems in the regulation of that market.

We have tried to distance ourselves from traditional methods of analysing the relationship between training and employment, which often boil down to an appraisal of the relevance of formal qualifications to the demands of the workplace. These methods tend to present the problem in terms of a functional relationship between a customer (the productive system) and a supplier (the education system). For our part, we intend to study the relationship between skills and employment. This amounts to confirming the hypothesis that human productive capacity is divisible into a number of components that may be acquired in various places, at various times and by various means. If this hypothesis is true, the relationship between the production and consumption of know-how must be more complex than is generally assumed.

This complexity is made all the greater by the fact that the production of skills is, by nature, a fairly unpredictable process. The more distant the horizon, the more difficult it is to anticipate future needs. Beyond a certain horizon, then, the demand for skills is intrinsically unforeseeable. Moreover, if we assume that an individual's various skill levels are constantly changing, that these changes are wrought by the education system and/or the production system and/or simply by social interaction, it becomes necessary to consider the production of skills as a system of cooperation between the educational and the productive spheres. This cooperation is entirely intuitive and interactive. Each of the two systems establishes its strategy in response to the action of the other. Each acts on different information, but the information is subject to that same intrinsic unpredictability as soon as any attempt is made to adopt a long-term perspective.

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1. Introduction: contextual elements and proposed line of approach

This report deals with the regulation of the supply of and the demand for skills in the labour market in developed countries, especially those of the European Union. Economic and social changes in those countries help to determine the ways in which their labour markets operate and develop. In particular, they are locked into a process of globalisation and technological change, especially in the domain of new information technology. This global transformation process is liable to vary in its impact on individual countries, regions, economic sectors, etc.

1.1 The demand structure: globalisation, information technology (IT) and unemployment

Various authors (Castells, 1996; Petit, 1998; Vinokur, 1999, etc.) share the view that the socioeconomic changes experienced by our societies and labour markets are ascribable to 'globalisation' (some speak of 'information capitalism' or of the 'economy of the knowledge-based society', etc.).

This phenomenon has its roots in the 1980s and is characterised by a number of major changes:

- ❑ quicker and cheaper exchanges of goods and information;
- ❑ free (or largely unrestricted) movement of goods, services and capital;
- ❑ concentration of the world's capital into fewer hands;
- ❑ widespread monopolistic competition, even in traditionally 'non-commercial' spheres such as education and training;
- ❑ internationalisation of development funding;
- ❑ government support designed to increase the productivity and competitiveness of national economies, perhaps at the expense of social protection; and,
- ❑ globalisation of production facilities and sales outlets as international borders become more open.

In the view of Castells (1996), these changes are linked to an expansion and 'rejuvenation' of capitalism, which are opening a new chapter in its history, a chapter that he calls 'information capitalism'. As Carnoy emphasises (1999, p.147), the essence of globalisation does not lie purely in trade figures and investment volumes or in the extent to which a national economy is truly national *but in a new way of perceiving socio-economic time and space*.

In this framework, it is recognised that the changes prompted by the spread of new information technology have three characteristic features:

- acceleration;
- turbulence; and
- universality.

These three characteristics require the sort of precise analysis that transcends the scope of this report. Acceleration should be understood as the frequency of changes within a given length of time, turbulence relates to the diversity of places within the production system where changes are liable to occur, and universality denotes the speed with which these changes permeate the entire economy.

Changes in demand have also been reflected in more restricted access to jobs and hence to serious mass unemployment, affecting all groups in the labour market, but particularly young people and the least qualified. The effect of these changes has therefore been to increase uncertainty about the future nature and level of demand in the medium and long term.

1.2 Changes on the supply side: an ageing population, rising educational attainment levels and more training opportunities.

Turning now to changes in the supply of labour, we might ask how the active population has been developing in relation to the changes in the production system. If we examine the development of the supply of labour in the countries of the European Union, some broad trends are discernible in almost every Member State:

- ❑ a general increase in the number of university and college graduates in the labour market, each generation emerging from the education system more highly qualified than the one before;
- ❑ an increase in economic activity rates which is directly linked to educational attainment levels, especially among women (Cedefop, 1998a, pp. 40-46);
- ❑ major demographic changes (Cedefop, 1998a, pp. 36-40), including the ageing of populations, which is transforming the web of relationships between initial education, further training and occupational experience;
- ❑ an increase in the number of places on training courses and of opportunities for training outside schools and colleges and hence in the prospects of acquiring skills which diplomas cannot even begin to measure (Cedefop, 1997a, and Planas, 1990);
- ❑ changes in production processes and work organisation which have tended to create more opportunities for on-the-job training (Cedefop, 1995 and 1998b);
- ❑ the development of education and training into a process of lifelong learning;
- ❑ polarisation of the lifelong-learning process on the basis of differences in initial education levels (Cedefop, 1997a, and Planas, 1996), effectively closing the door to lifelong learning on those who enter the labour market with low skill levels (Steedman, 1999, and Cedefop, 1999); and finally,
- ❑ the gradual transformation of training into a commercial product, which has had a significant impact on the supply structure within the labour market.

If we examine how education systems have evolved in recent decades, it becomes apparent that the countries of Europe have largely opted to prolong the process of formal education at a time when youth unemployment has been high. Is this strategy that education sys-

tems have adopted – a strategy which often dovetails with government policy in those countries of the European Union where the education system is tightly controlled by the state – a rational response to the various developments in the labour market?

National statistics on youth unemployment and the results of random surveys show that, in all countries, young people with higher qualifications are more likely to find work. Qualified young people, however, compete in the labour market with older jobseekers who have fewer qualifications but more experience. Given the structure of labour markets, recruitment decisions do not always favour the best-qualified candidate (Béduwé and Espinasse, 1996a), and in certain countries of the Union we see the emergence and growth of phenomena such as job downgrading or reluctance to employ job applicants who are perceived as overqualified.

How should the educational sphere (initial and further training, general and professional education, formal and informal education) respond to this situation? It cannot remain inactive in a society in which change is gathering momentum, in which new technology is being superseded ever more quickly and in which individuals spend increasingly long periods of time in pursuit of knowledge and skills – in short, in a society whose future shape is less predictable or, more precisely, is predictable within an ever shorter time frame.

How are young people (and others) to be prepared for a labour market in which the required skills are increasingly ephemeral and for a working world in which businesses, in the face of ever fiercer monopolistic competition, have to slash the time it takes to turn innovative ideas into products and to put those products on the market?

How does one resolve this problem, which is essentially about the divergence between the horizons of the production system (i.e. technological innovations and order books) and those of the education system, which operates in terms of an individual's lifetime and the time it takes to implement educational re-

forms? Is an increase in training really compatible with the needs of the economy?

1.3 The proposed line of approach

A problem of this type can be addressed from many angles. Some think that price flexibility is an essential and sufficient means of solving this problem of disparate timescales (Friedman, 1997). From a more educational point of view, the problem might be approached through curricula and examination requirements. We could also investigate behaviour patterns and expectations, which are the driving forces of negotiation between the players in this field. Widely though their approaches may vary, all scholars are interested in the same fundamental problem, namely the development of skills and their integration into society and the business world. Some analysts, bewitched by the speed of technological progress in particular areas, have even concluded that the development of job descriptions is now totally unpredictable, and so they implicitly consider our type of research to be futile, because they have overestimated the speed and universality of technological change while underestimating the adaptability of our societies.

Let us examine the 'canonical' form which is used to describe relations between the worlds of business and education and which we shall refer to in this report as the customer-supplier model. An example of this model is provided in Cedefop's first research (Cedefop, 1998a, p.35).

Such a model is extremely potent. It describes the main interactions in terms of economic logic. It serves to reduce the bulk of the empirical and theoretical research in this domain to order and enables statisticians to structure the available data. It serves to identify the main underlying trends that govern the awarding of qualifications and brings into focus the various interpretations of the body of theoretical knowledge.

At a certain level of macroeconomic abstraction, it touches on reality. The education system provides at least part of the training that producers receive. The labour market uses

qualified people and thus provides one of the means by which the performance of the education system can be evaluated.

This model certainly corresponds to some extent with the way in which politicians – and the public at large, for that matter – see the problem: businesses and their employees need qualifications, and the purpose of education and training systems is to satisfy that need.

This equation, however, raises a host of old familiar problems (Blaug, 1970).

The customer-supplier model is based on the simplistic assumption that every course of training leads to employment in one of a restricted and clearly defined range of jobs. Conversely, each job presupposes the successful completion of one of a restricted and clearly defined range of training courses. This perception has at least two drawbacks: from a technical point of view it clearly depends directly on the breadth of the designated occupational and qualification categories, while from a factual point of view it is clearly erroneous; one need only study a table of occupations and formal qualifications to see that, however wide or narrow the designated categories, there is little evidence to suggest that this type of correspondence between jobs and training courses exists outside the trades and professions for which specific qualifications are required by law.

According to the perception described above, the product exchanged in the marketplace is aptitude, certified by a degree, diploma or other formal qualification or at least by evidence of a completed learning process within the education system. This highly restrictive hypothesis, however, has attracted strong criticism (Carnoy and Levin, 1985; Tanguy, 1985). The strict interdependence of training and employment which underlies such a hypothesis implies a perfect level of information about what every job entails and about the way in which job descriptions will develop. The 'suppliers' will not be able to satisfy the 'customers' unless the latter can clearly describe their present and future needs. This is subject to two conditions, which are only very partially fulfilled.

- a) Jobs must be defined in terms of 'prescribed' job descriptions, i.e. the tasks they entail must be entirely specifiable.
- b) The medium- and long-term development of jobs must be predictable, i.e. we must know how technology and markets are going to develop.

It is incontestable (and, it must be said, universally accepted) that these conditions cannot realistically be fulfilled. Be that as it may, this model remains very largely the basic frame of reference.

If one thing emerges clearly from the debate between the two sides of industry, it is that education and training have long been presented (and still are, to a degree) as a panacea for all the ills of society, especially those inflicted by unemployment.

Among labour-market analysts, the customer-supplier model still has many adherents. Some of them apply it directly in order to make forecasts about training requirements and to fashion instruments with which the education system can be guided. This is the case in the developing countries, but it also happens in developed countries. These researchers, in other words, believe that the advantages to be gained from such an approach in terms of deducing the production level of education systems from variations in economic production and in global macroeconomic performance justify the statistical risk inherent in the acceptance of technically unsound hypotheses. Recent developments in the realm of endogenous growth have confirmed them in this belief.

The relationship between the creation of human productive capacity and its use in production and development is not a straightforward one. It does seem to us, however, that it is possible, and indeed desirable, to see that relationship in less mechanical terms and to regard it as more dependent on the interactivity of the market and more in tune with the changes in our societies. To put it another way, we are suggesting an approach that fits more neatly into the contextual framework we have just presented, characterised as it is

by momentous changes that have affected both the supply of labour and the demand for labour.

If, for the sake of realism, we abandon the purely functionalist rationale and its implicit hypotheses of a perfect supply of information and ideal education systems, we must propose a new rationale based on the concept of skills and on a dynamic view of their creation. This implies that we should put forward an almost completely revised analysis of the mechanisms by which people are placed in employment and by which their skills are brought into line with their tasks. It also means that we shall have to redefine the very concept of mismatches.

This new perspective will lead us, in the course of the present report, to reply to three types of question.

1. How is human capital to be defined and measured when we no longer regard certificates as the sole proof of qualification? How do we then recognise and certify the assets that are actually exchanged in the labour market?
2. What role do demand for labour and, more particularly, technological and organisational change play in the development of skill requirements?
3. How is a balanced skills market to be defined and achieved? And what constraints and adjustment mechanisms does this entail?

2. How can human productive capacity be defined and measured?

In this chapter, we shall address the various problems associated with any attempt to define and measure human productive capacity in the context of the economic and social changes that our societies are currently undergoing. Our examination will be conducted in three stages.

- a) We shall try to circumscribe the concepts of qualification and skill.

- b) We shall then relate the concept of skill to the problem of measuring human productive capacity.
- c) Finally, we shall examine the diverse solutions that have been adopted to address the problem of recognising skills.

2.1 Qualification and skill: a matching pair or two different perceptions of the labour market?

Human productive capacity, people's capacity to perform tasks or achieve objectives – what we shall call skill for the sake of simplicity and as the closest approximation – covers a host of terminological concepts.

Moreover, the definition of each term often varies within the scientific world, either from one discipline to another or from one school of thought to another, as well as within the working world (for example the debate in France between management and the unions on the concept of skills).

In fact, the terminology used in this domain is largely derived in two different ways from the language of industrial relations.

1. Some of it is the vocabulary (and the semantics) used in the market to match supply with demand. In a market characterised by extremely imperfect information, such matching is a crucial factor. At the institutional level, the debate on certificates, on their recognition and on the extent to which they feature in collective agreements and pay scales, demonstrates the importance of words. At the political level, the current debate on the recognition of skills acquired on the job by means of 'pseudo-diplomas' illustrates what an extension of this vocabulary can imply. At the theoretical level, the theory of signals and its concomitant, the theory of information, also show us that words, the concepts they represent and the strategic use that is made of them are themselves a balancing mechanism.

2. The terminology and the underlying conceptual debate pose a fundamental question: what exactly is exchanged in the labour market? The question may appear incongruous

and the answer self-evident. However, as soon as we move away from the standard neoclassical paradigm, the answer becomes less obvious. Irrespective of the duality of the labour market/job market, there is evidently little to be gained by suggesting that work/labour is exchanged in the market if work or labour cannot be regarded as a homogeneous good or as an entity with fully defined characteristics. Attempting to understand the labour market, in other words to discover how people are allocated to economically useful tasks, entails a careful definition of the characteristics of labour and an evaluation of the heterogeneity of productive capacities, not only between workers but also the range of ability levels within any given individual as examined by cognitive scientists and ergonomists. This is clearly all the more essential if our aim in conducting such an analysis is to learn lessons about the education system and its regulation.

To simplify the debate, we shall formulate our proposition around the concepts of qualification and skill.

It is plainly not a simple question of terminology. As Lichtenberger wrote (1999, p.93), scarcely anyone still disputes today that the emergence of the concept of competence in the domain of industrial relations and in the management of human resources is no mere cyclical effect associated with a particular style of management or with the erosion of previously acquired guarantees but is actually a sign of profound change.

Accordingly, no consideration of the relationship between the production system and the education can ignore this debate.

Summing up such a debate, however, is no easy task. Three elements seem to be essential if we are to define what this debate is all about.

- a) On the one hand, there are clearly observable changes in the way in which labour is mobilised and used in the market.
- b) On the other hand, behind the terminology there lies an issue that is crucial to the development of social and industrial rela-

tions. Governments, employers and labour are establishing their positions in a debate which is gradually taking centre stage within the collective-bargaining process and may well come to be at the heart of the future development of labour law.

- c) Finally, acceptance of the concept of competence as part of the currency of collective bargaining necessarily implies that competence, i.e. skills, must be made measurable and negotiable. This brings us back to the problem of formal recognition.

2.1.1 From qualification to skill – quantitative and qualitative changes

If we identify qualification (productive capacity) with the certification provided by the system of education and (chiefly initial) training, the problem is a simple one.

A certificate is required for a job, except in the case of unskilled work performed by non-certificated employees. One is a necessary and sufficient condition of the other, provided there is no shortage of work for holders of a particular certificate.

Imbalances can take two forms. There may be too many qualified people for a given type of employment, or there may be too few qualified people for the available jobs. In either case, it would be necessary and sufficient to produce exactly the right number of people with the certificate in question in order to redress the balance.

Expressed in this intentionally rather provocative way, these are the first principles of educational planning based on anticipated market requirements in terms of qualifications (the 'manpower approach'), as examined by Blaug some 30 years ago. This approach often completely assimilates initial education

to the skill level of a labour force, taking no account of training in the workplace.¹ But, as Blaug (1970) emphasised, one of the main problems of the educational economy concerns the way in which training, and especially initial education, contributes to the qualification of the labour force. At the individual level, this qualification is a complex function of basic intelligence, psychomotor capacity, occupational experience, formal or informal training in the workplace and educational attainment. More recently, using approaches that often vary widely from one discipline to another, researchers have been trying to introduce the concept of skills, which seems to be gradually superseding that of qualifications. Going beyond the purely semantic debate, let us examine more closely the scope and purpose of this concept in the definition and measurement of productive capacity.

The concept of skill – sometimes referred to as competence² – has been developed as a better means of describing the complex diversity of ways in which the productive capacities of individuals are amassed. There are, of course, 'explicit' initial and further education and training, but there is also on-the-job training, which may be entirely informal or partly formal and may or may not lead to the award of a certificate, and there is also the social learning process. This complexity is accompanied by an array of acquisition mechanisms which is made all the more extensive by the fact that most skills can be acquired by different complementary and/or alternative means.

This concept, then, is presented as a key to better understanding and measurement of individual human capital in a context of an expanding education system and diversification of training scenarios. The purpose of this concept of skills is to arrive at a definition of individual human capital which more accurately reflects the way that capital is used in the workplace by taking due account of the extracurricular acquisition of knowledge and skills. Its aim is to embody the complexity,

¹ Ahamad and Blaug (1973, p.13) put it this way: *This means that educational plans which are drawn up on that basis may over-estimate the change in investment necessary for different types of education, since part of the forecast shortages and surpluses will tend to be eliminated by on-the-job training and by employers' retraining schemes.*

² The concept of skill that we shall use in the rest of this report is defined in subsection 2.1.2 below.

the individuality and the efficiency of human labour. Skill is at least partially at odds with the concept of qualifications, which is based on the principles of standardisation, transparency and formal recognition. The concept of skill is intended to go beyond the idea of prescribed work that is basic to the Taylorist system of industrial management, but it also calls into question both the advantages and drawbacks of the occupational recognition that derived from Taylorist work organisation. To cite Lichtenberger (1999, p.94), we should not become involved in a similar process today in the confrontations about the primacy of skill, which is both decried as symbolising the dismantling of hard-won gains and lauded as recognition of a neglected asset, namely the identification of employees with their work or, as one trade unionist put it, the human side of work.

The skill of an individual seems to be more closely related to his or her ability to solve problems; such problems are generally new and cannot always be resolved by recourse to existing systems (Legrand-Lafoy and Roussillon, 1995). If this is the nature of skill, we might wonder whether it can be exclusively acquired in the scholastic environment. Indeed, it seems more likely to be an intrinsic function of a person's job and to be definable by the extent to which it matches the requirements of that job. Skill appears to be dissociable from the concept of occupational experience, even if formal training is the essential source of basic skills and the bedrock on which experience can be built up.

This accumulation of experience is quite different to the 'learning by doing' to which Arrow refers. It is not merely a matter of simple productivity gains achieved through training in competitive tasks performed in a Taylorist context. On the contrary, it is about gathering experience of a non-routine nature, resulting from the active involvement of the individual. This idea of the dynamic development of skills is reflected in the managerial approach. The literature in which that approach is propounded defines it as a process, as a *chain of operations set off by a particular event (the intention of resolving a problem) which transforms inputs (resources) into output (per-*

formance) (Devallae, 1998, p.13). It is also *an ability to mobilise a specific combination of knowledge and of know-how in order to achieve a given performance standard.*

Conventional training alone will not develop skill. It is necessary, says Delavallae (1998, pp.13-14), to *put trainees into learning situations that will enable them to use the knowledge they have acquired in training and thus to enrich the know-how they will require for the solution of new problems and to monitor their progress closely.* Training, be it initial or further training, is presented here as one input among several in the creation of skill. In most cases, it is a necessary condition. Only in exceptional cases is it the sole condition.

In this model, enterprises need to recognise the skills of individuals, but certificates or academic records alone do not provide them with the necessary information. The information that can be obtained from certificates and CVs is imprecise and inadequate, as is demonstrated in Mincer's literature on the functions of education and experience as well as in the report by Espinasse and Vincens (1998) on the development of the relationship between certificates, occupations and pay levels in the five largest countries of the European Union, which is even more relevant to our present analysis.

2.1.2 Towards a definition of skill

Let us now consider the purpose of thinking in terms of skills. If we accept that skill is really the good that is traded in the labour market, how does this alter the analysis of matches and mismatches between qualifications and job requirements?

If we may come back to the problems involved in the definition of skill, our aim is neither to propose a precise and exhaustive definition of skill nor to resort to one of the many definitions that exist in academic literature or in the field of industrial relations. Defining skill is more than a mere academic exercise; it is a vital social issue for all interested parties in every country (Merle, 1997), an issue on which consensus is seldom achieved.

Instead of an outright definition, we shall try to plant a few markers in order to stake out more clearly our understanding of skill. This understanding is based on three characteristics on which we believe there is consensus.

a) Skill is a vector

The skill of an individual is the conjunction of a number of elementary capacities (knowledge, know-how, life skills, etc.). Each individual is equipped with a vector which is specific to him or her and which would probably turn out to be unique if it were defined in sufficient detail. Reducing this vector to a set of formal qualifications is often a rather unrealistic simplification, for if skill were synonymous with qualification, how could individuals with the same diploma have different job and career prospects, for example? *Each component in this vector is acquired by different means.* Some are acquired through explicit formal training, others are obtained in less formal contexts, such as training on the job and learning by doing, while others are acquired in social life outside the workplace or are simply inborn (or picked up in infancy or early childhood). Lastly, some skills may also be acquired by some combination of these means.

The purpose of applying Lancaster's producer/consumer model (1966 – see Box1 below) is to provide a dynamic and individualised explanation of the production of skills on the basis of knowledge, seen here as a production input. The same skill level may be attained by various combinations of inputs. This level will depend on the individual's ability at the start of the process, on the knowledge he or she has acquired through implicit and explicit training and the time invested by the individual in the absorption of knowledge. The two main production methods are explicit training, especially initial education, and implicit training, through occupational experience, but we cannot exclude other less formal means of skill production. Initial education and the acquisition of experience in or away from the workplace enable individuals to amass specific knowledge but also to develop other qualities which are often of a more general nature, such as the ability to learn and personal ini-

tiative. Skill cannot be regarded as a stock of fixed knowledge that is acquired once and for all time at the start of a person's active life. On the contrary, skills are developed throughout one's working life or at least during the first years of an individual's career. After a certain period, the marginal utility of the time spent in various forms of training diminishes as its marginal cost increases, eventually reaching a point at which individuals have no more to gain by developing their skills.

b) The economic value of a skill is specific to each job (i.e. work situation) and to each company

As a general rule, workers will not use all the skills they possess in the performance of their tasks. Different situations in the workplace will demand the use of different skills. There is no intrinsic or absolute skill. Useful or productive skill depends on the conditions in which an occupation is pursued. Some authors even doubt the very existence of individual skill or at least that it can materialise fully outside the collective context.

In the behaviourist and evolutionary approaches, skill is seen as an accumulation of knowledge resulting from a collective learning process within an organisation. One of the problems lies in assessing the extent to which individual skill contributes to the collective competence of a company, organisation or team of employees. For example, the collective competence of individuals *i* and *j* will be greater than the sum of their individual skills if they form an organisation, thus:

$$C_{i+j} > C_i + C_j$$

Within a company, the concept of skill is not only a matter of know-how when it comes to solving problems affecting the relationship between the company and its environment but also of know-how in dealing with relationships within the company (Marengo, 1995). Skill is therefore understood as *the result of efforts made by the company to create capital in the form of human resources and information* (Devry, Debuissou and Torre, 1998, p.126). Unlike individual skill, this collective competence is an intrinsic part

Box 1: A model of skill acquisition

Let us return to Lancaster's consumer/producer model. Skills are produced by the individual on the basis of the acquisition of a body of knowledge. The fundamental hypothesis is that skill may be regarded as an output which depends on a temporal production process in which various inputs are used. In Lancaster's theory, each skill is associated with the satisfaction of a need, and the individual seeks to satisfy the most useful combination of needs.

If skill is defined in Lancaster's terms as a collection of characteristics produced from consumed goods, i.e. knowledge (Lancaster, 1966), it may be notated as a vector of characteristics at date t . This vector is represented as Z_t . At any given moment, the production of an individual's skill Z_i at date t may be expressed in the following formula:

$$Z_i = f(x_i, t_i^{ET}, t_i^{ITW}, t_i^{ITOW}, E_i)$$

The individual will be able to produce his or her characteristic skill on the basis of the types of knowledge (x_i) he or she wishes to acquire (scientific knowledge, technical knowledge, relational knowledge, etc.),³ of the time he or she devotes to the three means of acquiring knowledge (ET represents explicit training, ITW stands for implicit training in the workplace, and ITOW is implicit training outside the workplace) and of the individual's own initial capacity to produce these skills (E_i).

The utility of an individual's set of satisfied needs, which will depend on the skills the individual has produced, may be expressed in the following formula:

$$U = U(Z_1, \dots, Z_i, \dots, Z_m)$$

Each skill (Z_i) has a production cost p_i ,

$$p_i = p_i x_i + w_i (t_i^{ET} + t_i^{ITW} + t_i^{ITOW})$$

The individual is restricted by his or her monetary income, which may be derived from an economic activity for which he or she is remunerated with wage w or from other sources of funding (student grant, parental assistance, etc.), which we shall notate as v . We shall assume here that w will not be dependent on Z during the skill-production phase.⁴

$$p_i x_i = w t_w + v$$

A further constraint on the individual is the time (t) that he or she is able to devote either to paid employment or to a course of training (h).

$$T = t_h + t_w = t^{FE} + t^{FIE} + t^{FIHE} + t_w$$

The individual's potential income (R) is therefore equal to the cost of the inputs involved in the acquisition of knowledge (book purchases, course fees, etc.) and to the opportunity cost involved in sacrificing a regular wage for the period of the various training courses.

$$p_i x_i + w t_h = R$$

The maximisation formula may be presented algebraically like this:

$$\text{Max } U(Z_1, \dots, Z_i, \dots, Z_m)$$

subject to the following constraints:

$$p_i x_i = w t_w + v$$

$$T = t_h + t_w$$

³ The number of areas of knowledge will not necessarily correspond to the number of skills.

⁴ The question of the economic value of these skills is not explored in the model; it is merely assumed

that acquired skills will enhance the utility of the individual. The assumption that pay does not depend on acquired skills is only tenable in the short term and that w will increasingly become a function of Z .

of the organisation and is created by a collective learning process based on interaction (Lundvall, 1997) or on organisational knowledge creation. In the view of Nonaka (1993), interactions between different skills are developed by the production of tacit and codified knowledge in a crystallisation process. When this happens, the tacit and codified knowledge that has been created and acquired becomes part of a company's capital assets.⁵ This process of modifying and recreating skills constitutes *a system of organisational knowledge creation in the sense that the organisation retains and reveals the traces of those players who, collectively and through individual interaction, have created knowledge*. The knowledge creation itself results from a process of *incessant updating of the forms of knowledge in the framework of a specific activity* (Devry, Debuissou and Torre, 1998, pp.123-124).

It is, however, obvious that this collective competence poses problems of measurability, recognition and, above all, of transferability to the individuals who make up the organisation.

c) It is not easily measurable in advance
(other than in terms of probability)

The vectorial dimension of skill, the range of variations in the relative importance of individual skills and the vast array of working situations in which these skills come into play make it impossible to determine in advance how a particular set of skills will translate into productivity. In any recruitment process, the employer initially seeks indicators of applicants' productivity potential. This information is partly provided by paper qualifications (Arrow, 1973), which are an imperfect measure of the individual's propensity to work productively. An examination, on the other hand, in which the various skills of applicants were

put to the test would be a considerably more reliable 'signal' (as defined in Spence, 1974) of the productivity levels that individuals might be expected to achieve in a given job. Recruiters are faced with a twofold problem. On the one hand, they have to identify the skills that the individual possesses; on the other hand, they have to translate those skills into a potential level of productivity for each job vacancy.

The fact that a jobseeker possesses a degree or diploma gives prospective employers a rough guide to the sort of performance they might expect from such a candidate, more or less irrespective of the job in question. Selection on the basis of skill levels, however, is liable to result in the recruitment of candidates with widely disparate productivity potentials if skill is not clearly measured, which is why it is essential to measure skills accurately or to assess and recognise them.

2.2 Skill: from concept to measurement

According to Wolf (1994), while skills are of major importance in national and European policies, there is still a need to reach agreement on what skill actually means. The issues of definition and measurement, says Wolf, are crucial. The skills of individuals in the labour market pose problems in terms of measurement and, in a more general sense, in terms of management of the information required for dealings in the labour market.

There is a need to try to conceptualise the measurement of skills and to standardise the instruments of evaluation.

In fact, it is just as essential to know the value of human resources as it is to know the value of the other factors of production. It is simply more complex to measure the former than the latter. The problems involved in such an evaluation may be categorised under two headings:

- a) the 'macroeconomic' problem of evaluating the available human capital;
- b) the 'microeconomic' problem of information and human-resource management for employees and employers.

⁵ The question of the economic value of these skills is not explored in the model; it is merely assumed that acquired skills will enhance the utility of the individual. The assumption that pay does not depend on acquired skills is only tenable in the short term and that w will increasingly become a function of Z .

2.2.1 What statistical concept can be used for the macroeconomic analysis of skill?

During the eighties, the 'global' measurement of human capital became a particularly ticklish problem, as Castells emphasises (1997, p.58): *For the first time in history, the human mind has become a direct productive asset, rather than just a decisive production factor; its significance and productive value is also changed by its cultivation, through training in the broadest sense.*

Those years were marked by a significant change in the nature of investments. The balance between physical and intangible investments varied widely. An OECD report (1996) shows that, in 1987, expenditure on intangibles was the major form of investment in Germany, Sweden and the United Kingdom. The report also highlights the complementary nature of these two types of investment as well as the high level of technology that these investments had generated.

The volume of intangible investment has a direct bearing on production methods and, moreover, on the development of production models. The statistical measurement of skill is therefore a challenge to those who are responsible for macroeconomic management. Growth models and analyses too often estimate the impact of the human factor indirectly by means of an external indicator (Denison, 1962), which is more or less well adapted for use in the model or analysis. No direct account is taken of certificates, although they are admittedly very imperfect indicators of skill, and analysts are content to include two types of labour (skilled and unskilled) among the factors of production.

The challenge is to endow macroeconomic analyses with a more precise conceptualisation of the stock of human resources and to create the statistical tools with which such analyses can be conducted (IFAC, 1998).

To convince ourselves of this, we need only call to mind some problems that are examined with the aid of a proper macroeconomic analysis of human resources. For example:

- ❑ the structural disruption of the active population caused by mass training systems, including higher education;
- ❑ the accelerated transformation of employment structures and job descriptions;
- ❑ the obsolescence of skills in the labour market;
- ❑ the restriction of the internal markets within labour markets and its impact on careers and on informal mechanisms for the production and recognition of skills.

We are familiar with the limitations of any attempt to codify knowledge (Lundvall and Borrás, 1997). The main limitation is undoubtedly the distinction between codified and tacit knowledge. It is a key element in identifying and understanding the nature of the cognitive changes in which the very concept of skills is rooted.

It is clear that the intrinsic complexity of the concept of knowledge, combined with the constraints of collecting and codifying the necessary statistics, make it impossible to effect a direct macroeconomic measurement of skills and that economists will therefore have to make do with indirect measurements.

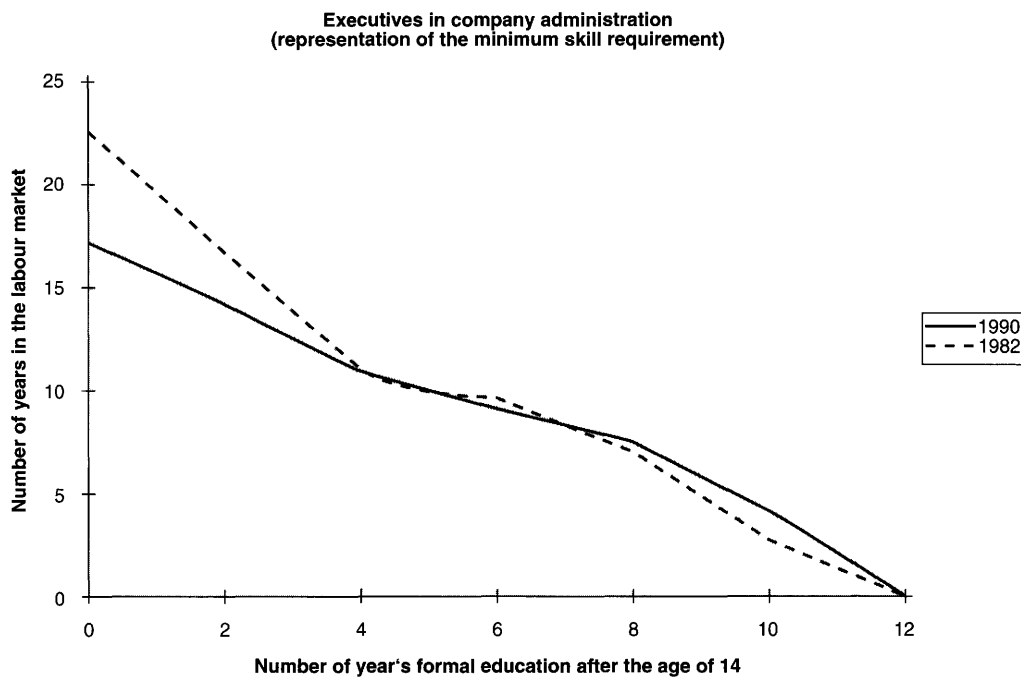
The simplest way of measuring skills indirectly is to assess the quality of the labour force on the basis of its stock of formal qualifications. This has two strategic advantages.

- ❑ The information is available and can be quite reliably codified.
- ❑ This makes it possible to design models on the basis of a heterogeneous labour force, the various components of which are competing for access to jobs.

This solution also presents a number of disadvantages, because it ignores such factors as occupational experience, seniority in the labour market and the acquisition of knowledge outside the education and production systems.

One means of introducing the concept of skill into macroeconomic analysis was suggested in

Figure 1: Minimum skill requirement for appointment to executive posts in company administration in France



Source: 1982 and 1990 censuses, INSEE (Institut national de la statistique et des Etudes Economiques – National institute for statistics and economic studies).

the framework of the Cedefop Diplomas and the Labour Market project (Béduwé and Espinasse, 1995b). It consists in considering a simplified concept of skill based on a vector with two components: the educational qualification (possibly measured by the length of the course of study required for its attainment) and the employee's total seniority (for which age might serve as a suitable approximation).

This method would enable analysts to take account of empirical evidence which is available in all countries of the European Union. Apart from the regulated trades and professions, access to which depends on possession of a legally prescribed diploma or degree, all trades and professions have members with a variety of qualification levels and seniority. Statistical analysis very clearly demonstrates, in each country and in every period, a substitution effect between the acquisition of these two components of skill.

The curve on the graph in Figure 1 gives an example of this sort of equivalence in the domain of access to employment. By way of ex-

ample, let us consider the minimum level of educational attainment and professional experience of survey respondents in executive posts in company administration in France for the years 1982 and 1990 (Figure 1).⁶ These posts are open to first-time job applicants, provided the time they have spent in secondary education and at university and/or college comes to a combined total of 12 years! In other words, only the highest level of educational achievement can compensate for a lack of professional experience. Conversely, such posts are also open to non-graduates who have more than 20 years' professional experience.⁷ Employees whose levels of edu-

⁶ These two curves were drawn on the basis of a method proposed by J.M. Espinasse (1997) to define the minimum skill requirements. They represent minimum combinations of educational attainment (established on the basis of the respondents' declared qualification level) and seniority in the labour market (calculated on the basis of age and estimated date of completion of formal education)

⁷ Measured on the basis of seniority in the labour market.

cational attainment and/or professional experience exceed these thresholds automatically possess the minimum skill requirements for executive posts. In practice, recruitment decisions are plainly not based on the criteria of formal qualifications and professional experience alone. Not all of those who are eligible⁸ for a particular type of post will be appointed. Candidates will be expected to possess other skills too. This way of quantifying the concept of skill is obviously very restrictive. It does, however, provide the basis for a macroeconomic approach to the measurement of skill.

2.2.2 *The measurement of skills and its microeconomic foundations*

The word 'skill' (French *compétence*)⁹, in the sense in which we use it here, has only begun to find its way into the vocabulary of economics and has hardly ever been tested. The concept itself, however, is not really new.

Human capital, as originally defined, comprises all the productive capacities of each individual, including his or her operational aptitude in the widest sense (general knowledge, specialised knowledge, know-how, experience, etc.). The two main instruments for the creation of human capital are in-service training (experience and continuing vocational training) and initial training within the education system. In the view of Becker (1993, p.19),¹⁰ schooling is at the heart of this creation of human capital: *Human capital analysis assumes that schooling raises earning and productivity mainly by providing knowledge, skills, and a way of analysing problems.* However, he modifies this statement a few paragraphs further on (p.20): *Of course, learning and training also occur outside of schools, especially on jobs. Even college graduates are not well prepared for the labor market when they leave school, and they are fitted into their jobs through formal and informal training programs. The amount of on-the-job training*

ranges from an hour or so at simple jobs like dishwashing to several years at complicated tasks like engineering in an auto plant.

Becker, then, does not dismiss the other means of creating human capital, such as the informal training that individuals receive within the family, through their social contacts and even during their national service. He says that other activities which are not directly linked to the training process contribute to the creation of human capital and increase individual productivity. In particular, the various activities in which jobseekers engage during their jobsearch enable them to increase their knowledge of the labour market and so to invest in their own productive potential.

Expressed in such general terms, the definition of human capital is hard to criticise, but the reduction of this general definition to the oversimplified equation

$$\text{qualification} = \text{length of study}$$

which is found in many applications of empirical findings is no doubt rooted in the need for measurements which is inherent in statistical and econometric approaches. In measuring human capital, a lack of data often makes it impossible to take account of the diversity of forms that human capital can take and the various ways in which it can be created, while the polarisation of educational economists on the subject of formal qualifications is also a stumbling block. Nevertheless, even when the theory of human capital was still in its infancy, Rosen (1972, p.326) emphasised that experience, which is a proxy for implicit training, appears in many cases as a more important skill factor than initial education: *Yet, much evidence suggests that a large fraction of directly marketable skills possessed by individuals are not acquired from formal schooling, but rather from work experience.*

More recently, the introduction of the concept of the job into neoclassical analysis of the labour market (Lazear, 1995a and 1995b) paves the way for a new conception of qualification which is closer to the concept of skill and less

⁸ In terms of experience and qualifications.

⁹ See section 2.3.1.

¹⁰ Third edition of *Human Capital*.

closely related to initial education. Lazear states (1995b, p.263), in connection with the limited significance of the correlation between education and pay levels within a specific occupational category or company, that *For example, rates of return to education estimated by using within-firm data might be very low because a firm's decision to hire a worker trades off unobservables against observed variations in education. All workers hired into a given job might have the same amount of human capital irrespective of differences in their level of schooling.* However, the relationships between skill and pay levels and, more generally, between skill and jobs, while commonly acknowledged, remain largely unexplored, although some empirical studies have stressed the important role of particular skills in relation to educational attainment. (Lee, 1986; Black and Lynch, 1996)

Acknowledging that skills are heterogeneous necessarily entails addressing the problem of their transferability, for skill is all the more marketable if it can be transferred. Is the transferability of skill linked to the way in which it is acquired? Is skill – or, to be more precise, a skill – more easily transferable if it is acquired through initial education (to put it in more general terms, an through an explicit form of training) or if it is acquired on the job?

To Perkins and Salomon (1989), work experience often appears to be a more effective means of producing transferable skills than initial education. Taking the opposite view, Nordhaug and Gronhaug (1994, p.91)¹¹ emphasise that competence acquired through education generally proves to be transferable to a larger number of companies than the competence that is born of experience. The apparent contradiction between these two propositions probably derives from the difference

¹¹ *Individual competence may be gained through education and experience in the work place. Competence obtained through education is general in the sense that is applicable in more than one firm and often in a variety of jobs. Competence gained through experience is more or less specialised by being linked to the idiosyncrasy of the firm in which it has been acquired.*

in the level of generality or specificity of the skills on which the respective authors based their analyses. In other words, it derives from a lack of consistency in the measurement of skill or competence.

Opting for the view that skill should be considered as a vector is one way of circumventing this lack of consistency. Rather than being considered in its immeasurable globality, skill is broken down into a number of distinct elements which are easier to calibrate and are open to more precise analysis.

2.3 Recognition of skills, industrial relations and regulation of the labour market: towards a new dynamism?

The debate about qualification versus skill is no mere academic exercise. Not only is it high on the political and social agendas, particularly in the context of pay negotiations; it is also at the heart of the issue of mobility within the labour market.

2.3.1 Skill at the centre of industrial relations

A consensus on the concept of qualification, though achieved at the end of a long, hard struggle, is now one of the cornerstones of industrial relations as we know them. Its impact on collective bargaining, on the nature of employment contracts and on pay scales is crucial and has been the subject of an enormous wealth of literature.

As Barbier et al. (1996) stress, the concept of qualification is attached to the social model of the glorious thirties, which was characterised by the development of large industrial corporations, the Taylorist system of scientific work organisation, the centralisation of managerial functions, centralised pay negotiations, workforces structured on the basis of seniority, strong trade unionism, and so forth.

The concept of qualification, in the form in which it is recognised by management and labour in at least some countries of the EU,¹²

¹² Especially in France and Spain.

is associated with the idea of a stock of knowledge which is necessary and sufficient for the pursuit of a given occupation and on the basis of which hierarchical ranking and pay structures can be determined. This knowledge and its validity are held to be certified by the formal education system (schools and, in some cases, institutions of further and higher education) – so much so that, in some languages, qualifications and certificates are synonymous terms.

In order to arrive at a better understanding of the nature and dimension of the changes that are taking place, we must examine the role played by the traditional concept of qualification in the labour market and its association with the idea of certification.

In different ways in different countries, but throughout the European Union, qualification and the manner in which it is certified remain important elements of industrial relations.

They largely define the structure of the hierarchy, the allocation of responsibilities and employees' pay levels. In the recent past, formal qualifications were plainly a fundamental element in the regulation of the labour market. They continue to play a key role to a great extent, even though this role is gradually changing as technology transforms organisational structures and as new generations appear in the labour market with ever more degrees and diplomas.

The concept of skill is quite a different matter. It relates to a person's capacity to assume a specific and measurable set of responsibilities in the context of a given occupation. It therefore constitutes a *revalorisation du travail concret* – a revaluation of actual work (Lichtenberger, 1999, p.93). The manner in which this capacity is acquired is of little importance, and its link with the certificates awarded by the education system is loosening.

The accelerating pace of change to which we referred before has also made itself felt in several aspects of individuals' careers. The changing skill requirements, whether in

terms of basic or specialised skills, that individuals have to fulfil in the course of their working lives call into question the validity of the concept of a trade or profession as a relatively stable body of predefined knowledge and abilities that can be encompassed in a similarly stable curriculum of initial education which qualifies individuals for employment in particular occupations.

Today, that body of knowledge and know-how which is defined as a trade or profession is less and less stable, and its role in industrial relations, though not disappearing, is tending to change. The symbol of this change is a shift in terminological usage which reflects the desire to move from the measurement of productive potential by membership of a trade or profession or by educational qualifications towards a less organic type of on-the-job measurement. Behind this change lie two incontrovertible facts: on the one hand, there are the objective changes in the content and character of trades and professions, and on the other hand there is the pressure for a certain degree of deregulation, or for a new form of regulation, of industrial relations in which membership of a trade or profession and external certification have traditionally been a key element in the collective definition and association of employees and in the establishment of their vested rights. These changes pose new challenges. They are a source of new conflicts and require new compromises, which, according to Y. Lichtenberger (1999, p.104), can only take shape in the context of a redefinition of work itself, of its purpose, of the value of the diverse forms of investment, of development prospects, etc., and thus of the concept of skill.

Such a transformation also entails a profound change in the very nature of the employment contract. Alain Suppiot (1994) enumerated the principal developments in this direction, while conceding that none of them had yet been fully absorbed. Subordination, he said, has been constantly diluted, organisations are delegating increasing powers of initiative and responsibility, the link between work and pay is loosening in favour of greater

continuity of income, given the vagaries of working life,¹³ etc.

One effect of the erosion of the traditional importance of trades and professions is the development of 'transverse' skills, in other words skills which can be used (and re-used) in a wide range of real working situations and which may apply to operations carried out by members of quite distinct trades and professions and may therefore cut across boundaries drawn in collective agreements and pay scales. These skills assume a strategic value in the careers of individuals. They also play a strategic role in the new forms of work organisation and risk management.

Our education and training systems, as we shall see below, are still far from establishing transparent, i.e. clear and legitimised, systems for the recognition of skills that have been validated either by the training systems themselves or by the labour market. This deficit has a fundamental bearing on the development of a system of further training and industrial relations which can meet the challenges that already confront us.

Following a period during which companies tried to foster loyalty among their staff by developing internal labour markets and concluding collective agreements in which training and promotion prospects were guaranteed, the business world is now retreating, at least partially, from this policy, which was designed not only to prevent industrial conflict but also to ensure a constant supply of quality labour. This retreat began in the early eighties, when companies began to reserve the benefits of secure employment for the members of their

¹³ Lichtenberger (1999, p.104), for example, takes up the hypotheses advanced by Suppiot (1994) and says that, even if people in stable occupations escape this dualisation of the labour market, the change in the nature of employment contracts poses them no fewer problems. The new reference value of a specific job of work, perceived as a service and not as a good, possessing social utility and value for other people besides an employer, the value of accountability, which is not about the apportionment of blame but about a stake in the struggle to overcome the risks and vicissitudes of business activity – these values are only beginning to emerge as portents of social confrontations to come.

staff who were indispensable to the production process. Today, without actually reneging on collective agreements, firms are trying to lessen their impact. In particular, career patterns and individual training programmes, which, in accordance with the idea of an internal labour market, had long been institutionalised in career plans and sometimes even in collective agreements, are now more likely to be left to the initiative of the individual employee.

A reduction in the average length of service within companies is observable in most countries of the European Union, albeit to a varying extent from one country to another and more especially from one generation to another of the active population. While the phenomenon is most conspicuous in the countries of Southern Europe, such as Spain, average seniority has fallen in all countries of the EU and among all age groups represented in the labour market.¹⁴

Finally, if we seek to move from a training-based approach to employment to a skills-based approach, we must bear in mind that, over and above all the concepts and socioeconomic analysis, we are also dealing with a subject at the heart of industrial relations and collective bargaining. It is quite likely that this debate will soon affect the very definition of the employment contract and of the relationship between employers and employees.

2.3.2 Recognition of skills and mobility within the labour market

The transformation of occupational structures, the pace of technological innovation and certain institutional changes have been conducive to the accelerated growth of mobility

¹⁴ European statistics (Eurostat Labour Force Survey) for the period 1992-97 reveal that the percentage of employees with less than one year's service has generally been rising in all age categories throughout Europe and especially in the youngest age groups. The European average rose from 49% to 52% for employees under the age of 20, from 33% to 39% for the 20-24 age bracket and from 21% to 23% for those aged 25-29. It remained fairly stable in the case of employees over the age of 30, rising from 10.09% to only 10.12%.

in the labour market, although voluntary mobility will undoubtedly wane during periods of high unemployment.

At the same time, the labour market in many countries of the European Union, especially in the South, has been marked by companies' more frequent recourse to the external labour market at the expense of their own pool of labour. This tendency reflects one of the solutions adopted by businesses, along with insecure terms of employment, subcontracting, outsourcing and so on, to resolve a central problem arising from the effects of globalisation on developed economies, namely the need to reduce the wage bill for the sake of competitiveness without (excessively) reducing nominal wages for fear of provoking social unrest. One of the methods used to achieve this aim has been the reduction of the number of tiers in company hierarchies. This reduction automatically limits the promotion prospects of company employees. Moreover, the in-house labour market, which primarily serves to prevent the loss of skilled labour, entails a number of costs, which become unnecessary at a time when labour is no longer in short supply. Finally, this internal market is a long-term managerial instrument which operates on the assumption that company labour needs are constant and foreseeable. The accelerating life cycle of skills tends to diminish the expedience of such a policy.

Labour mobility in Europe is reaching levels that are comparable with those in economies which have traditionally been more open, particularly the US economy, even though the bulk of this movement between companies is occurring within the borders of individual countries (Tassinopoulos and Werner, 1998). Human-resource management is increasingly characterised by recourse to the external labour market. This implies a greater need for information about skills, both for firms and for jobseekers. The informal mechanisms for recognising skills acquired after initial education, which have historically been very closely linked to the existence of internal labour markets (Doeringer and Piore, 1971), are dwindling in importance as the balance swings in favour of the external market and as skill requirements change ever more rapidly.

In addition, major changes have been observable in the forms of employment contracts, changes designed to bring greater flexibility to employment relationships. These changes relate to key elements of the 'standard' employment contract from which most national labour rights derive. One such element is the 'permanence' of contracts. Many factors (outsourcing, subcontracting, direct labour, etc.), if not destroying these principles, contribute at the very least to restricting their impact as well as effecting profound changes in *the very nature of contractual relations between enterprises and workers* (Dupuy and Larré, 1998). Lastly, telework will no doubt further complicate the traditional relationship between employers and employees.

The identification and validation of skills used to take place for the most part within companies. The company's prolonged first-hand knowledge of its employees was, in a sense, the basis of their career development and the key to the company's efficient deployment of its human resources. The gradual demise of these forms of skill recognition, which derive their legitimacy from the internal labour market, creates a more pressing need for tangible evidence of skill at a time when the abundance of certificates held by the active population is tending to obscure the evidential value of each certificate.

Such a situation complicates the recognition of skills and the management of human resources. In fact, monitoring career development is not only a matter for companies but also concerns the organisations in their vicinity. Human resources are developed to some extent by a host of agents outside the education system – professional bodies, civic associations, etc. – some of which have no transparent and legitimised mechanisms for recognising the acquisition of skills.

At the present time there are still very few recognition systems¹⁵ which can accommodate

¹⁵ There are exceptions, for example the individualised monitoring of members of certain professions or the informal mechanisms which have traditionally operated or have been developed within particular economic sectors or geographical areas.

this huge wave of more numerous, more diversified and longer training processes. For the moment, it remains difficult to imagine how the transparency required for the transferability of skills acquired from a variety of sources can be achieved.

The challenge for each individual throughout his or her career is to turn to account the knowledge and skills that have been acquired informally. It must be possible to draw up an inventory of this knowledge and these skills in a form that third parties can recognise, so that such a portfolio of informal qualifications has a guaranteed market value. It is an essential record of the individual's achievement and sometimes the only record. It is also an insurance policy against the risks of downgrading and the disadvantages of a career interruption.

Having one's skill recognised and being able to market it are crucially important. Failure to do so can lead to exclusion from a market which successive new generations are flooding with a welter of paper qualifications, imperfect though they may be as skill indicators. Just as the absence of certificates is a handicap for young first-timer jobseekers, others are handicapped by the absence of explicit recognition of the skills they have acquired in the course of their working lives.

In the view of Jacques Delcourt, expressed at the AGORAI seminar, the non-validation or non-certification of training or achievement is something that particularly affects lower-skilled workers and those who have failed at school. These workers are liable to find their access to vocational training blocked because of the low level of general education they have received or, worse still, because they have no formal qualifications certifying any level of education at all. This applies especially to the older generations, who have generally received less schooling. It applies even more to young people who have come out of the education system empty-handed. There are some programmes that enable individuals to have the knowledge and skills they have obtained outside educational institutions validated with certificates that are recognised by the education system as equivalent to certain col-

lege and university entrance qualifications. These programmes, however, are generally run on a small scale and meet with stiff resistance from the educational establishment.

A more common phenomenon are the systems whereby credits awarded for work experience help to qualify applicants for access to courses of continuing vocational training and for setting up in business. This recognition of informal learning processes could rectify the paradoxical situation that exists in all European countries in which those who already have the highest qualifications benefit most from further training.

Finally, recognition of skills acquired outside the formal education system can also be an effective instrument against exclusion from the labour market and/or from further training. We are thinking here in particular of those employees who, because of their age and their occupational history, do not possess formal qualifications but are nevertheless well endowed with practical know-how.

As Marsden (1994, p.20) points out, if the qualifications associated with a job and specific to a company lose some of their appeal because employment in the internal labour markets is becoming less secure than in the past, an effective system for the recognition of acquired skills could serve as an acceptable compromise. The author proposes on the one hand that the creation of qualification systems based on skills should be supported (the success of which would depend on the establishment of an appropriate regulatory system) and on the other hand that care should be taken to ensure that appropriate incentives existed for employees to undergo training and for companies to provide training opportunities (Marsden, 1994, pp.20 and 21).

2.4 From recognition to validation of skills

The preceding paragraphs have shown that the problem posed by the conceptualisation of skills cannot be reduced to a problem of measurement. Measurement, however, is still a very real problem, for identification and knowledge depend on measurement in some

form or another. Many efforts are made, partial and imperfect though they may be, to measure skills. These efforts are one of the keys to the transparency that is required of the various subsystems of skill production as well as the labour markets.

The technical structure of the measuring instruments and the associated vocabulary may indirectly influence the perceptions of skill that are establishing themselves and the information systems that derive from these perceptions. Definitions and measurements, then, have a potential impact on the information structure of the market, on training policies and on industrial relations.

The attempts to make the market transparent by recognising individual skills involve the development of various forms of 'standardisation' and/or 'matching', which inevitably favour certain specific skills at the expense of others. They also highlight the differences between the various philosophies of education, training and work and, in more general terms, of society.

In that respect, the semantic (and statistical) debate is the tip of an iceberg comprising all the domains of education and production or, more broadly speaking, an element in a wider economic and social debate that is very much dominated by the *single philosophy of neoliberalism* (Alaluf, 1992).

If this debate remains technocratic in nature, it is liable to exclude skill, the traded asset, from the definition of the rules governing wage differentials. However, as A. d'Iribarne (1996, tr. from p.30) points out, *if the proclaimed intention to reconcile, through lifelong learning, the prospects for economic competitiveness, personal development and social cohesion is to have any chance of success, the actors with leading roles in the dismantlement and reconstruction processes must agree to play supporting roles.*

At the present time, considerable efforts are being made in Europe to evaluate and recognise qualifications as such, whether formal or informal, irrespective of where and how they were acquired.

These efforts are being pursued in several directions (Bjørnåvold 1997b).

- At an *individual level*, skills acquired through the 'formal' systems are evaluated by a 'diploma' (in the generic sense, i.e. any paper qualification). They are only one element of the human capital, or skills profile, of an individual and, cumulatively, of a country. Several countries are therefore in the process of introducing systems for the evaluation of qualifications and skills acquired informally with a view to measuring the available national resources of human capital, making the labour market more transparent and arriving at a more precise definition of the potential (or 'value') of that section of the labour force whose skills have mainly been acquired outside the formal systems. This is particularly important in the case of those with the fewest formal qualifications and the older age groups.
- At the *company level*, there is a gradual movement towards evaluation and stock-taking in the realm of intangible assets, including human resources. Since methods for the evaluation of intangibles are still relatively new, there is a tendency to underestimate them (OECD, 1996) in both budgetary procedures and general resource management.
- At *government level*, it is noticeable that governments have been trying to introduce new methods of quantifying public expenditure of human capital. These efforts do not seem to be having much impact on the rationale or operational structures of the education system.

The aim for governments is to initiate the creation of efficient systems to define and inventory specific skills, thereby guaranteeing the transparency of labour markets. To that end, their strategy will no doubt consist in establishing collective definition parameters with a view to laying down ground rules for skill evaluation and certification methods. This role is similar to the one played by governments in the commodity and service markets.

Recognition of skills implies the creation of a common, comprehensible and universally recognised language. That requires technical instruments for the validation of acquired skills as well as legitimisation processes.

Bjørnåvold (1997a and b) and Cedefop, 1998a, pp.189-198) enumerates the developments that are taking place and the real benefits of constructing a mechanism to measure skills acquired by informal means.

Whatever the means of acquisition and whatever the type of skill, there are two qualities that the certification system must possess: validity and legitimacy.

If the methodology of skill recognition is to be devised in a wide variety of situations and institutional contexts, it requires the establishment of common objectives and codes of practice. The pivotal priority for any methodology of this kind is to ensure that skills can be made transparent and transferable.

The methodological approaches that have been tried out are diverse and are rooted in the context of each country. A detailed analysis of the various proposals would constitute a research study in its own right (see the material produced in this domain by the Cedefop team headed by Bjørnåvold). Despite the diversity of methods, we shall identify a few common elements which can contribute to a general consideration of the issue.

In the view of Bjørnåvold (1997b), we should distinguish between two quite different methodological approaches: *those based on dialogue and guidance* (these include the French *Bilan de compétence*¹⁶, the British *APL-NVQ*¹⁷ system and the Netherlands system) and *those based on specialised computer systems* (such as the European skill-accreditation system (European Commission, 1996).

¹⁶ A form of skills analysis.

¹⁷ Accreditation of Prior Learning – National Vocational Qualifications

2.4.1 Dialogue and guidance

From a comparison of the French *Bilan de compétence*, the British APL-NVQ system and the Netherlands system, Bjørnåvold concludes that each of them uses the following four instruments in combination.

- a) interviews with the person who is being assessed,
- b) evaluation and diagnostics,
- c) self-assessment, and
- d) more or less 'conventional' examinations.

The ways in which these instruments are used in practice do not differ radically from one country to another. The analysis shows that evaluation is based on a combination of a candidate's own contribution and the formalised technical instruments. Assessors always take account of the applicant's reflections on his or her own practical experience and of the applicant's self-assessment. They neither restrict their appraisal to 'objective' performance indicators nor base their decision on subjective data or self-assessment alone.

This sort of two-track approach is a characteristic of the process of evaluating and recognising skills. The methods in use are designed to combine the individual and contextual dimensions of skill assessment. These skills are specific to the candidate, but they must be legitimate in the eyes of third parties, i.e. other employees, companies and training institutions.

As for the formal qualification (the 'certificate'), the main distinction between the different systems is that some, like the French system, certify acquired skills in a record of achievement (*portefeuille de compétences*), while others, like the British system, accord formal recognition by means of a certificate or diploma awarded under the system of national vocational qualifications (NVQs). In the latter case, such certificates can not only be used in the labour market but can also serve as a 'bridge' between the formal and informal training systems.

2.4.2 Specialised systems

For some years now, new computerised instruments for the evaluation of informally acquired skills have been in use. The justification for this type of approach is that such instruments reduce costs, can be extended to all types of skill and are objective. In some countries, these methods coexist with the conventional methodology described above.

Let us take the case of Ireland, for example, which is pursuing the following aims:

- ❑ to develop a specialised system enabling individuals to access information about the occupations that interest them;
- ❑ to provide individuals with easier access to assessment standards to make them aware of the demands associated with the acquisition of particular qualifications;
- ❑ to define a standardised method of compiling a record of achievement;
- ❑ to help individuals to identify more clearly the additional training they require.

At the present time, the most ambitious initiatives in this field have come from the European Union, the prime example being the European skill-accreditation system. One of the fundamental aims of this system is to offer all individuals the opportunity to have their skills assessed; the results of this assessment would then be recorded in a personal record book. The technological basis of this project comprises electronic tools which are universally accessible through the Internet.

The main difficulties of the latter type of approach lie in the obvious limitations of a procedure which is totally automated, in their European and hence multicultural dimension and, at a more fundamental level, in the difficulty of translating elements of knowledge into signals that can be evaluated.

2.4.3 Skill and legitimacy

The impact of these methods is closely connected with their legal basis and their legitimacy (OECD, 1996). The distinction between

legal basis and legitimacy is pertinent, because they are not so much alternative terms as complementary factors in the efficiency of the system. The legislature cannot prescribe mechanisms for recognising and harmonising skills without having previously brokered a compromise between diverse and often divergent interests.

The introduction of totally automated solutions can only partly satisfy the need for transparency on which the recognition of knowledge and skills is based. To be suitable, according to Bjørnåvold (1997b), solutions must take account of the social dimension of the methods they involve and must focus explicitly on the issues of acceptability and legitimacy. One strategy is to devote very close attention to the legitimacy of the institutions responsible for validation.

To be legitimate, institutions must satisfy at least three conditions (Bjørnåvold, 1997b, p. 77).

- a) All the players involved must be consulted and must make their positions clear.
- b) Relevant and useful information must always be common knowledge.
- c) A consensus must be reached, and sanctions must be available to deal with abuses.

The policy of skill validation that is being defined will inevitably have far-reaching effects on the development of the education and training systems. It will also have an impact on all the systems of industrial relations. It must therefore be examined and evaluated from both of these perspectives.

2.5 Conclusions

As we have seen, the shift from qualifications to skills is emerging as an undercurrent, caused on the one hand by changes in production deriving from the development processes which we highlighted in the introduction (Chapter 1) and with which we shall deal in greater detail in the next chapter (Chapter 3) and on the other hand by changes in the processes whereby human capital is created within individuals.

From this, we conclude that the skill of the individual, in other words the sum total of the specific characteristics which determine his or her productive capacity in a given context, is becoming the tradeable asset in the labour market.

The vectorial quality of skills means that the process by which they are produced necessarily involves co-production by a variety of agents, a process governed by the interchangeability of their components and not by any rigidly prescribed procedure.

This change, however, is not solely a change in the technical aspects of the production process. It is occurring in a wider framework of equally profound changes in industrial relations, in the very substance of employment contracts and in the role and place of education and training systems in the production of human capital.

The changes that are taking place also require more refined information systems which are able, on the one hand, to appreciate the specific nature of individual skills, irrespective of the conditions in which they were acquired, yet equally capable, on the other hand, of constructing an information system that is sufficiently standardised and transparent to manage human resources; such management must be based on increasing mobility of labour as well as on individual career development and the principle of lifelong learning.

These information systems on human skills are already being created in various countries in an uncoordinated manner, each system taking account of specific national circumstances. They naturally tend to be more refined than systems based on formal qualifications. Be that as it may, they remain imperfect, as Marsden comments when he writes of these new 'skill-based qualification systems', which coexist with the older systems. To aim for complete transparency of individual skill levels in the labour market would, as Eymard-Duvernay and Marchal (1997) point out, be illusory. The measurement and validation of skills is developing with a wide margin of tolerance, determined by the coordinates that society has plotted in any given context.

The definition of the concept of skills itself, the instruments for measuring them, the certification mechanisms and the processes by which these systems are legitimised necessarily imply a change in the ground rules, since the various participating players defend interests which are often conflicting. Thus the definition of the operational concept of skills will not be the result of scientific analyses but rather of a 'collective interpretation', which will take account of the more or less informal balance of power that exists between business, labour and government and of the social context in which they operate.

3. Skill levels, individual skills and demand for labour

The traditional model of the relationship between formal training and employment to which we have referred in the foregoing chapters assigns a leading role to the demand for labour in the development of skill levels within an economy.

For the proponents of the manpower approach, the mere observation of a fluctuation in global output translates into a shift in the level of demand for skilled labour. They infer directly from this that education systems should adjust their output levels.

The theoreticians of endogenous growth have noted that the production system increases its productivity when it employs more highly skilled labour. They therefore ascribe these gains to higher public investment in explicit training.

Both of these groups believe that analysis of the demand for labour in relation to the production of goods and services and economic growth has – or should have – direct repercussions on the output of education systems and, moreover, on the quantitative and qualitative equilibrium of the labour market.

The present chapter, which is devoted to a study of the influence of technological and organisational innovations on the demand for and the use of manpower, is written from a

different perspective to that of the traditional model.

We have adopted a non-determinist position with regard to technology and the innovation process. In other words, we do not regard technology as an independent variable that is solely responsible *per se* for its effects on the various elements of the production process and on the management of human resources. On the contrary, without denying the importance of technological innovation, we postulate that its influence is conditioned by factors inside and outside the enterprise itself, prominent among which are management strategies and objectives.

Be that as it may, we shall analyse the influence of technological progress and organisational change on the demand for qualifications (Section 3.1) and skills (Section 3.2), but we shall also try to identify the contextual elements that do most to strengthen these influences.

We shall organise the body of literature analysed in this chapter into two categories based on two fairly distinct schools of thought.

The first school essentially reasons in terms of labour along the lines of classical macroeconomics. It does not differentiate much between types of manpower, generally confining itself to a distinction between skilled and unskilled labour. Within this framework, the influence of technological progress, organisational changes and institutional constraints is analysed.

The second school of thought comprises those authors who are more explicit in addressing the heterogeneous nature of the manpower factor and adopt an approach based more or less directly on the concept of skill. Their aim is to understand how the market absorbs variations in the demand for specific skills, variations caused not only by growth or fluctuating production levels but also by technological progress and organisational change, without necessarily resorting to adaptation of the system of basic formal education or even of continuing vocational training.

3.1 From techno-economic development to a skilled labour force

The eighties were marked by a widening of the gap between skilled and unskilled workers in most developed countries. This was primarily reflected in a comparative loss of status for low-skilled workers, whose relative pay levels and/or employment prospects deteriorated.

The impact of technological and organisational innovation on employment is the subject of widespread polemics, in which two broad sets of questions have been raised: one of these relates to the *volume* of employment and the other to its *characteristics*. The analysis of the development of demand for skilled labour serves as a framework in which these two types of question can be addressed.

Many empirical studies discuss the various factors that can contribute to a fall in demand for unskilled labour. It is a matter of unbalanced technological progress (Berman et al., 1994; Entorf and Kramarz, 1994) but also of fiercer competition with countries where pay levels are low (Wood, 1994; Sachs and Shatz, 1994; Bonnaz et al., 1994) or of changes in the structure of trade in goods (Krugman and Lawrence, 1993) and of the changing sectoral balance of employment (Berman, Bound and Griliches, 1994). The findings of these studies generally indicate that the fall in the percentage of low-skilled workers is not simply linked to the decline of those sectors of the economy which chiefly employ that type of labour. This reinforces the hypothesis that technological progress plays a leading and *direct* role in the significant loss of low-skilled jobs. Most of the studies conducted in the English-speaking world only hold international trade responsible for 15 to 50% of the fall in demand for unskilled labour¹⁸ while emphasising the role of technological progress (Bound and Johnson, 1992; Borjas, Freeman

¹⁸ These conclusions, however, are not unanimously accepted, particularly because they do not take account of the relative development of pay levels in the various sectors of the economy and the role of wage flexibility as a strategy used by businesses to adapt to international competition.

Table 1: The main factors affecting skilled and unskilled labour in economic theory

	Relative volume of jobs for UL	Relative pay levels for UL	Relative price of UL-intensive goods	Real wages for UL	Real wages for SL	UL unemployment rate
Unbalanced technological progress	-	-	-	?	+	+
Freer trade with developing countries	-	-	-	-	+	+
Increase in the minimum wage	-	-	-	+	+	+
Increase in the supply of skilled labour	+	+	+	+	-	-
Greater wage flexibility	+	-	-	-	+	-
Empirical findings:						
Continental Europe	-	?	-	+	+	+
United States	-	-	-	-	+	0

UL: unskilled labour; SL: skilled labour
 Source: Cotis, Germain and Quinet, 1997.

and Katz, 1991; Krugman and Lawrence, 1993; Katz and Murphy, 1991; Lawrence and Slaughter, 1993; Berman, Bound and Griliches, 1994).

Four types of factor are generally cited to explain the fall in demand for unskilled labour:

- macroeconomic shocks;
- accelerated involvement in international trade;
- institutional pressure on the labour market; and,
- technical and organisational changes.

These factors can act on the labour market in different ways and can take different forms in different countries (see Table 1 below). We have chosen to focus on the influence of the last-named factor, technical and organisational changes. Most empirical studies, especially in the English-speaking world, assign a principal role to these changes in explaining the fall in demand for unskilled labour.

In most cases they stress the role of the disequilibrium of technological progress (Cotis, Germain and Quinet, 1997). Whereas technological progress used to be regarded as a source of deskilling, the advent of the new forms of information technology have altered this assessment. It has become the ally of skilled labour, usurping the role of unskilled labour.

3.1.1 Technological progress and demand for skilled labour

If we take a more detailed look at the literature on the technological progress of recent decades, the relationship between such progress and the demand for skilled labour frequently emerges as an extremely complex one and depends on the level of observation adopted by the researcher (Spenner, 1985). In general terms, there are two opposing ideas:

- The use of technology creates new occupations (Nelson and Phelps, 1966), which sometimes necessitate higher skill levels within the workforce as the production process becomes more complex. This only

applies, however, when the technology in question mobilises other forms of technical capital to *supplement* education. Welch (1970) was one of the first to demonstrate a complementary relationship between the value of education and investment in technology.

2. As new technologies emerge, the degree of automation is sometimes so high that it becomes possible to entrust production tasks to less skilled employees. Technology may be the basis of an investment that serves as a *substitute* for education: human skills are replaced by the capacities that machinery and software can provide.

These two ideas proceed from different assessments of the complementary relationship between skill levels and physical capital. Most of the empirical studies (Griliches, 1969; Hamermesh, 1993; Dormont, 1995) tend to suggest that capital and skilled labour are *p*-complementary,¹⁹ whereas unskilled labour is a *p*-substitute for both capital and skilled labour. These studies keep emphasising that the most highly educated employees have a comparative advantage when it comes to learning about and applying new technology. General education fosters an ability to cope with the unknown and strengthens the adaptability of an enterprise, which justifies the payment of salary premiums to university and college graduates (Murphy and Welch, 1989). Bartel and Lichtenberger (1987), on the other hand, defend the idea that the degree of complementarity between skilled labour and capital depends on the average age of the capital. Recently acquired machinery calls for the provision of a specific course of explicit training. But as time passes, this gives way to a less formal *learning process* based on the use of labour with lower levels of initial education.

¹⁹ Capital and skilled labour are said to be *p*-complementary if, at a constant production level, a rise in the relative price of capital results in a fall in the relative use of skilled labour.

Unskilled labour is said to be a *p*-substitute for capital (or skilled labour) if, at a constant production level, a rise in the relative price of capital (or of skilled labour) results in an increase in the relative use of unskilled labour.

Technology therefore demands different types of labour at different times.

In fact, the use of new technology by the least-skilled category of labour is often very difficult to analyse. Technology can hasten general downgrading of the workforce by simplifying their tasks or, conversely, it can significantly upgrade the workforce by presenting additional training opportunities.

According to one interpretation, the 'technological experience' is a factor which standardises jobs through the mechanisation or automation of tasks. This probably happens whenever a given physical investment is widely made within an industry, requiring the same skill profile and therefore generating a supply of labour with the appropriate skills. In this case, the jobs concerned are unlikely to involve a variety of tasks, and so they become standardised. This ultimately reduces the development and career prospects of the lowest-skilled workers.

The second interpretation, by contrast, sees technology as a means of access to jobs and training for low-skilled and unskilled labour. It is in fact possible to use the least educated employees in the new roles resulting from technological innovation. This idea seems to be confirmed by the findings of Bartel and Sicherman (1995), who based their research on the data from the National Longitudinal Survey of Youth relating to the industrial sector for the years 1987 to 1992. They observed that the higher an individual's education level, the better were his or her chances of obtaining training within a company, but they particularly noted that technological progress lessened this impact of education on training. This finding also seems to be consistent with the logic of those companies which use further training to give their least-qualified employees the opportunity to work with new technology. As Bartel and Sicherman (1995, p.13) put it, *thus it appears that technological change has acted to reduce the gap in the stocks of human capital accumulated by different education groups through formal company training*. Lastly, Levin and Rumberger (1989), referring to numerous studies conducted in the United States over the previ-

ous decade, concluded that some factors (particularly the shift in the balance of employment towards the service sector) would increase global demand for skilled labour, while others, such as the introduction of new state-of-the-art technology, could contribute to deskilling of some jobs at the very least.

In France, Goux and Maurin (1995a) show that the introduction of robots or digitally controlled machinery seems to reduce the need for managerial staff to a greater extent than it reduces demand for white- and blue-collar workers, who are still required to look after the new machinery. In terms of the whole French population, they observe a capital-for-labour substitution effect resulting from technological progress, but this effect does not generate any impetus in favour of educationally qualified labour.²⁰ The more recent findings of Greenan et al. (1999), based on company data, suggest the opposite, indicating a significant degree of correlation between computerisation and higher skill levels; these results compare with those obtained on the basis of American statistics by Bernt et al. (1992) and by Autor et al. (1997). All of these research findings show that *the percentage of blue-collar workers in industrial and service companies, as well as of white-collar workers in non-managerial posts in service enterprises, decreases as the companies' degree of computerisation and their input in terms of research and studies increase* (Greenan et al., 1999, p.427).

The possibility of an initial selection bias, whereby companies select from the certificated applicants for each job category those considered most likely to maximise the benefits of the relevant new equipment, has been studied, but such a bias would not alter these

²⁰ What they say is this: *If we except the traditional (but tenuous) links between the accumulation of capital and the number of specialised and managerial posts, the net effect of the new technologies on the development of employment structures seems at the end of the day to have played a less important role in France than the increase in the supply of workers with educational qualifications and the decrease in their relative pay levels* (tr. from Goux and Martin, 1995a, p.31).

findings. Nevertheless, a French study based on data from individuals tends to validate this selection hypothesis. Entorf and Kramatz (1994) concluded that the selective effect of new technology is probably accompanied by the exclusion of part of the workforce. Gollac and Kramatz (1997), however, demonstrate²¹ that the workers who operate the new technology are protected from the risk of unemployment in the short term.

Even though the generally accepted rule concerning the role of capital as a complement to skilled labour and a substitute for unskilled labour seems to be fairly sound, it is observable that the links between technological progress and types of labour are still the subject of a broad empirical debate. This debate still seems to have a long way to run, because it is very plain in the case in point that the empirical results are difficult to reduce to a common denominator and that they are affected by research methods (Castaño Collado, 1994).

3.1.2 Organisation change and demand for skilled labour

Has the transition from a Fordist system of work organisation to a more flexible system altered the nature of companies' demand for skilled labour? In general terms, technological innovations and the increase in physical and human capital have played a key role in the transformation of the Taylorist system (Milgrom and Robert, 1990; Boyer, 1994). The organisational structure of companies is changing and is being reorganised around teams that are more directly linked to central management.

This transition encourages versatility and decision-making by the workforce, even in the absence of technological innovations (Lindbeck and Snower, 1996). Alongside the appearance of new types of technology, the diversification of demand has also undermined the principles of Taylorism and Fordism (Stankiewicz, 1988).

²¹ Their research is based on the 1993 survey of working methods and organisation among blue-collar employees.

According to one radical view, the establishment of new production facilities is accompanied by a redefinition, and possibly even demolition, of the boundaries between the constituent tasks of standardised jobs. The new equipment takes care of some of the tasks for which employees with specific know-how have hitherto been required (Freyssinet, 1977). The simplification of jobs is reflected in the downgrading of those who perform them (skilled workers, ledger clerks, etc.) and reduces the opportunities for on-the-job training by eliminating the need to learn.

The Taylorist model is based on the standardisation of jobs. It boils down to a rationalisation of labour, characterised by minimal product diversity, sharp horizontal division of labour (and hence a vertical flow of information) and little flexibility of capital (as well as copious stocks). Tasks are split up, and each individual operation is optimised, which leaves little scope for general or specialised training. In the first half of the twentieth century (especially in the United States), the spread of this type of work organisation enabled companies to bring in workers who had little education or training but who were quickly able to achieve a prescribed level of productivity in the performance of 'scientifically organised' tasks.

Alternative organisational models take account of the contribution that training makes to human behaviour in a more satisfying working environment. Investments in training are again being seen as a more abstract form of rationalisation, relating less directly to productive acts, which in turn are less precisely defined, than to a set of practices and behaviour patterns that are required in order to create and maintain a flexible process and cohesive operational teams.

In some industries (the car, machine-tool and chemical industries) where state-of-the-art technology is in use, neither the market nor the product warrant rationalisation along Taylorist lines. Kern and Schumann (1989) note that the introduction of new technology in German industry has been accompanied by a diversification of job descriptions and the broad use of the skills of a limited number of workers (line operators in the car industry,

installation operators in the chemical industry and system managers in the machine-tool industry). Decision-making is devolved to the shop floor in response to a situation in which customised manufacture is becoming essential. Versatility as a principle of work organisation, however, is liable to create a new type of segmentation of the labour market, both within and between companies (Caroli, Greenan and Guellec, 1997).

Some empirical studies in France have identified links between the development of demand for skilled labour and organisational change in companies, although they do emphasise the complexity of the correlation. Greenan and Guellec (1994), in a study based on French industrial firms,²² highlight the existence of a significant link between work organisation, technology and the skill level of the workforce. Companies in which communication is most intensive are also those with the highest-skilled workforces and those which use the most up-to-date automated equipment. On the basis of data from British and French companies, Caroli and Van Reenen (1998) reach a similar conclusion, identifying a positive correlation between the probability of organisational change within an enterprise and the proportion of certificated employees in that enterprise. A study by Greenan (1996a),²³ however, shows that the effect of change on the demand for skilled labour varies in accordance with the nature of the innovation in question. If it is an organisational innovation, it influences the employment structure by shifting the balance between skilled and unskilled labour, which sometimes results in a reduction in the overall payroll. Companies

²² Two surveys were used for this study: the working methods and organisation survey of 1500 manual workers conducted by INSEE (Institut national de la statistique et des Etudes Economiques - National institute for statistics and economic studies) in 1987, and the innovation survey, involving 7,000 enterprises, which INSEE conducted in 1991.

²³ We refer here to the survey on organisational change conducted from 1988 to 1993 by the SESSI (Services des statistiques industrielles - Service for Studies on Industrial Strategies and Statistics) with a sample of 822 businesses.

that have opted to move towards a 'flexible' form of organisation²⁴ will increase their proportion of skilled labour without increasing the size of their workforce. For blue-collar workers, the organisational change means a wider range of tasks within a single job. Technological innovation, on the other hand, leads to fewer job cuts and is less drastic in its impact on employment than organisational change. Technological innovation does not affect the company's skill structure. However, such innovation is made by companies with a specific skill structure.

So according to the various studies, significant links do exist between organisational change and the skill level of a company's workforce, although these links are generally quite difficult to analyse. Like technological progress, organisational change seems to lead to an upgrading of the workforce, but there again empirical findings often depend on the level of observation adopted by the researcher. Moreover, many factors associated to a greater or lesser extent with technological progress or organisational change influence relative demand for unskilled labour. For example, a relative abundance of formally qualified labour combined with rigid real wages will be conducive to the substitution of qualified labour for unqualified labour, even if such a substitution is neither technically nor organisationally essential. This hypothesis has more adherents in Western Europe than in the United States, where human capital has become more expensive as well as being in greater demand than hitherto (Levy and Murname, 1992). It rekindles the question of a possible trade-off between pay inequalities and the risk of unemployment (Cahuc and Zylberberg, 1996; Cahuc et al., 1999) and triggers debates on the influence of the minimum wage and of compulsory employers' welfare contributions on the cost of unskilled labour.²⁵

²⁴ In the sense of Aoki's *Model J*.

²⁵ From this perspective, the hypotheses that technological progress destroys unskilled labour and that the relative cost of unskilled labour is too high have influenced the debate on the minimum wage (Dolado et al., 1996; Abowd et al., 1997; CSERC [Conseil supérieure de l'emploi, des revenus et des coûts -

3.2 From labour to skill: what about the role of demand?

In the previous subsection, we showed that demand had an impact on skill levels, which were implicitly assimilated in most of the studies to formal qualifications (or, worse still, with the duration of a person's formal education). Let us now consider what impact demand could have if the system operated on the basis of practical skills. Have the gradual erosion of Fordist organisation and the influence of new technology on the production process actually changed the nature of the skills that companies demand? If they have, to what extent has the development of the nature of these skills altered the relationship between the education system and the production system?

Understanding the problem of technological progress in terms of skills as defined in Chapter 2 not only enables us to return to a more refined view of labour as a heterogeneous production factor than is presented in the simple dichotomy of skilled and unskilled labour but also lets us take account of the demand for labour without automatically assimilating skill with possession of the ability to perform one specific job or with a person's level of educational attainment. This change of position to embrace the idea of skill as a vector enables us to appreciate more clearly the impact on the labour market of technological progress, as Bouadballah et al. emphasise: *The problem of heterogeneity of labour is not only rooted in educational investment or in the origins of individuals but also within the enterprise itself, where it is a function of the division of labour adopted by the company... Ideally, the definition of the skill level required by an enterprise or an industry could be based on a harmonisation model reflecting the numerous dimensions of the tasks that employ-*

National council for employment, income and costs], 1999) and on the role of compulsory non-wage labour charges (Dreze and Malinvaud, 1994; Snessens and Shadma-Mehta, 1995). The institutional constraints that affect the cost of labour in general and of unskilled labour in particular have accelerated the substitution of capital for labour and, by transitivity, the substitution of skilled labour for unskilled.

Table 2 – Skill development and company strategies

Nature of development	Conditions of skill development	
	Before the event	As it happens
	<i>Ex ante</i>	<i>In situ</i>
Entirely foreseeable	Scenario 1	Scenario 4
Probable	Scenario 2	Scenario 5
Unforeseeable	Scenario 3	Scenario 6

Source: Léné (1998).

ees are performing at any given time (Bouadballah et al., 1999, p.197).

3.2.1 Skills and technological progress

Abandoning the 'match/mismatch' approach, let us consider the skills that workers require in order to adapt to technological and organisational changes. Several types of skill can help a worker to adapt to an environment which is developing as a result of significant and relatively frequent technological progress.

Let us consider first of all how a company can be induced to develop these skills in an environment that has been destabilised by factors such as technological progress. In this type of unstable environment, it is in the company's interests to define a genuine manpower-management strategy that will minimise the cost of adaptation. On the basis of the analytical framework proposed by Léné (1998), two types of strategy are conceivable.

- a) The firm may seek to reduce the risk of failure to adapt by trying to anticipate future developments and by broadening the skills of its employees 'before the event'.
- b) The company may develop its employees' adaptability *in situ* by working on their response to developments as they happen in order to reduce the amount of time and money required for the adaptation process.

Which of these two strategies is chosen will depend on the nature of the future change and the extent to which it is foreseeable.

In Scenario 1, the company need only teach its employees the skills that will serve its

purposes in the period to come. The firm only has to pay training costs but does not incur any adaptation or opportunity costs, because it entirely foresees the changes. This textbook case, however, does not translate into practice. In this matter, more than in any other, the idea of perfect information is an illusion.

In Scenario 2, the firm is now unable to foresee the exact nature of the required skills and takes precautions to ensure that it is not overtaken by events. The diversification of the employees' initial skills is one way of reducing the cost of adaptation. As is done with an investment portfolio, the company diversifies its assets to guard against the risk of failure to adapt to changes.

In Scenarios 3, 4, 5 and 6, the nature of the company's work is such that it cannot anticipate its skill requirements because of unexpected extraneous events, such as the appearance of a new form of technology. Its only possible strategy is to develop the adaptability of the workforce. The quest for flexibility involves the achievement of greater versatility, the ability to respond more rapidly to the promptings of the market or to technological developments.

This can be done at four different levels (Léné, 1998):

- a) increasing the learning capacity of an employee, for example by reducing in regular stages the discrepancy between the skills required for a post and the skill of the incumbent;
- b) providing a series of learning experiences; this succession of experiences increases the productivity of the training process by

Box 2: Skills and new technology in the United States

On the basis of a study of the relationship between skill requirements and technology in the United States, Levin and Rumberger (1989) put forward a list of 13 skills that determined an employee's adaptability to new forms of technology and work organisation:²⁷

1. initiative and dynamism
2. cooperation
3. teamwork
4. ability and willingness to teach and learn from colleagues
5. evaluation
6. communication (good use of communication channels)
7. reasoning
8. identification and resolution of problems
9. decision-making
10. acquisition and use of information
11. planning and establishment of aims and priorities
12. knowing how to learn (cognitive and emotional qualities)
13. openness to multiculturalism

means of gateway effects ('learning by learning' – Stiglitz [1987]);

- c) increasing the transferability of learning outcomes; interdisciplinary skills are the foundation stones of a diversified economy, and complementary learning processes are reflected in shared production savings;
- d) encouraging the 'learning company' (Amadiou and Cadin, 1996) and the development of cognitive skills, which require diversified activities, cooperation and functions which are not rigidly compartmentalised.

Adaptability is called for here in changing conditions of production and is identifiable, for example, in some of the phenomena we have described, such as *functional mobility*. It may require more knowledge, and hence more training, in cases where tasks are quite highly differentiated and possess a certain degree of complexity. Nevertheless, in general terms, adaptability tends to imply a more behavioural set of skills, which can be acquired in the course of socialisation processes (Castillo, 1988). It is a matter, in other words, of demonstrating adaptability when the work process itself demands only a very low level of training. The term 'adaptability' therefore relates to the temporary – or generally inse-

cure – nature of employment and describes the non-voluntary performance of a variety of tasks and duties.

It is clear from this context that enlisting the help of the education system in the quest for adaptability is not necessarily the most rational or the commonest strategy for companies to pursue, especially when we consider the time it takes to produce skills.²⁶

At a more macroeconomic level, the analysis undertaken by Bishop (1998) on the basis of American data also indicates that the rise in the level of education in general and of initial education in particular does not necessarily meet the needs of a production system in the throes of a radical transformation. Moreover, Levin and Rumberger (1989) state that the level of qualification (i.e. formal qualifications) demanded by the labour market will not alter appreciably in the near future. *What is more likely to alter, on the other hand, are*

²⁶ On this point, see chapter 4 of the present report.

²⁷ In the view of Levin and Rumberger, these skills should not replace the traditional knowledge and techniques that workers are expected to possess and practise but must supplement them.

the types of qualification that will be needed as new technology and new forms of work organisation demand different types of aptitude (communication and reasoning skills, for instance). In the case of young people's education, the main aim, say Levin and Rumberger, is to provide not so much the level of instruction as the type of education that workers will need. The school system must prepare the future labour force to adapt to change rather than simply teaching them what they would need to work in a posulated stable environment (see Box 2).

In even more general terms, Howel and Wolff (1992) conclude that the emphasis is gradually shifting from motor skills (manual dexterity and physical strength) to cognitive skills (ability to interact with others and management skills).

3.2.2 Skills and organisational changes

The emergence of new models of work organisation is leading to the transformation of people's skill profiles. Numerous studies seem to show that the old definition of needs, based on a uniform body of knowledge, remains necessary but is no longer sufficient. Veltz and Zarifian, for example, consider that *the skill profiles of people and organisations, of course, are still defined by reference to specialised knowledge, but they increasingly include the ability to apply that knowledge to specific situations and chains of events. Maintaining equipment, for example, implies the ability to react to breakdowns but also the ability to foresee them...* (Veltz and Zarifian, 1993, p.19). The skill profile associated with a particular job is based on an exhaustive description of an employee's duties and hence of the knowledge he or she must be able to apply; this is a legacy of the Fordist model of the division of labour. Educational qualifications were never enough to equip employees for their job, even if that job only comprised standardised tasks, but they did go at least part of the way²⁸ to

matching an accumulated body of knowledge with a set of relatively foreseeable and standardised job requirements. Individual skill, on the other hand, depends more on versatility and the ability to respond to new situations.

Let us examine, for example, the organisation of work in the Japanese firm 'Model J' presented by Aoki (1990) and based on versatility and decentralisation of information, which seems to correspond to the 'holistic firm' described by Lindbeck and Snower (1996). The useful skills in companies of this type are the ability to process information, to solve problems and to adapt to the physical, and particularly the human, environment through understanding and cooperation between colleagues. However, although there is a wealth of human capital in Japan, the acquisition of the individual and collective skills on which the success of 'Model J' depends is based on the internal market (Inohara, 1991) and not only on the performance of the education systems.

Technological progress and organisational change, moreover, are very closely bound up in the development of these individual skills. In Europe and the United States, the 1980s saw the emergence of research into the qualities that were required following the introduction of new technology (Adler, 1987) and into changes in systems of work organisation. In this context, skill (Table 3) seems to be a vector, the points in which are responsibility, expertise, interdependence and training. Office work, where computerisation has necessitated an upgrading of skills and job descriptions,²⁹ is a prime example of this phenomenon.

Explicit training, however, is not the natural response to the development of this skill profile, whether in industry or the service sector. Jones and Wood (1984) cite the example of the introduction of new electronic

²⁸ Other considerations were involved, particularly for unskilled labour, such as the unique code of conduct and morality on which the Ford Motor Company based its recruitment and wages policies.

²⁹ This upgrading of skills includes attendance at formal educational courses in subjects such as banking systems to supplement on-the-job training, daily practice in teamwork, constant efforts to improve one's own aptitude and to familiarise oneself with new services, etc.

Table 3: Old and new skill profiles

Skill factors	Old profile	New profile
Responsibility	Based on conduct (effort, discipline)	Based on initiative (maintaining the continuity of the process)
Expertise	Linked to experience (manual dexterity or routine)	Cognitive (identifying and solving problems)
Interdependence	Sequential (only with colleagues at the immediately previous and subsequent stage of the production chain)	System-based (teamwork and interdependence of functions and levels of command)
Training	Acquired once and for all	Lifelong learning (frequently updated)

Source: Adler, 1987.

technology in a transmission-systems plant, necessitating the use of tacit specialised knowledge that the machine operators possessed. This knowledge, which they had acquired through experience, enabled the company to effect the transition to the new production methods without having to provide special training.

In France, in a study on manufacturing industry,³⁰ Greenan (1996b) shows that the links between skills and work organisation will depend primarily on the type of company. The 'flexible' firm, for example, is characterised by development of the skills of all categories of labour, which goes hand in hand with an increase in employees' responsibilities, a reduction in the number of tiers within the hierarchy and the creation of operational teams. In other enterprises, organisational change affects only some of the firm's employees and has little impact on skill development.

For our part, we wish to emphasise the fundamental role of the players involved in a process of change in determining how that change is implemented. In practice, the strat-

egies adopted by the management and by the staff and their representatives determine the pace and intensity of the technological innovation, the way in which it is implemented and its impact. According to Lope, Miguélez et Ros (1992, p. 52), the will of the company is the main determinant of the characteristics of technological innovation.

At the end of the day, even within a single enterprise, various forms of skill management will establish themselves (Lope 1994). Company strategies mirror the segmentation of the labour market. For example, the various groups of employees benefit to varying extents from the training provided by companies (Cedefop, 1997b). In general, training programmes connected with technological or organisational innovations and with policies designed to promote worker participation are administered in a selective manner. Training is segmented on the basis of quantity and quality criteria and is targeted at strategic groups of employees within the enterprise while neglecting others. In this respect, it seems appropriate to distinguish between the *core* of a company and its *periphery* in the context of human-resources management and to postulate a tendency to polarise the two.

Other factors besides industrial relations influence decisions on technological and organisational innovation. Working conditions and

³⁰ SESSI survey on organisational change from 1988 to 1993, based on a sample of 1496 businesses.

the characteristics of the market in which the company operates cannot be ignored.

3.3 Conclusions

Let us say in conclusion that our aim in this chapter has been to show the way in which the problems of general skill levels and individual skills have been related to the development of demand in the labour market. We have sought to discover whether changes in demand really have created a new need in terms of skill levels and, if so, what the nature of that new requirement is, given that a person's skill level, or qualification in the wider sense, is no longer considered as a homogeneous entity that can be assimilated to his or her level of educational attainment.

The findings of the various studies underline the complexity of the link between technological and organisational changes on the one hand and the demand for skills on the other. It is clear that companies will try to avail itself of manpower with the highest possible average level of competence and, above all, with the greatest capacity for rapid adaptation of its skills to a market dominated by increasingly short-term planning.

The most generally accepted conclusion on the impact of innovative processes is that their relationship with skilled labour is complementary; the transition from the perception of skill as qualification for a job to that of skill as general competence redefines the nature of the relationship between the process of innovation and productive capacity.

Skills are not homogeneous, and their usefulness depends on their being practised in real working situations. However, in a context of changing circumstances within the production system, adaptability emerges as a key skill.

On the one hand, *adaptability* (or the ability to deal effectively with unfamiliar and unexpected situations) is based on the *transversality* and *transferability* of skills. On the other hand, it constitutes the basis of their *durability* in the context of the current innovative processes and of the diversity of forms

of human-resources management that these processes entail.

It is far from certain that companies, with the aim of ensuring that highly adaptable individuals are on their payroll, will choose a strategy based entirely – or even principally – on recourse to the formal systems of education and training.

4. The skills market and its regulation

We have briefly outlined the value of the concept of skills as an instrument for analysing the labour market. We have also provided a rapid review of the interaction between the main thrust of economic development and the redefinition of the demand for labour. We have explicitly advanced the hypothesis that the good which is traded in the market is neither labour as an amorphous entity nor a form of qualification that is synonymous with the product of purely explicit training. We have assumed that the traded item is the skill profile of the individual, in other words a set of characteristics which are specific to the individual and which govern his or her productive capacity in a given context.

We shall now try to use this view of things to analyse the procedures by which skills are traded in the marketplace. To that end we shall try to identify the structural reasons which lead to difficulties in matching available skills with required skills. We shall then consider how the market maintains a balance in spite of the discrepancy between the horizons of suppliers and demanders. That will lead us on to propose a new definition of mismatches and a way of analysing the methods used to resolve them. We shall examine more specifically the consequences of our analysis for education and training systems and for their regulation and their ambitions.

4.1 The discrepancy between temporal horizons

The question of qualification or skill requirements elicits different answers, depending on the temporal horizon within which it is asked.

The answer to the question is fundamentally diachronic, as are any mismatches between supply and demand for qualifications. The effect of the changes that are taking place in connection with the globalisation process is that decisions relating to the production, circulation and accumulation of capital are governed by short-term priorities, whereas decisions relating to human and social reproduction demand a long-term, or indeed ultra-long-term, perspective (Vinokur, 1999).

In the relationship between the supply of skills and demand for skills, time plays a wide variety of roles. Time features as the period required for the acquisition of skills and as their useful lifespan; it is used to define the horizons of forward planning and hence as a unit of economic measurement. If we are to define these roles more precisely, it would seem useful to distinguish between the two groups of players (individuals and enterprises) in order to highlight the incompatibility of the time frames in which their respective economic calculations are performed.

4.1.1 Formal education and the origin of skills: the temporal dimension of supply

So that we can more clearly understand the temporal dimension of supply and of the consumption of skills, we must first identify the various aspects of a skill in terms of the most probable time and place of acquisition, its place in the structure of all individual skills and its lifespan.

Skills are not isotropic, nor do they endure for the same length of time or become obsolete simultaneously. But categorising skills in isolation, outside the context of their application, is a difficult task and demands a formidably rigorous approach. At the same time, it is obvious that skills do not all possess the same quality or the same productive and social value, either for individuals who are developing their 'human capital' or for companies when they recruit new staff.

A number of skills are accorded the status of 'prerequisites' and are of an 'irreversible' character; this is the case, for example, with the

skills that relate to communication or access to information; other skills, however, are more easily 'renewable', subject to certain conditions. We should emphasise the 'long life' of the first set of skills, which derives from the fact that they form a framework for subsequent learning processes and/or from their transferability (a prime asset in a rapidly changing world), as well as the broad range of contexts to which they are applicable.

In the context of numerous efforts to distinguish these skills from other skills of a cyclical nature, they have been given names such as 'key skills', 'core competences', 'transverse skills' and more besides.

So it is possible to distinguish, albeit rather schematically, 'framework' skills (which normally have a long lifespan), 'transverse' skills (which can be used in a wide range of situations) and 'specific/cyclical' skills. A further breakdown of these skills into personal, social and productive uses is difficult and probably serves no purpose.

Most training activities impart each type of skill, but the various forms of training and the institutions which provide them are of a specialised character and are essentially designed to create skills of a specific type; schools, for example, aim – or certainly should aim – to impart 'framework' and 'transverse' skills, whereas institutions which provide further training endeavour primarily to teach 'specific/cyclical' skills. In-house company training, for its part, imparts skills connected with teamwork, the use of specific technology and company organisation.

4.1.1.1 Skills and the individual's horizon

Time has two functions in relation to the skills of an individual: the first is the period spent learning a skill, which usually coincides with part of the initial education process or further training, be it implicit or explicit, in-service or outside the work context, and the second is the period spent using one's acquired skills.

The time spent acquiring skills comprises the period spent in general education and *initial*

vocational training and the time devoted to training during one's working life. Since individuals sometimes work during their initial education (cf. Béduwé et al., 1999; Planas 1999), a clearer definition of terms would be desirable, and perhaps a distinction ought also to be made between framework training courses, as in the initial education process, and adaptation courses, advanced training and occupational retraining, which build on the original framework.

The time taken to produce qualifications is tending to increase. First of all, initial education is becoming longer, either because the period of compulsory education is being extended by law or because continuation in education beyond the minimum school-leaving age is becoming increasingly important in practice. In addition, the time taken to produce the skills connected with framework training is also increasing as a consequence of the strategic choices made by individuals.

Initial education, moreover, is irreversible for at least two reasons. On the one hand, such a long period of full-time education would be impossible to repeat in a person's lifetime. On the other hand, we are only young once, and the customary time for initial education is when individuals are at their most malleable, both mentally and physically, which reinforces the irreversibility of the initial education process.

This extension, be it compulsory or otherwise, of the initial education period helps to establish its irreversibility; this is not to say that it is less adjustable but rather that it is firmer and more adaptable and opens more doors to lifelong learning (Cedefop, 1997b; Planas, 1990 and 1996). When young people receive their initial education, they naturally have long-term strategies, since they are aware that investments in this education process form the basis of their future social and professional status (A. and P. D'Iribarne, 1993), and/or of their prospects of obtaining further training. The maximum time horizon to which these young people's educational decisions relate will necessarily coincide with the envisaged duration of their active lives.

The time frame within which young people expect – and the society in which they live expects them – to reap the benefits of their initial education and, in more general terms, of all their acquired skills should be the duration of their active lives, in other words the long term. This is a very different perspective to the short-term *ad hoc* nature of a demand for skills in response to a temporary shortage.

The contradiction between these two temporal perspectives emerges clearly from a comparison between individuals and enterprises. Individuals, possessing skills from which they wish to derive benefit over a long period of time, are subject to antithetical forces: on the one hand the long duration of their active lives increases the length of time they spend in formal education, while on the other hand the pace of economic change implies a shorter lifespan for the skills they acquire. Like any other product, it might be thought that a skill has a fixed life cycle – shorter for some skills, longer for others – which has to be respected. This confronts the individual with a problem regarding the obsolescence and transferability of his or her acquired skills. In their economic calculations, individuals cannot be certain how long their skills will serve them and must take that uncertainty into account if they are to recoup their investment.

Moreover, the individual calculation will depend on the various institutions which regulate the supply of skills in the labour market. The school system, but families, associations and companies too, play an important part in the configuration of young people's initial education. The experience provided by families and the social environment, as well as work performed as a student, just like the knowledge imparted by the education system, endow young people with a basic set of skills. Empirical studies in France and Spain, for example, show that young people who have had jobs during their time at school and/or university are at an advantage when they seek work after completing their education (Planas, 1990; Béduwé and Cahuzac, 1997; Béduwé et al., 1999). The skills acquired during these informal educational experiences often serve no direct occupational purpose nor

have they always been intentionally acquired, but they constitute an essential part of the key or transverse skills, the productive value of which is rising.³¹ The time taken to acquire these skills is often lengthy, and their profile is not always explicit, which makes them difficult for conventional information systems to pinpoint.³²

To put it schematically, three types of institution can influence the production of skills in the countries of the European Union:

- a) educational institutions from all the systems of initial education and initial vocational training;
- b) institutions governing explicit further training; and,
- c) institutions influencing the acquisition of social and occupational skills outside the education system.

These three categories of player have reached very different levels of institutionalisation and recognition, differences which exceed even the disparities between them in terms of market value. In the various countries of the EU, the rationales behind these institutional categories are extremely diverse (Vaniscotte, 1996; Aventur and Möbus, 1996), and their practice differs widely, depending on the degree of involvement and coordination of government, employers and labour within such institutions (Soskice and Hancke, 1997). Moreover, the time frames within which the aforementioned skills are produced, if not totally variable, differ widely in accordance with the respective national philosophies underlying each of the institutions. The individual, when calculating, must therefore take account of these disparate time frames within which skills are produced.

³¹ This type of skill can be likened to the social skill postulated by Dutrenit (1997), which relates to the ability to perform the activities of everyday life in all spheres with a minimum of correction from others and with a certain sense of responsibility and initiative.

³² It is, however, possible to associate certain types of less commonplace careers with certain forms of recruitment on the part of employers (Stoeffler-Kern and Tchibozo, 1999)

4.1.1.2 *The global supply of skills*

The previous point showed the temporal horizons that govern the supply of skills at the individual level. We must now ask how long it would take to renew the global supply of skills.

Two major processes can influence this renewal.

1. The first is linked to the demographic renewal of the generation leaving the system of initial education. The cohort embarking on its first year in the education system will not necessarily receive the same training as the one entering its second year. It is this phenomenon which has prompted observers to describe the active population as a stack of cohorts that differ not only in terms of numbers (possibly) but also – and this is especially true of the past 30 to 40 years – in terms of the length, nature and content of the initial and basic training they receive (EDEX, 1999).³³ These changes in the length and specialisation of training may be interpreted as responses to the demands of the market or as relatively autonomous processes which depend on the relationship between the demand of individual and families for training on the one hand and public education policy on the other. In the first of these processes, changes in the overall supply of skills are primarily linked to the pace of the changes that affect two consecutive cohorts as well as to the length of the training cycle and its degree of specialisation. For example, we might conclude that it is possible to alter the structure of the output of engineers, in other words to adjust the balance between the various specialisations, within two or three years, because a substantial core of the engineering curriculum is common to all specialisations. Conversely, in many countries medical students begin to specialise at quite an early stage, which makes response times very long; the output of physicians could not be altered within two or three years, even if it were possible to alter the distribution of matriculated

³³ We refer here to the WP1 phase of the EDEX project (for the website see footnote 40).

students among the various medical specialisations within that time frame. About 3% of the total supply of labour is renewed every year, which limits the scope for adaptation. Furthermore, the average size of cohort coming out of the education system is diminishing from one generation to the next because of the falling birth rate.

Another question that arises is that of the self-regulation of this global supply of skills, irrespective of the capacity of the initial-training system. Do the various market operators, and particularly young people themselves, correctly anticipate the development of the demand for skills, particularly by taking due account of the time required for the production of skills? Working within this framework, several empirical researchers have suggested a number of ways to create a model that would indicate whether individuals' training choices depend on their present situation in the labour market or on anticipation of their future situation. In a 'cobweb' type of model, it is assumed that students deduce the future labour-market situation from the present situation, which creates cycles of endogenous fluctuations³⁴ and sometimes totally chaotic developments. The main exponent of this hypothesis was Freeman (1976), who tested it on young American engineers.³⁵ An alternative hypothesis, developed primarily by Zarkin (1983) and Siow (1984), assumes that individuals in the labour market have rational expectations on the basis of the available information. In other words, students are able to anticipate perfectly any changes in the way in which the demand for skills is developing. Borghans, De Grip and Heike (1996) tested these two hypotheses on data relating to Dutch students and seemed to conclude that

³⁴ According to this model, the number of first-year students enrolled on a course in year t will depend on the starting salaries of those who completed the course in year $t-1$ but will also affect the level of salaries in year $t+4$, when they enter the labour market after four years of study.

³⁵ See also De Meulemeester (1992 and 1995), for example, for applications of the cobweb model in the Belgian labour market, where it was tested on young graduates, particularly graduates of engineering and commercial colleges.

the former was slightly superior to the latter; most of their findings would indicate that the cobweb model had performed marginally better. Finally, the hypothesis of rational expectations on the part of students seems to have been largely invalidated by the Dutch research – as indeed it had been in Belgium too (De Meulemeester, 1992 and 1995).

2. The second process whereby the global supply of skills can be adjusted is that of further training. In this case, the pace of change depends on the nature of the desired modification and on the way in which it fits into working practices. It is likely, for example, that changes to certain characteristics of word-processing software would be easily assimilated by users. But the bulk of the forces that determine how quickly skill profiles are adapted by means of further training depend on interaction between the relevant players – companies, individuals and public authorities. It is clear that a society in which companies' management of human resources is based on a long-term perspective and in which individuals are able to keep building upon the framework of initial education they have all received will be better able to alter the stock of skills held by the entire active population.

In our societies, the initial education of the population – and hence, in economic terms, that of the active population – is irreversible in the sense that an inadequate basic framework of initial education tends to exclude individuals from jobs as well as from subsequent training opportunities (Steedman, 1999), since initial education forms the basis of further training. Within the system of initial education system itself, although the practice of re-entering the education system as well as changes of course and of university have become a prominent feature of the development of higher education in many countries of the EU, the scope for acquiring knowledge, and hence skills, is not *isotropic*. It would be easier, for example, for a graduate in chemical engineering to supplement his or her qualifications by doing a year of economics or business management than the reverse.

When we speak of the time taken to produce qualifications and skills, we must also distin-

guish between the lengthy period required for basic *framework-type* training courses and for the experience that shapes a person's life history and human capital on the one hand and the short periods required for specialised training of a *cyclical nature* on the other. Thus the strategies used to produce qualifications and skills are necessarily the result of a combination of many instruments that are available in the various education and training systems.

In practice, one of the main aspects of the change that has taken place in the education and training systems of the industrialised countries is that of the concurrent use of time for basic and specialised training. Our education systems are divided into a minimum of four subsystems, which are institutionalised to a greater or lesser degree from one country to another: there are the school, college and university system, the system for the occupational integration or reintegration of young people or adults who are unemployed or at risk (transitional measures, youth schemes, sandwich courses, reintegration schemes for women, etc.), the system of lifelong learning and the system based on experience, which is tending to become institutionalised as mechanisms are established for the recognition of informally acquired skills. Current research shows that these systems are gradually becoming more complementary than mutually exclusive (Planas, 1996; Bjørnåvold, 1997b; Steedman, 1999), which suggests that the development of skill is governed by the principle of the polarisation of training paths on the basis of the initial education process.

4.1.2 Enterprises and the need for skills: 'customer' requirements

In the customer-supplier model that was introduced in the introduction to this report, the enterprise is the main user of the qualification – in terms of essential knowledge and abilities – produced by the education system. It is one of the natural outlets for the products of the education system.

If we think in terms of skills, as we have been doing in this chapter, the analysis becomes

more complex, because the enterprise is both a consumer and a producer of skills, and it is impossible to draw a rigid line between these two roles, since some specific skills can be acquired concurrently from the education and production systems.

We shall now examine the temporal dimension of the need for skills, beginning with the needs of the company then moving on to the wider context.

4.1.2.1 Skill provision at the company level

The time constraints on a company will be determined by two groups of variables.

First of all, they will depend on the company's strategic horizon (Galtier, 1996). If the company intends to continue its present activity over a very long period of time, its horizon is distant, and its main problem is the uncertainty that inevitably accompanies any project. If, on the other hand, the company is operating within a shorter time frame, it will intend to alter the use of its capital in the relatively near future. It is therefore highly probable that a change will also occur in its demand for labour, in other words in the set of skills it requires in order to adapt to the new use of its capital.

The time constraints will also depend on the 'staff dimension' that obtains within the enterprise. By staff dimension, we mean all the factors which make up the company's human-resources policy and which determine whether the company has an internal market, a training policy, etc., and, if so, how these are structured.

The combination of the two groups of variables determine company policy. It is obvious that a company working within a short time frame will try to obtain the skills it needs from the market without any soul-searching about the future use of those skills. A company that operates within a lengthy time frame, on the other hand, as well as securing the skills it needs for its short-term goals, may also try to create a bank of skills for its future needs. It will tend to develop a training policy and will have regard to the potential of individuals

when it recruits new staff. Nevertheless, even if a company has long-term goals, it may not have a long-term staffing policy and may be content to take what it needs from the market at any given time. The state of the labour market is plainly of great importance in this respect.

It is essential to bear in mind³⁶ that the industrial-relations model which governed the economy until the eighties was characterised by a high degree of institutionalisation and state intervention and was based on a system of work organisation with a marked division of labour and standardisation of tasks and that it based the use of labour on the concept of skill levels (skilled/semi-skilled/unskilled). Since the eighties and particularly in the course of the nineties, competition between companies has become increasingly global in nature, and uncertainty has beset productive organisations; the labour force is becoming segmented and diversified, and the trade unions are being weakened. Nation states are losing a certain amount of their power to control the national economy. The authority of the traditional collective mechanisms to regulate working conditions and terms of employment is gradually being eroded (Miguelez and Prieto, 1999). Personnel administration, in short, is turning into 'human-resource management'.

The tradition of industrial relations has therefore been jeopardised by companies' growing preoccupation with 'management'. In the English-speaking world, at the cutting edge of business-management theory, concepts such as 'human-resource management' (Storey, 1995), with its inherent idea of a workforce committed to the goals of the company, are gradually replacing conventional theories of industrial relations and their view of a labour market governed by partisan interests and conflicts (Kölher, 1999). The tidal wave of human-resource management is engulfing the structure of industrial relations, breaking it down into a variety of individual negotiating mechanisms in the realms of training, career development and even pay.

For more than a decade, the structure of productive organisations and the system of work organisation have been undergoing profound transformations. In particular, the rigidity of the Taylorist model of scientific management has been challenged at the same time as flexible decentralised organisational structures are being developed (Martin, 1999).³⁷ The instability and uncertainty of the markets and the fluctuations in demand call for new and more dynamic organisation and production methods and hence new and more flexible methods of manpower management.

But the new forms of industrial relations, and especially the aforementioned individualisation of companies' relations with their staff, are very important developments. Companies are, of necessity, developing their systems of human-resource management to take account of the temporal dimension. However, the procedures they adopt for that purpose vary considerably, especially because of the need for greater flexibility in the use of labour, involving recourse to both the internal and the external labour markets. As the Cedefop report on current vocational education and training research in Europe shows (Cedefop, 1998a, Part Two, Chapter 2), the time frame within which companies operate, in conjunction with the timescales governing the supply and demand of labour, are closely linked to the flexibility of their human resources, which derives in turn from their manpower-management policy.

This way of managing human resources, however, may jeopardise the functioning of a company's internal labour market, depending on the skills that the company requires. If the skill level is low and the desired skills are commonplace, according to Eliasson and Vikersjö (1997), a large firm will often do better to recruit the skills it seeks in the local labour market than to provide in-house training for its employees. Conversely, where the skill level is high and the skills are relatively rare, the company can and must establish an internal system to develop those skills.

³⁶ See chapter 2 (sections 2.1 and 2.3) on this point.

³⁷ See also Part Three of the present report.

In the domain of recruitment, and hence external flexibility, companies faced with new skill requirements have changed their recruitment procedures with the aid of new methods for the identification of skills³⁸ (Alpin and Shackleton, 1997). As levels of educational attainment continue to rise, employers seem to be trying harder to find evidence of personal qualities that are difficult to evaluate, more or less irrespective of degrees, diplomas or any other formal certification the individual may possess. Alpin and Shackleton (1997), referring to research conducted by Bartram (1995), specify that these selection methods will depend primarily on the size of the company, with small and medium-sized businesses attaching greater importance to personal qualities such as integrity, honesty and interest in the work of the company. Eymard-Duvernay and Marchal (1997), incidentally, conclude their work on recruitment by stressing the need to use a combination of methods for selecting staff and identifying skills. This, they say, is the only way to inject dynamism into the workings of the labour market. Otherwise, *the aim of complete transparency is illusory, and even if it could be achieved, it would be harmful* (Eymard-Duvernay and Marchal, 1997, p.226).

4.1.2.2 The global demand for skills

The development of competition in the product market, due for example to the opening of international trade or to technological and organisational changes,³⁹ has direct repercussions on demand for skills in the labour market. One of the problems for the production system is that it has to try to adapt this constantly changing demand for skills to the supply of labour that is available in the market. Obviously, these adjustment problems may be fairly minimal on a macroeconomic scale, even if particular companies or industries do experience temporary skill shortages. Any attempt to regulate this demand for skills would involve reducing the time taken for the spe-

cific demand to materialise and increasing the foreseeability of that demand.

The growth of global demand is often regarded as inevitable; it can serve to enhance the efficiency of the production system, provided that it can take place without delay. For that reason, workers have to adapt, and the identification of a mismatch, or the fear that a mismatch will emerge, will then result in action on the supply side. It would not be idle to explore this postulate, because the demand for skills is not rigidly dictated by technology; it is the product of numerous choices on the part of organisations and even institutions, and the dictates of technology are sometimes a secondary consideration when those choices are made.

4.1.3 To what extent does supply determine demand?

The problem of skill requirements cannot be presented in terms of mere adaptation to the needs of the moment but rather in terms of foresighted management of human resources. This being the case, we can then start to consider the supply situation as a challenge to companies, prompting them to respond by making more and better use of the available skills. As Bruno puts it when referring to mismatches between supply and demand, *In most industrialised countries there is a perceptible sort of sequential order whereby cognitive advances made by the company executives lead to technological and organisational changes, which also require greater knowledge on the part of workers on the shop floor, while cultural development at grass-roots level within the company creates new opportunities which directors and middle management perceive and subsequently exploit. Consequently, the process is in permanent imbalance, which makes the occurrence of mismatches easy to explain, impossible to avoid and, we have to say, desirable...* (Bruno, 1998, p.3). At the macroeconomic level, empirical evidence shows that the distribution of formal qualifications within the labour market tends to follow what has been termed the 'supply effect' (Mallet et al., 1997). The results of a macrostatistical analysis conducted in six countries of the EU

³⁸ Such as the production within companies of 'skill profiles' and 'skill frameworks' (Alpin and Shackleton, 1997, p.13).

³⁹ We referred to this point in chapter 3.

(France, Germany, Italy, the Netherlands, Spain and the UK) confirm that the availability of young people with a higher level of education and training, generation after generation, who enter the working population leads to changes in the structure of qualifications within occupational categories by means of a simple knock-on effect. Everything would seem to indicate that the various occupations take from the labour market what they find and not what they require in terms of their specific needs. According to these findings, the development of certification levels in each occupation can be explained by the general growth in the number of certificates rather than by particular recruitment patterns within each occupation. This development could have been expected on the basis of factors such as an increase in the numbers in an occupation or the speed with which the skill requirements for the various occupations are changing (Cedefop, 1997a).

The overall result of this analysis is somewhat troubling in relation to the general ideas on which education policies are founded. The widespread belief that the development of initial education responds to changes in company demand, or at least that each occupation harnesses this development in accordance with its own internal dynamics, is not really compatible with the homogeneity observed in the distribution of qualified individuals throughout all occupations.

In the light of these findings, it is plausible to consider that the rising level of qualification is based more on a social demand for exogenous training than on the requirements of companies. This is not to say that these extraneously generated dynamics have no effects on job content and on company behaviour, as Bruno indicated (see above).⁴⁰

⁴⁰ In the framework of the Targeted Socio-Economic Research (TSER) programme administered by Directorate-General Research of the European Commission, a research project on educational expansion and the labour market (EDEX) is currently being conducted with a view to examining these findings in greater detail (website: <http://193.49.48.153/edex/>)

4.2 From modular skills to modified requirements

In a context in which the demand for qualifications is undergoing radical change, mainly as a result of technological and organisational changes, the development of the nature and content of jobs compels the production system to alter its skill requirements at very short notice, often on a timescale far removed from the one that has traditionally governed the production of skills and the associated qualifications. At the same time, as Europeans spend an increasing number of years in formal education against a backdrop of high unemployment, the education system is producing an ever-growing number of qualifications and qualified people. As they 'multiply', however, diplomas seem to be less and less able to provide all the information that is required for the recruitment and promotion processes.

Accordingly, we must investigate the way in which adjustments are made in the skills market. Several questions arise. Are there mismatches between supply and demand, and, if so, what kind of mismatches are they? How are adjustments then made? What role can the education system play in these adjustments? Before answering these questions, let us begin by returning to the constraints that affect any attempt to adjust the balance between the supply of skills and the demand for skills.

4.2.1 Adjustment and associated constraints

Notwithstanding the problem of the temporal dimension, the mechanisms for adjusting the balance between supply and demand in respect of qualifications or, to be more precise, in respect of skills do not work instantaneously and are based on various different principles. In this subsection, we shall present the three main constraints to which these mechanisms are subject:

- a) the non-economic functions of the education and training systems;
- b) the amount of information available in the skills market; and,

c) the institutions that regulate the supply of and demand for skills.

4.2.1.1 The multifunctional nature of the education system

The first category of constraint is deeply ingrained in the multifunctional nature of the education system and, more generally, of all explicit education and training systems. The value of a diploma exceeds the productive value assigned to it by the market. We must avoid an over-simplistic view of the education system and its role, because the general demand for education and training is relatively independent of the skill requirements of the production system. The demand for formal education derives from the role of formal qualifications in social and professional life. The growth in the demand for education and training is not purely associated with job prospects, expected productivity gains and the material rewards that individuals hope to reap from their qualifications. Carnoy (1982) said that, even in an economy that proved incapable of absorbing an increase in the number of certificated people and required some of them to accept jobs hitherto occupied by employees with less training, the incentives that had prompted the rise in education levels would continue to operate. After almost 20 years, these words still ring true.

P. and A. D'Iribarne (1993 and 1999) underline the importance of the symbolic role of education in France. It is not possible, they say, to understand the relationship between the education system and the production system in France while neglecting the symbolic aspect of education. And that presupposes an understanding of the role played in modern France by the distinction between that which is more noble and that which is less so. [...] In contemporary French society, a person's 'scholastic nobility', acquired by virtue of his path through the education system, will determine, and determine for the rest of his days, his degree of personal nobility. (P. and A. D'Iribarne, 1999, p.28). What is true of France is also true, albeit in different ways, of the countries of 'Old Europe'. In order to comprehend the relationship between the systems of education and production, it is

necessary to understand the mechanisms, which are probably different in every country, whereby each country uses its education system to confer various grades of 'nobility', which are based today on conception rather than execution and on independence and responsibility rather than service to others.

The question of the relationship between training and jobs, of the correspondence between training levels and job status, is a similar sort of problem. The education system produces skills but also produces a social hierarchy; as far as the elite groups within that hierarchy are concerned, the system confers its highest status on people in careers with a very broad professional function (A. and P. D'Iribarne, 1993). Nevertheless, the general rise in education levels poses the problem of reconciling a status conferred by the education system with a production system that remains more hierarchical than the education system. This, according to Carnoy and Levin (1985), is a manifestation of the conflict between the dynamics of capitalism and those of the democratic state.

4.2.1.2 The information value of skill

The rise in the education levels of the active population is inevitably transforming the role of training and certification as signals. In fact, the profusion of paper qualifications diminishes their market value, which is the main hypothesis of the credentialist theories, and affects their classification value. The hierarchy established by the education system tends to become ever less clearly reflected in the employment hierarchy. The grading process initiated by the educational institutions when they award diplomas only comes to fruition in the pursuit of an occupation, when the employee's acquired skills assume their full significance. Differentiating mechanisms supplement or alter the hierarchical model drafted by the education system when it awarded its diplomas.

Although educational qualifications are part of the hierarchical structure that is erected within the production system, they are only the foundation stones. The proliferation of diplomas modifies the information they con-

vey to the labour market. *The abundance of signals kills the signal* and shrouds the array of qualifications in the marketplace and the skills they represent. If the number of years of study increases and if there is little differentiation in the training offered to young people,⁴¹ the information value of the diploma will diminish, except in the case of its absence, where the negative signal will be amplified. The education system is therefore proving less and less able to supply all the information that is required for the recruitment and promotion processes.⁴² Formally qualified recruits possess productivity potential which the productive organisations must turn to account. Responsibility for training lies with individuals, whereas the power to codify it in terms of skills often rests with employers. Recognition of new codifications of skills poses numerous problems, as we saw in Chapter 2, with regard to both the measurement of each skill and acceptance of the codifications by the various players in the labour market.

4.2.1.3 *The institutions*

Besides the bodies within the education system, various other institutions regulate the skills market on a more or less formal basis. From the family to careers-guidance officers, from social networks to the state, which often sets a minimum price for skills, from small businesses to entire industries, from the trade unions to the employers' organisations, a host of institutions are involved to a greater or lesser extent in the production and use of skills.

The role of these institutions in the segmentation of the labour markets in Europe in recent decades has been of particular significance. The stability of the internal and occupational labour markets in each country has had a great impact on the regulation of the

⁴¹ Especially if the selection rate at the start and the final certification rate remain constant.

⁴² There are quite clearly considerable differences between the European countries in this respect, as Hannan et al. (1996) emphasise, especially between the countries using a dual system of alternating on-the-job training and formal education and the other countries.

skills market, even though that stability sometimes appears to be under threat (Géhin and Méhaut, 1993; Moncel, 1996; Récio, 1999). The segmentation process has affected not only the funding of skill production but also the transferability of skills and therefore, ultimately, their consumption by institutionalising the rules governing their acquisition. The acquisition of skills in less and less regulated, less and less institutionalised markets, necessarily undermines the existing forms of regulation, especially in relation to new entrants to the labour market. This development has to be taken into account if we want to understand the adjustment mechanisms that will apply to the skills market of the future.

4.2.2 *Towards a new definition of mismatches*

In an analysis in terms of skills such as we have presented here, a mismatch at any given moment in time is not a problem per se. If we apply strictly commercial standards, the duration and cost of the adjustment process are the only significant factors. In other words, the mismatch problem that is inherent, for example, in an underskilled economy generates at least two types of cost: the direct cost of adapting to the new skill requirement (the cost of training, for instance) and the indirect costs associated with the length of the transitional period (opportunity costs resulting from a delayed response).

At the macroeconomic level, let us consider two types of imbalance between supply and demand with regard to skills and two time frames – the short term and the long term – corresponding to cyclical and structural imbalances respectively.

In his analysis of financial markets in the *General Theory of Employment, Interest and Money*, Keynes ranks expectations on the basis of the time frame within which the enterprise is able to judge whether they have been fulfilled.⁴³ Keynes thus distinguishes between short-term expectations, corresponding to

⁴³ On this point we can refer to Favereau (1986), who extends the Keynesian analysis to the commodity market.

Table 4: Types of mismatch

	Cyclical imbalance	Structural imbalance
Growth in demand for skills	A	B
Growth in the supply of skills	C	D

production and employment decisions that can quickly be reversed, and long-term expectations, involving investment decisions that are often irreversible, with regard to largely or entirely unforeseeable events with macroeconomic repercussions. Whereas short-term expectations are usually fulfilled, long-term expectations pose a number of problems. As Faveraux notes (1986, p.253), the Keynesian analysis may be adapted to the commodity and service markets, even though these markets have only treated short-term expectations as extraneous variables and are only concerned with companies' long-term expectations in so far as they affect the workings of the financial markets. One might also try to transpose this analysis to the skills market by distinguishing short-term cyclical imbalances from long-term structural disequilibrium. Short term imbalances will be due to exogenous shocks which affect the supply of skills or the demand for skills but have no irreversible macroeconomic impact. Long-term imbalances of a more structural nature will relate to more irreversible strategic decisions taken in a context of profound uncertainty,⁴⁴ in which the various players' decisions could have chaotic results.

At the same time, these two imbalances, the structural and the cyclical, might be reflected in a jobs squeeze and a surfeit of skills or in a skill shortage. Quite clearly, these are not alternatives, and there could be an intermediary situation in which an oversupply of some

skills coexisted with a shortage of others. For the sake of simplicity, however, we shall hypothesise that one type of imbalance would be strongly predominant at any given time.

The first situation will occur when *the supply of skills is increased*, as a result of education policies, for instance, while demand remains more or less constant or develops independently of supply variations. The second situation will tend to occur when *demand for skills grows* because of technical progress or organisational changes, while the supply of skills remains constant or increases by a far smaller amount than demand.

The four possible types of mismatch are presented in Table 4:

The first row of Table 4 indicates the type of skills shortage that some European reports have envisaged (European Commission, 1992). This scenario has posed challenges and elicited responses that have often been encountered over the past four or five decades in the various countries of the EU. This scenario originally provided the justification for the consensus which led to the rise in education levels in Europe in the course of these decades and for the development of both national and Community vocational-training policies supported by the European Social Fund.

The second row, on the other hand, relates to situations in which there is a glut of skills,

⁴⁴ We wish to contrast two types of uncertainty. The first derives from a context of imperfect information, in which the various economic operators will be able to predict the future 'state of the world' with a fair degree of probability. This primarily short-term uncertainty is envisaged in neoclassical economic theory. This type of uncertainty, however, was sharply criticised by Keynes, who said that human decisions with a bearing on the future could not be inspired by a purely mathematical projection, be-

cause the basis for such a decision did not exist - a view endorsed by Knight, who stated that *the term uncertainty must be restricted to 'non-quantitative' views about the future, and it is this 'true' uncertainty and not risk, [...], which forms the basis of economic decision-making* (quoted by Orléans, 1986). The second type of uncertainty is therefore a profound uncertainty, which is unforeseeable and is most likely to result from the appearance of new knowledge that resists all rational programming.

and particularly of formal qualifications, within the economy. This type of mismatch, which generally arises from an overabundance of skilled labour, has increasingly profound adverse effects on the labour market. On the one hand, educationally qualified people, especially those in the youngest age groups, find themselves downgraded in relation to the initial education they have received and/or consider themselves overqualified for the work they are expected to perform.⁴⁵ At the same time, the glut of certificated manpower restricts or ruins the employment and training prospects of individuals with insufficient education. Nor does further training, be it formal or informal (i.e. on-the-job training), represent a second chance in most cases (Planas, 1996), because it is generally provided on a selective basis to those with a certain level of basic theoretical knowledge.⁴⁶

Let us now consider the characteristics of these imbalances and the options for adjusting training systems in the light of the constraints presented above. Needless to say, we shall only be able to examine some of the adjustment options here. Training systems are not the only solution to mismatch problems; it is perfectly possible to rectify a shortage or surplus of skills by acting on production technology. However, we shall consider such actions here as exogenous factors.

Case A: cyclical imbalance and skill shortage

This first case relates primarily to the active population within the labour market. The company chooses from the market the skills

⁴⁵ With regard to these two perspectives, reference may be made in particular to the studies by Alba-Ramirez (1993) and by Garcia-Serrano and Malo-Ocaña (1995) in Spain or by Forgeot and Gautier (1997) in France.

⁴⁶ This level of knowledge is necessary in order to transcend the narrow know-how connected with work that can often be learned on the job with the aid of informal instruction from an experienced worker. Without this theoretical knowledge, it is difficult to imagine how recognised skills can be any more than a set of memorised instructions for specific operations (Marsden, 1994)

which it lacks and which will minimise its adjustment costs. It will select the range of skills that is closest to the vector it seeks. It may choose these skills from its internal labour market, redeploying its existing human capital or possibly by offering further training. It can also recruit from the external market, engaging young people with formal qualifications or more experienced workers who are unemployed or are enrolled with a temporary-employment agency. Lastly, it can lure employees away from other companies. On a macroeconomic scale, this is liable to increase the price of skill without resolving the shortage. Other options exist, such as reorganising the workforce or subcontracting, which would make a third party responsible for finding the necessary skill.

Any structural adjustments to the system of initial education, on the other hand, are liable to create irreversible situations at quite considerable expense without meeting the short-term needs. Adjustment times would be lengthy, and several cohorts would emerge from the education system to find that their course choices had been based on false assumptions and were now irreversible. The idea is fairly simple and universally recognised: to meet an immediate need for computer engineers (for the millennium bug, for example), it is not enough to create one or more new engineering courses. For one thing, it will take quite a long time to establish and run a new training course, and the chances that it will meet the short-term need of the production system may be reduced by intervening variations in the needs of the system, possibly stemming from technological or organisational changes. For another thing, the vast majority of the engineers coming out of the education system will be inexperienced and are therefore unlikely to be fully operational within a short period of time. Quite clearly there are other options besides this rather extreme example; further training, for instance, would serve to accelerate the adjustment process. Such measures, however, must be temporary, lest they create structural imbalances.

The speed of adjustment depends on flexibility of supply. Any constraint that limits this

flexibility will delay the adjustment process, even if we assume perfect information on the development of the skill requirement. That is why the system of initial education, because of its multifunctional nature, its long-term perspective and its reaction times, cannot easily deliver a precise short-term response to labour shortages. This does not in any way imply that the education system is powerless or ineffective in the face of specific labour shortages. On the contrary, it affords the best protection against a skill bottleneck by offering a high level of general training which serves to reduce the time and expense involved in the production of essential skills.⁴⁷ But every nation has developed further-training institutions which, in certain conditions, have furnished proof of their ability to resolve this type of imbalance. They offer the advantage of responding more flexibly to a sudden demand for specific skills while shortening adjustment times. Further training, however, remains highly dependent on the level of initial education that employees have previously attained.

Case B: Structural imbalance and skill shortage

On the basis of the plausible but unverifiable hypothesis that the development of our societies and production systems will generate demand for higher skill levels in the long term, we can foresee two possible types of skill shortage.

The first is that a skill might generally be in short supply because of job growth within the economy. This is currently the case in France and Spain, for example, with regard to foreign-language and computer skills. It is conceivable that these two skills will become a structural necessity for a great number of jobs in the modern economy. In this situation the education system has to intervene by offering courses which will enable people to acquire at least some degree of proficiency in these skills.

⁴⁷ This argument reinforces the 'learning by learning' theory as expounded by Stiglitz (1987).

The second possibility relates to a shortage of certain skills that have to be adapted to specific individual profiles. The solution for the education system in this case is to create initial or further training courses as a means of adjusting the training structure to take account of this need.

In both these situations, the education system can pursue either of two compatible strategies. The first is to opt for general training, thereby making the new skill easily transferable to people in all occupations. That will lay the foundations for more learning, enabling young people to adapt to the growing demand for skills. But it will not make them instantly competitive in the labour market. The second strategy is to make 'ready-to-use' manpower available in the labour market by providing instruction in the skills that trainees need in order to find jobs on completing their education. In the medium term, however, this option poses the problem of obsolescence and redeployability of the skills in question.

The response that turns out to be most effective in this case is a combination of specialised training (as brief and inexpensive as possible) built on a foundation of previously acquired skills – and hence based on knowledge of the individual skill profiles of the active population in the labour market, however their skills may have been acquired. This entails linking the various training systems and facilities (co-production).

Case C: Cyclical imbalance and a glut of skills

A cyclical imbalance corresponding to a sharp variation in supply may result from deficiencies in the market and in the various institutions which regulate the supply of and demand for skills.

This type of short-term imbalance does not necessarily create inefficiency within the production system, which is able to adapt to supply growth (Bruno, 1998). It may even stimulate technological and organisational changes within enterprises. However, if it persists, it is conceivable that the phenomena of frustrated ambitions among overqualified young

people and career bottlenecks for experienced employees will begin to outweigh the benefits of such an imbalance.

That, in fact, will depend on the precise characteristics of the imbalance. We shall explore two possibilities:

1. The new cohorts emerging from the education system may be overqualified – in other words overeducated – in relation to the specifications listed in the job advertisement. This implies that some of the skills acquired in the education system are liable to go unused and that the price of these surplus skills will fall, all other things being equal. This will translate, for example, into a reduction in the financial benefits of education for new entrants to the labour market or an increase in graduate unemployment, which could lead to a reduction in the initial investment in human capital by subsequent generations. The evidence suggests, however, that no such mechanism is at work (Carnoy, 1982). Besides the explanations in terms of opportunity costs, young people's current educational strategy can be justified by the fact that investment in general training enables them to preserve or improve their relative position within the labour market, even if their job prospects or salary expectations are diminishing in absolute terms.⁴⁸
2. The new cohorts may not have the skills that companies require, as a result of growth in demand. Young people may resolve this mismatch by acquiring skills in the labour market during the first years of their active lives. Now that access to internal labour markets has been closed in certain countries of the European Union,⁴⁹ young people find themselves compelled to acquire skills in a number of insecure jobs before gaining a sound foothold in the labour market. In this case, it is the job-

seekers themselves who incur the adjustment costs.

For those cohorts that are already part of the active population, the problem is primarily about experience acquired on the job and further training. Work experience can play an ambivalent role. It may enhance an employee's adaptability by providing first-hand examples that are similar to the new situation faced by the workforce and by enabling the employee to become accustomed to mixing and matching all the skills that can be used in the new situation. But work experience can also have the opposite effect if it only provides the employee with practice in daily routines, deeply ingraining particular habits and making it more difficult for the employee to shake these off and adapt to new requirements. Further training is, by definition, a means of adaptation to new skill requirements. But these requirements must also be clearly identified, and the conditions for an efficient transition (prior training, motivation, etc.) must be guaranteed.

Case D: Structural imbalance and a glut of skills

The existence of a structural imbalance associated with sharp variations in the supply of skills poses the same problems as in the previous case, but this time the problems are considerably more serious, because the market and the institutions have repeatedly failed to regulate the supply of skills.

The multifunctional nature of the education system, the consensus established by individuals, business and government on the desirability of educational growth and the weak influence of prices as regulators of access to training are undoubtedly the main causes of this potential imbalance.

The fact that access to education costs next to nothing in most countries of the EU means that cost has virtually no role to play in regulating entry to the system. In certain conditions, it might be possible to correct this imbalance by ensuring that people know the truth about the financial benefits of education, about career opportunities and about the

⁴⁸ The explanation of these strategies has been extensively developed in specialised literature, particularly by Boudon (1973) and Thurow (1975).

⁴⁹ We refer especially to the studies by Recio (1999) for Spain and Moncel (1996) for France.

probability of academic success or failure. This type of approach, however, poses the problem of accurate short-term anticipation of behavioural changes on the part of those who determine the supply of skills and demand patterns. Another option would be to reintroduce some degree of competition (Glennester, 1991) into an education market which, according to the advocates of the liberal approach, is too dependent on the centralised decisions of the public authorities. This would serve to match the quality and quantity of the supply of formal qualifications, and more particularly of skills, with the demand emanating from the production system by virtue of direct regulation by the price mechanism. Competition between educational establishments and training systems (Rapple, 1992; Blair and Stoley, 1995) would serve to reduce the distortions in the skills market. Once again, however, this is an option that ignores the antithesis between the timescales governing the production and consumption of skills.⁵⁰

Finally, it must be said that the arrival of masses of certificated young people in the European labour markets over the past 25 years has neither created any irreversible structural imbalances nor led to any profound changes in the methods by which holders of certificates are selected within the various occupations (Mallet et al., 1997; Bédoué and Giret, 1999). On the contrary, it is observable that the percentage of certificated employees is fairly constant from one occupation to another, even if we make allowance for technological progress (Giret and Masjuan, 1999).

4.2.3 Predicting long-term needs in situations of uncertainty: a case for qualitative adjustments?

We should examine the possibility of forecasting and anticipating long-term needs that ought to be addressed. The exercise we conducted over the last few pages necessitates further reflection, based on the characteris-

tics of the 'long term' which were defined in the introduction, particularly the shortage of information and the uncertainty it breeds.

In a context of uncertainty, more than in any other situation, long-term adjustments depend on identification of the 'durable', which, if we think of skills, can only be defined in terms of those which allow access to other skills as yet unknown and thus implicitly defy long-term definition. In other words, it is a matter of defining the framework skills and of focusing on adjustment measures with a view to ultimate general acquisition of those skills.

This will surely ask questions of the institutions responsible for initial education but also of those involved in further training which perform, in a manner of speaking, the task of teaching adults to read and write all over again.

The initial-training institutions must examine the content and methods of compulsory education (Cedefop, 1999) and on the content and priorities of upper-secondary, further and higher education.

One aspect of these essential reflections on initial education which ought to have profound long-term effects is its 'cultural' reform.

Despite the constant repetition of the mantra that training is a matter of 'lifelong learning', our systems still tend to act as if initial education were the time for learning everything, once and for all. As a result, they are inclined to respond to the emergence of new knowledge and scholarship by adding to the structure, which is liable to make them less and less effective. Today, providing a good basic education means making crucial cultural choices about the strategic content of basic education.

The increase in the knowledge and 'wisdom' that is available in our societies (thanks to scientific development and its propagation by the new forms of information and communication technology) has not been integrated into our education and training systems in a thoughtful and selective manner but has

⁵⁰ Unless we assume that all the competing training systems operate on the basis of perfect information.

rather been grafted onto the traditional models of cultural values and access to knowledge. In addition, the introduction of the 'skills culture' as opposed to the 'knowledge culture' is still proceeding very tentatively in our systems of initial education. Blaug (1999) highlights this point when he defends the idea of qualitative adjustments to education systems.⁵¹

This being the case, it is essential to define a 'minimum training platform' (Cedefop, 1999). In general terms, our school systems have responded to increases in knowledge by adding to the structure without any real effort to be selective and hence to establish priorities. In this way, our school systems have incorporated more knowledge, more foreign languages and specialised languages, have diversified their methodology and fostered interdisciplinary skills, etc., without establishing priorities or, to put it another way, without defining the *essential core* of our culture. The effect of this accumulation on school curricula has differed between countries but, in general, the key knowledge and skills have not been targeted. The purpose of defining the minimum training platform is therefore to guarantee the dissemination of key knowledge and skills and thus to lower people's expectations of initial education, which should not involve itself in every possible field of knowledge but serve as a reliable gateway to lifelong learning.

Changes in this direction are 'spontaneously' validated,⁵² but they are still too limited in their effects. There is a noticeable absence of any determined bid to put framework skills at the core of initial education, and why should they not be introduced as an element of the re-education process in further education?

⁵¹ Blaug (1999, p. 6) states, for example, *This is to deny that workers do need a minimum threshold of competencies in order to perform adequately on a job, and one comprehensive American study tried to specify these minimum computational, reading and communication skills. While these specifications are largely qualitative and not quantitative in nature, and hence cannot be mechanically applied to different types of school leavers, they suggest that at best so-called at-risk students, namely school leavers from immigrant*

4.2.4 Regulation of education and training institutions

Institutional regulation is also a complex matter. The education system, by dint of its diverse functions, cannot decide independently to restrict the annual flow of qualified pupils, students and trainees from its establishments. Although it is possible to achieve this effect by tightening entry requirements or by reducing pass rates, the whole issue remains a social and political minefield. On the one hand, a high cultural and social value attaches to education in most countries of the EU; it is the key to upward mobility for individuals, many of whom come from deprived social backgrounds. On the other hand, the internal inertia we alluded to above makes the education system a complex organisation (Hoenack, 1994), based on a somewhat contradictory incentive system (Carnoy and Levin, 1985; Franchi, 1992). A general rise in education levels, for example, poses the problem of the linkage between the grading effected by the educational establishments and a production system with a more pronounced and stabler hierarchical structure, which, according to Carnoy and Levin (1985), is a manifestation of the conflict between the dynamics of capitalism and those of democratic government. Nor should we ignore the sometimes antithetical interests of the various players involved in the operation of the education system. Even if they are in more or less tacit agreement on the internal regulation of the system, their aims will not automatically be compatible with staff cuts or with major changes in the methods used for the dissemination of knowledge or even in the nature of that knowledge.

A more general explanation of this deficiency in terms of the players' strategies may be that

minority and extremely poor families, might fail to meet the minimum standards, which brings us back to the question of how to help the potential school leavers without drawing undue attention to them.

⁵² Educational innovations and a shift in the curriculum towards more application-based courses in secondary and higher education are occurring in all Member States on the basis of a greater or lesser degree of judicious guidance.

of a 'consensus' in favour of raising education levels (Béduwé and Espinasse, 1995b) in the context of a job shortage. Keeping young people in the initial education system is an effective way for governments to deflate the active population and, more specifically, to reduce youth unemployment while responding to a recurrent aspiration of society to raise the general level of knowledge. Because of the shortage of work, young people perceive a fall in the opportunity cost of continuing their education and prefer to preserve the advantages of student life than to venture into the uncertainty of a deeply depressed labour market. Moreover, by simply perusing a breakdown of the unemployment figures by level of education, young people will see that graduates are more likely to find a job, even if the level of qualification required for such jobs corresponds to an ever diminishing extent with the education level of a young graduate. For that reason, most parents encourage their sons and daughters to continue their education at college or university. Lastly, employers, who do not have to finance this raising of education standards, can make use of this rise in the general skill levels of the labour force to drive down pay levels while enjoying the benefits of a workforce that is better educated and hence likely to adapt better to changing circumstances. An analysis of the arguments advanced in the eighties and nineties by governments, trade unions and employers in Spain on the subject of education and training highlights a desire to increase the general level of education of the labour force that is most often unconnected to the needs of the production system (Llorens et al., 1996).

A surplus of certificate holders raises the problem of relevant information in the labour market. It is very clear that, from a credentialist point of view, this situation is highly inefficient, because it does not enable prospective employers to identify clearly the productive capacity of job applicants.⁵³ On the demand side, skill requirements themselves are becoming less standardised because, faced with the deficiency (caused by overabundance) of the institutionalised differentiation criterion (the certificate), employers have recourse to more individualised criteria, particularly behavioural attributes. Besides the

new qualities that are now needed because of changes in work organisation, behavioural skills are eclipsing know-how, not because the latter has declined in importance, but because there is an abundance of know-how in the labour market, and possessing it is no longer an adequate distinction. In this context, numerous new forms of private recruitment mechanisms are emerging – new employability indicators, social networks, etc. (Vinokur, 1995) – to supplement or replace the institutional or market mechanisms for the reconciliation of supply and demand in the domain of jobs and labour.

Given this rise in the supply of qualified labour, the emergence of a new type of certification based on skill is regarded as a priority objective, especially as the demand for flexibility imposed on every sector of the economy has hardly spared the education system. Criticism of the present system has been steadily growing, as Vinokur (1995) emphasises, and *apparently, certificates are even regarded by some as a standard 'imposed'⁵⁴ by the education system.* Unless it were the subject of negotiation among the various institutions, the gradual replacement of certificates by skill as the recognised qualification would undermine the social edifices associated with certificates (D'Iribarne, 1996) and, in the wider context, the systems of industrial relations that exist in most countries of the European Union. In those countries, however, there are no signs that any other type of credential is establishing itself as an alternative to the educational certificate for the time being. This, suggests Marsden, is due to the absence of prior agreement among the various players: *The measures designed to reform the qualification sys-*

⁵³ This constraint, however, weighs far more heavily on new entrants to the labour market than on experienced workers. The past experience of the latter, recorded in a CV for example, does tell the prospective employer about the candidate's productive potential, even though this type of information is not generally presented in a very standardised manner.

⁵⁴ Or negotiated, in cases where companies generate competition between training establishments. This perception of certificates seems to be increasingly significant in the United States.

tems on the basis of recognised skills, which could be regarded as components of wider qualifications, offer an opportunity to preserve transferability where it already exists and even to introduce it where it is still very limited at the present time. But [...] the reforms have little chance of success unless appropriate incentives can be established for the various players and a suitable framework for cooperation between employers and employees. Unless that happens, the capacity of European businesses to adapt to economic change will remain limited, and the human cost will rise sharply (Marsden, 1994, p.23).

In order to adapt, the education system must develop the information value of its certificates and encourage the various operators in the labour market to recognise the skills it imparts. Education systems are currently trying to send out a far greater volume of signals about the content and quality⁵⁵ of the courses they teach. In the realm of initial education, this is done primarily by intensifying relations between the education and production systems, which promotes certain types of course, such as apprenticeships, or serves to involve all the economic players in the mechanisms by which certificates are created (Möbus and Verdier, 1997). In the realm of further training, the education system can play a part and can even organise a new type of certification by combining the validation of skills acquired on the job with more theoretical training modules.

Finally, we cannot rule out long-term self-regulation by the market. A persistent glut of certificated labour would result, for example, in lower returns from education for new entrants to the labour market, downskilling mechanisms and/or a shortage of job opportunities or, possibly, a freeze on social mobility. In such a situation, it might be in young people's interests to invest less in their education. That, however, will ultimately depend on the stability of the consensus and on whether and to what extent the various players have an incentive to break it.

⁵⁵ On this point, the reader is referred to issue no. 15 of the European Journal *Vocational Training*, published by Cedefop in 1998.

4.3 Conclusions

The aims of this chapter were to foster a better understanding of the mismatches that currently exist in the skills market and to define the mechanisms with which these imbalances can be corrected. We shall conclude our reflections with a few remarks on these points.

It seemed to us that it was difficult to arrive at an objective and precise assessment of the mismatch problems in the skills market for several reasons:

First of all, to speak of mismatches in the skills market as opposed to the qualifications market is to refer to a situation which is far more difficult to grasp. As the average period of formal education has lengthened in most European countries, the role of initial training and formal qualifications has been changing. Although their function as a preliminary filter has been reinforced, final decisions on recruitment and promotion seem to be determined to an increasing extent by the skill factor. As we saw in chapter 2 above, the ways in which skills are produced and acquired are extremely diverse. In the skills market the divergences between the time frames within which the various players operate prohibit any instantaneous adjustment of the market; the production of skills is a long-term process, with a horizon that stretches at least as far as the active lives of the individuals in the labour market, whereas the consumption of skills is determined to a great extent by short-term fluctuations.

Moreover, the development and institutionalisation of new subsystems of vocational training, such as continuing training, youth-training schemes, recognition of informally acquired knowledge and skills, etc., tend to increase the complementarity of the various forms of skill acquisition, which can sometimes make them less substitutable. Paradoxically, this development does not seem to shorten the time frame within which skills are produced. On the contrary, it exacerbates the initial complexity of the 'multifunctional' training systems, in which the creation of skills for use in the productive system is but

one of several objectives. The demand for skills is based on quite a different type of logic. Its development is always closely linked with the continuous process of change in the productive system, with the development of international trade and with technological change, and these factors tend to shorten the time frames in which it operates. The problem for the productive system will be to try to reduce, as quickly as possible, the discrepancy between this demand and the pool of skills that are available in the labour market so that it can remain competitive.

Thinking in terms of adjustments ultimately means harnessing the dynamics of social interaction which determine the motivation of the various economic players. There is no reason whatever why different players should be motivated in the same way or why they should all aspire to reduce the number of mismatches between skill levels and jobs.

If we consider four highly theoretical types of disequilibrium based on time frames and on a shortage or glut of skills in the market, it emerges clearly that the dynamics of adjustment differ widely, depending on the extent to which the future state of the market is foreseeable. In the short term, cyclical imbalances are often foreseeable and therefore less detrimental. A glut of skills might even present a business with an opportunity, encouraging it to make better use of its available skills and thereby serving as a source of innovation. It is the existence of unused and/or easily redeployable skills that gives an economy the freedom to make the best use of the pool of available skills from day to day, to make the labour market work and to integrate technical progress and growth. Skill shortages may be measured by the amount of time and adjustment expenditure that individuals and companies have to invest in order to acquire the missing skills. If these required skills are clearly identified and based on simple framework skills, the shortfall is generally made up by means of *ad hoc* decisions which can quickly be reversed. In this context, further training of a formal or informal nature serves as a rapid response to a specific skill shortage. Long-term structural imbalances, however, are more difficult to anticipate because

they are not easily foreseeable. A structural skills deficit is damaging to both the individuals who are affected by it and to the companies who incur the necessary adjustment costs. At the other extreme, a structural glut of skills, like 'overeducation', may seem to be something of a challenge to our economies, since it confronts them with the need to make the best possible use of an increasingly abundant stock of human capital. Failure to use the potential of an individual will often result in frustrated ambitions, thereby creating a sense of social exclusion and alienation from the production process which will be reflected in company productivity figures. The overproduction and/or underutilisation of skills may seem like a waste of resources. At the same time, it is the key to the effective dynamic allocation of the labour force to the jobs that have to be done and is thus a guarantee for businesses, individuals and society at large. Avoiding any waste of resources and preventing the frustration of people's expectations while maintaining the flexibility that will enable individuals to adjust their skill profiles in response to the continual redefinition of economic needs is one of the central problems facing all modern economies. It is a political problem in the most emphatic sense of the term, because the difficulties arising from imperfect information and from the incompatibility of the time frame within which skills are produced with the time frame within which new skills become necessary make it structurally impossible to devise a solution based on reliable economic or social calculations. The way in which the initial education process is administered can be likened to a short-sighted surgeon performing an irreversible operation; as it trains individuals, the system produces knowledge over a lengthy period of time without being able to foresee the future development of skill requirements, even though such development is liable to affect the entire careers of its trainees.

Any attempt to regulate this type of structural imbalance must involve an identification of that which is 'sustainable'; in other words, the priority aims in the long term must be to identify framework skills and to ensure that they are acquired by everyone. This implies that adjustments to the system of ini-

tial education should focus on quality rather than diversity and should include, for example, the development of minimum skill platforms which will guarantee access to other forms of skill acquisition, such as systems of lifelong learning.

Finally, it should be said that the huge influx of young certificate holders into the European labour markets over the past 25 years has neither created irreversible structural imbalances nor effected profound changes in the ways in which the various trades and professions select qualified job applicants. On the contrary, statistical findings reveal a fairly steady production of qualified personnel across the entire range of occupations, irrespective of technological progress; individuals would appear to be recruited to the various trades and professions on the basis of what is to be found in the labour market rather than in response to specific needs.

5. General conclusions

In this report we have presented a selection of the literature that deals with the question of deploying labour in a way that will guarantee the development of the economy and of employees' careers.

This selection derives from a simple idea that underlies the basic approach of the EDEX network, to which the authors of the present report belong; this approach has been directly validated by the network's own empirical research findings (Mallet et al., 1997).

The idea may be summed up simply: in order to understand more clearly how individuals are assigned to jobs, we must distance ourselves from traditional ways of analysing the relationship between training and employment. All too often, these methods boil down to an analysis of educational certificates and employment. They induce researchers to present the problem in terms of a functional relationship between a customer (the productive system) and a supplier (the education system). For our part, we intend to study the relationship between skills and employment. This amounts to confirming the hypothesis

that human productive capacity is divisible into a number of components that may be acquired in various places, at various times and by various means. If this hypothesis is true, the relationship between the production and consumption of know-how must be more complex than is generally assumed.

It is clear that our reflections have yet to reach their final destination. Their merit lies in the fact that they shift the issue towards new ground, namely that of skills, the macrosocial dimension of which has yet to receive much attention, and that they see the origin of skills in the framework of structural cooperation between the education system and the production system.

It seems appropriate to conclude this report by presenting some points for consideration that derive directly from our approach.

5.1 Is the state of the market 'determinable'?

The skills that are available in the market are produced by complex mechanisms in which – even if we simplify the equation drastically by excluding the role of social life – at least two factors are involved: the education system (initial education and further training) and the production systems. These two systems are jointly and severally responsible for the availability of know-how.

To suggest that the education system, whatever its forms and methods, is the only place, or even the main place, where specific skills are created is to misunderstand completely the true nature of the labour market.

The production of skills is inherently chaotic in the sense that, at any given moment, the future state of the market, i.e. the nature and volume of skills being traded, is not yet (totally) determined. The longer the timescale, the greater the uncertainty. It therefore becomes structurally unforeseeable beyond a certain horizon.

This assertion goes beyond the classic problems of momentary imperfect information. This imperfection in the market results from

the difficulty of correctly determining the skills required for a job and of assessing the future performance of an individual in that job on the basis of the signals he or she sends out. In fact, the productive value of an individual with a given set of characteristics will depend on that individual's interaction with the job and the working environment. Ascribing skills to an individual, even at the present moment, remains an exercise in probability. However, a mistake can be easily corrected, because the individual 'mismatch' will quickly become apparent and can be rectified by terminating the employment contract or by honing the employee's skills (by means of explicit further training or in a less formal manner). Finally, the problem can be solved – at least in theory – by creating greater 'transparency', for example of information in the market.

The inherent imperfection of information in the skills market lies in the very nature of human work and economic development. Globalisation, technical progress and the development of monopolistic competition tend to reduce the time frame within which reliable information is available. Outside that time frame, rational expectations are all we have.

This chaotic dimension applies to the demand for skills. A number of techniques, tools and concepts that will be used in future years by the young people who are being educated today are not yet operational at the present time, and some will be based on fundamental discoveries that have yet to be made.

It also applies – and this is not such a widespread idea – to the supply of skills. Individuals, in the course of their working lives, draw on their experiences in and outside the workplace to adjust and supplement their repertoire of skills. These changes result from the interaction between their initial education (in school and in society) and the series of productive tasks they subsequently perform (possibly coupled with additional training they receive). These interactions are strictly individual and, as such, are strictly unforeseeable. They are even less foreseeable in the case of careers in which individuals eventu-

ally find themselves in a job involving the use of technology that was unknown at the time of their initial education.

Beyond a certain horizon, we do not know what the skill requirement will be, just as we do not know the nature and volume of the skills that will be available. It is a fact of life which we have to accept and which, in itself, gives no grounds for concern.

Let us imagine an education system that could produce people who were trained specifically for the jobs that would exist at a given time, in other words taught to perform the tasks pertaining to those jobs and to them alone. That would constitute a barrier to innovation and to economic development.

It is thanks to the existence of unused or easily redeployable skills that economies find the scope to optimise the use of their human capital from day to day, that the labour market can function and that technical progress and economic growth can be absorbed.

Overproducing and/or underusing skills may seem like a waste of resources. But it is also the prerequisite for efficient dynamic deployment of labour and therefore a guarantee for enterprises, employees and society at large. Avoiding wastage of resources and the frustrations associated with underused human capacity while maintaining the flexibility that is necessary to enable individual qualities to readjust to needs that are constantly being redefined: that is one of the central problems of modern economies. It is a political problem in the true sense of the term, because the problems of imperfect information and of the incompatibility between the timescales that govern the production of skills and their consumption make it structurally impossible to find a solution based on reliable economic or social calculations.

Satisfying people's aspirations, rewarding their efforts and achieving economic development by deploying the main source of the wealth of nations – their human capital – is a great art and will never be reducible to economic models or, worse still, to economic planning.

This clearly does not mean that information about the system or reflection on future developments are worthless. On the contrary, it is essential to guide the system by advancing rational hypotheses on the future of society and on the durability of human skills. What it simply means is that we must refrain from postulating the existence of fixed, rigid chains of causation between the information that is collected, the decisions that are taken and the effects that are produced.

5.2 Skill: two producers, one product?

If we assume that an individual's skill (and its various components) undergo constant change, that this change is effected by the education system and/or the production system and/or simply by social interaction, it becomes necessary to consider the production of skills as a system of cooperation between the educational and the productive spheres. This cooperation is entirely intuitive and interactive. Each of the two systems establishes its strategy in response to the action of the other. Each acts on different information, but the information is subject to that same intrinsic unpredictability as soon as any attempt is made to adopt a long-term perspective.

We are confronted with a game which, despite occasional conflicts of interest, is globally cooperative by virtue of the durability of human beings and their participation in productive activity.

Their actions are sequential. The young person goes through the education system before entering the production system. This remains true even if it is possible to have one foot in each camp (apprentices or students with jobs) or to come and go between the two systems.

The components of the skill on which both systems work may be the same. They are often distinct. The purpose of the system of initial education is to produce individual skills which are durable and adaptable and which can be converted fairly easily into know-how as information about actual requirements crystallises. The production system creates concrete skills that are compatible with the effective operation of organisations at a

known stage of technological progress. Complementary by nature, the two systems act in the framework of a division of labour and must therefore coordinate their efforts.

The transition from school to work, what we call the *insertion professionnelle* [vocational integration] in France, is a very special moment in the cooperation between the two systems as it is then that their strategies come into contact and undergo fine tuning.

It is also the moment when the differences between the interests of the two systems come into play. The fact is that the transition, i.e. the acquisition of the specific skills that were not produced during the young person's initial education, has its price, which each of the players tries to avoid paying. If it is company policy to operate an internal labour market, this will induce such companies to bear the brunt of the cost. As these policies are restricted or reversed, an increasing share of these costs is transferred to young people, who are compelled to take the sort of insecure jobs that are characteristic of the first years of a person's working life, and to the public authorities, which have to pay for support schemes and unemployment benefits.

The transition from school to work is the moment when the production system stocks up with 'semi-finished' products. At that precise moment, the production system has a customer/supplier relationship with the education system, and its normal behaviour as a customer is to try to obtain the best products at the lowest prices. It is in the company's interests to transform immediately and more or less intensely the skills it acquires at that moment.

It is not part of the task of enterprises to produce skills for themselves. The contribution of the production system to the creation of skill is therefore forced upon it to an extent. It only makes this contribution because, at a given moment, certain specific skills can be more efficiently produced in the enterprise. It may simply be a by-product of the work process. It is often a voluntary measure and is organised in the framework of a company's human-resource management policy in the expectation of higher productivity.

This remains true even when companies invest heavily in the training of their employees (under young-specialist programmes, for example). The level of its training investment may prompt a company to create an explicit training structure, more or less parallel to the traditional school and college system and totally disconnected from the company's productive activity. It is still true when the enterprise, through the various forms of apprenticeship, agrees to become directly involved in the initial education of young people.

In all of these cases, skill is regarded by the company as an intermediate good which must subsequently be turned to account in order to provide a return on the company's investment. Otherwise, the company will suffer a net loss or, to put it another way, will be subsidising its competitors.

The education system and the production system therefore have clearly differing positions in relation to the production of skills.

The aim of the education system is to allow everyone to fulfil his or her potential as far as possible. Though operating in a context of extremely imperfect information, it is required to adopt a long-term perspective. One of its aims will be to develop the framework skills that seem likely to prove durable and to provide the best basis for subsequent further training, whether explicit or implicit.

The production system only concerns itself with the creation of skills within the scope of its productive activity and is subject to the constraints that are imposed by that activity. Its action is determined on the basis of relatively complete and contextualised information. It perceives training as an intermediate activity, albeit an indispensable one in virtually all cases, but also considers it essential to minimise the cost of training.

This diversity of aims is reflected in a particular type of division of labour. The specific skills that the two systems try to foster on a priority basis are not the same ones (in general). Some skill components cannot be taught by the education system (implement-

ing companies' in-house procedures, for example). Others, such as basic general knowledge, are clearly the domain of the public authorities and hence of the systems they administer.

5.3 Initial education: managing the unforeseeable?

The role and function of initial education appear to be highly complex. Its produces for the ultra-long term (the lifetime of individuals). The knowledge it disseminates will be used – in whole or in part – in a society about which there is little reliable information, the details of its future application of technology being practically a closed book. Once young people leave the education system, they will draw on what they have learned in order to expand and adapt their skills. The tactics they will employ to make these adjustments will depend on the jobs they do, on the environment that confronts them and on the network of relations they establish. These tactics will also be determined by the education they have received at school, which constitutes a stock of capital that is both irreversible and irreplaceable. The fact is that no individual can ever devote so much time to self-development as is done during the initial education process or ever forget absolutely everything he or she has learned at school.

Educationalists are well aware of the extreme difficulty of this exercise. There seems to be less such awareness among some others, who persist in trying to guide education systems on the basis of forecasts derived from projected trends in the production of goods and services. This approach, while recognisably logical in economic terms, is unsustainable outside a certain time frame, for it is quite obviously incapable of taking into account the complexity and endogenous nature of the mechanisms by which skill is produced in the medium or long term.

The existence of a horizon beyond which the systems' strategic policy can no longer be based on knowledge and has to rely on rational expectations reveals a sharp division within the raft of policies for the development of skills.

Some of these policies result in decisions whose impact on skill requirements is foreseeable, while the effects of other decisions lie outside our present field of vision.

In the first case, the producers of skill possess more or less perfect information about the nature and volume of demand for skills. In the second case, such information does not exist, nor could it. None the less, the future availability of skills is always on the agenda for the systems of initial education, since their mission is to provide training that will last a lifetime.

Two strategies compete to determine the nature of initial-training policies:

- a) According priority to the familiar, i.e. training young people on the basis of familiar technology and adapting them to the present state of the market. This has the advantage of making the trainee more immediately effective and facilitating his or her integration into employment. The disadvantage of this approach is that it involves heavy investment in 'perishable' technology and transfers a greater part of the long-term management of knowledge away from the education system.
- b) Embracing the unfamiliar. Attention is focused on sustainability, on skills that stand a good chance of being usable for a very long time, irrespective of short-term productive considerations. There is a danger that this attempt to facilitate the trainee's long-term adaptation will make it more difficult for the trainee to find work and will retard his or her inevitable accumulation of skill outside the education system.

Presenting these two approaches as alternatives is actually a distortion of reality. In fact, the legitimate aim of the education system is to equip young people with directly usable skills while endowing them with the qualities they need to maintain a high level of know-how throughout their working lives. It is difficult, however, to merge these two approaches, especially when the aim is to provide training that is applicable to everyone.

It is conceivable that in quite a few cases short-term adaptation and long-term development will prove to be incompatible to a certain extent. A number of cyclical adjustments to the definition of education policies in general and vocational-training policies in particular are due to the difficulty of choosing between two strategies: prioritising integration, thereby setting in motion the virtuous circle of skill creation through work experience, or providing long-term protection against skill obsolescence at the risk of retarding access to employment.

5.4 Lifelong learning: social measure or economic policy?

Lifelong learning, which was conceived as a dynamic means of adapting individual skill profiles to the needs of the production system, is not in itself a new idea. On the contrary, it represents a normal and stable means of ensuring that skills are produced and that the market operates smoothly. It is effectively the only way to reconcile changes in production levels, the integration of technological advances and organisational reform. The fact is that our societies have always managed to absorb technological and organisational changes just as they have managed to adapt to variations in production. What is relatively new and recent is the willingness of the public authorities to address the problem and to try and place explicit training (continuing vocational training in the present case) at the heart of the adaptation mechanism.

The concept of lifelong learning covers two distinctly different situations.

The first relates to marginal adjustments to clearly identified specific skills. Such fine-tuning, which is the key to the smooth and sustainable operation of the market, depends on the fulfilment of three conditions:

- a) a clear training strategy, based on direct and thorough familiarity with the knowledge to be imparted or the behaviour patterns to be inculcated;
- b) effective involvement of the trainee;

- c) previously acquired skills, especially basic skills, that the trainee needs in order to follow his or her training programme; skills, of course, are not uniform in scope, and some skills are either impossible or too expensive for a company to modify.

If these conditions are met, companies may opt, on the basis of efficiency criteria, for either of two solutions: providing their staff with further training or letting them learn on the job at the expense of temporary reductions in productivity.

On the other hand, some members of the active population, young and not so young, are more or less totally excluded from social life and the pursuit of a career because of deficiencies in their basic skills. For that reason, efforts are being made in the domain of social welfare to make them more employable and to limit the impact of their exclusion, which entails a second type of adjustment. These measures are the subject of a government initiative. It is naturally very difficult for the public sector to plan measures that fulfil all three of the criteria we defined above.

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Economic performance of education and training: costs and benefits

Alan Barrett

Abstract

One of the most fundamental principles in economics is that resources should be allocated to ensure the highest possible return. It is not sufficient that an investment yields a positive return; efficiency in the allocation of resources requires that the highest return is derived from a particular investment. While such thinking forms the cornerstone on which investments in financial assets are made, its application in the area of human capital investment is less well established.

Many papers have been written which seek to measure the benefits of education and training but very few have attempted to relate costs and benefits. This paper explores the issue of empirically estimating the return to education and training. Concerning the benefits of education and training, three types of research works are distinguished. The first group looks at how the earnings of individuals with greater amounts of training differ from those with less training. The second group looks at how firms that offer higher amounts of training differ from other firms in terms of productivity growth. The third set of papers is concerned with how growth rates across countries can be related to differences in investment in education. In addition, the concept of market failure can be employed to illuminate our concerns in this area.

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1. Introduction

One of the most fundamental principles in economics is that resources should be allocated to ensure the highest possible return. It is not sufficient that an investment yields a positive return; efficiency in the allocation of resources requires that the highest return is derived from a particular investment. While such thinking forms the cornerstone on which investments in financial assets are made, its application in the area of human capital investment is less well established.

Given Becker's theoretical formulation of education and training in terms of an investment model, the relative underdevelopment of the empirical side of the investment approach to human capital is perhaps somewhat surprising. Many papers have been written which seek to measure the benefits of education and training but very few have attempted to relate costs and benefits. The term 'returns to education' is frequently used in papers that look at how extra years of schooling are rewarded in the labour market but the use of the term is misleading. By 'return', the authors usually mean the coefficient on years of schooling in a Mincer-type earnings equation. Such a measure says nothing about how the benefits of education are related to the costs so they leave us without a true measure of 'return', correctly defined.

In this paper, I will explore the issue of empirically estimating the return to education and training. I will look at a selection of papers that have attempted to measure the benefits of education and training. The papers I focus on are of three types. The first group of papers looks at how the earnings of individuals with greater amounts of training differ from those with less training. The second group looks at how firms that offer higher amounts of training differ from other firms in terms of productivity growth. The third set of papers is concerned with how growth rates across countries can be related to differences in investment in education. I will not consider papers that look at how earnings of individuals differ with years of schooling; such papers

are numerous and comprehensive reviews are offered elsewhere.

Throughout the review of the papers, I will assess the difficulty of estimating reliable rates of return to education and training. An enumeration of the difficulties provides a clue as to why such estimation is rarely carried out in the form of estimating properly defined rates of return. I will make a proposal on how more robust rate of return estimates could be made but the issue remains of whether research effort can be most usefully devoted to refining our efforts in estimating returns or to approaching the issue from a different perspective. I will briefly suggest how the concept of market failure can be employed to illuminate our concerns in this area.

2. Individuals and wages

I mentioned in the introduction that many studies have measured the benefits of additional years of schooling by estimating Mincer-type wage equations and including a measure of schooling. The studies that I will discuss in this subsection apply a similar approach and use a measure of training received as an explanatory variable in the wage equation.

Before looking at the studies, it is worth thinking about what precisely is being estimated through the use of a wage equation and how the estimated effects relate to the notion of a rate of return. By including a measure of training in a wage equation, the wage difference associated with different levels of training is estimated. The precise interpretation of the estimate depends on the measure of training used. Often, some measure of time spent in training is used so the estimated coefficient on training can be interpreted as the effect of an extra unit of time spent in training on wages.

While this quantity is of interest, it is not a rate of return in the strict sense of the word. For a rate of return to be estimated it would be necessary to calculate the costs of the training and the benefits. While the wage equation provides an estimate of one benefit, there

are benefits to the employee from training other than a wage increase. Let us consider both the costs and benefits in turn.

If we are interested in the individual's return on training, then we must focus on the costs incurred by the individual. Where the employee pays out-of-pocket expenses, that element of the costs is readily identifiable and quantifiable. Beyond that, however, matters get complicated. We know from Becker's work that employees may incur training costs through reduced wages. The difficulty in trying to measure the cost that the worker incurs in this case arises because we do not know what the employee's wage would have been in the absence of the training. Similarly, if the worker undertakes training in his/her own time, we do not know how to place a value on that time which could be spent doing other things. Finally, if the employer incurs the full cost of training and the worker receives some benefit, it would appear that the rate of return from the perspective of the employee is infinite. In this situation, it would clearly be desirable to calculate some sort of combined return across the employee and the employer.

While the wage increase associated with training is clearly a benefit to the employee, it is unlikely to be the only benefit – if a comprehensive rate of return is to be calculated, other benefits should ideally be valued and included in the calculation. Clearly, this is far from simple. The provision of training reduces the likelihood that someone will suffer unemployment. This means that training increases lifetime earnings for a reason other than the increase in wages. Calculations that simply look at the wage increase at a point in time miss this element but it could be quantitatively important. Another benefit from training is the increased job satisfaction that we associate with being better able to perform a task or with the increased responsibility that training can lead to. While this is another important benefit of training, its quantification is difficult and so its inclusion in a rate of return estimate is problematic.

The valuation and calculation of the full costs to the individual and the full benefits would

be required if a true estimate of the rate of return were to be calculated. No studies have done this so let us look at the studies that have at least looked at the wage effects of training. Such studies are at least a start on the road to rate of return estimates. I will explore their usefulness in contributing to rate of return calculations and will end the section by suggesting how they might be expanded.

Booth (1991) uses a large-scale British data set from 1987 in measuring the benefits of training. While she finds a positive effect of training on wages, especially for women, the measure of training used provides a first insight into the difficulty of reliably estimating a rate of return to training. The information on training is provided by the individuals recalling the amount of training they received in the past two years. While asking people to recall what qualifications they have received is unlikely to cause too much difficulty, a question would have to be asked about how reliable responses can be when recalling training. In the case of 'formal job-related training courses' the individuals were asked to recall how many days of training they received. In the case of *informal* training, the individuals were only asked to recall if they had received any such training across a range of categories in the last two years. The information on informal training is likely to be more reliable but because of its crudeness, it would be less useful in estimating a rate of return. Even in the case of the information on formal training, while the number of days of training may contain some information on training intensity it is far from perfect.

A paper similar in style to Booth (1991) is Lynch (1992). She uses a data set that was generated in the United States. A large group of young people was interviewed each year between 1979 and 1983; in each interview they were asked about the amount of training they had received that year, along with questions on wages and other aspects of their labour market experience. Given that the individuals are recalling their training in the current year and not over two years, as was the case in Booth (1991), it is likely that her measure of training is more reliable.

The value in Lynch's paper comes not from a better effort at estimating the rate of return to training. Instead, she uncovers some interesting results about the relative impact of training received with the current employer and with a previous employer. Off-the-job training with either the current or a previous employer is observed to lead to higher wages for the individuals involved. However, on-the-job training with a previous employer is not rewarded by current employers. The immediate question that this gives rise to is why one form of training is recognised and valued by current employers while the other is not. One possible explanation is that the nature of the off-the-job training provided by a previous employer may be more readily observable to a current employer. This would be true if the off-the-job training was provided in a structured way whereby a certificate was awarded.

A related issue concerns the implications of Lynch's findings for the investment decisions of individuals and firms. The finding that the training provided by one employer is rewarded by another implies that the original employer is not capturing all the return to the training investment. For this reason, while the original employer may have been prepared to provide the training, he/she will not have paid for it. The individual would have had an incentive to pay for the training, as they are reaping the benefit even though they have moved to a new employer. The opposite holds in respect of the on-the-job training. As there is no wage gain with a new employer, an employee who might consider moving has no incentive to invest in on-the-job training. Clearly, these are the types of issues that Becker brought to the fore in discussing general and specific training. As regards rate of return estimation, the issue implied is that a correct assessment of training benefits requires a knowledge of to whom the benefits accrue and an ability to measure benefits even when they are spread across employers.

Before leaving Lynch's paper, two additional points should be made. First, it must be emphasised that her paper has great value in pursuing its objective of uncovering the relative impacts of training provided by the current and previous employer. However, as part

of our general interest in the rate of return to training, we can ask how far it gets us in that context. Recall that what has been estimated is how wages respond to training inputs. There is no information provided on the costs of the training so a rate of return calculation is not possible. Also, a wage increase represents only part of the payoff for training. If productivity has increased more rapidly than any wage increase, the employer has appropriated some of the benefit. For this reason, a focus on wage increases may understate the full impact of training.

The second point concerns the issue of mobility of employees between firms. As discussed, one of the important issues in the economics of training is the extent to which trained employees take their skills and move elsewhere. Two concerns arise. First, employers are less likely to provide training if they think workers will leave. Second, if workers build up skills that are specific to one firm, the value of these skills is then lost when they move elsewhere. In this way, the economics of training sees costs of mobility and so a limited reading of the literature might leave someone with the conclusion that mobility was undesirable.

A broader reading of labour economics points to the benefits of employee mobility between employers and so counteracts the view that might emerge from the training literature. As discussed in Filer et al. (1996), economic efficiency requires that employees sort themselves into jobs where they are most productive. Often, employees cannot know where they will be most productive so an element of 'job shopping' can occur whereby they try a number of positions by way of gathering information. Even if employees have found their most productive position at one point in time, demand shifts across occupations can result in different jobs becoming better matches so again, mobility is economically beneficial.

In addition to the theory in this area some empirical studies have shown the value to individuals of mobility across jobs. For example, Bjorklund and Holmlund (1989) have shown that wage gains from changing jobs in Sweden were 2% while research in Canada has shown increases of 9% (Abbott and Beach

1994; Abbott et al. 1995). Assuming these wage gains result from employees finding themselves in positions where they are more productive, there is clearly an efficiency gain in them moving. Even if they have lost the use of some specific human capital, the loss is more than offset by the productivity gains. The concern remains, however, that the first employer loses whatever investments they have made in the employee and hence the employer may not make such investments.

The issue of the effects of training on wages and productivity is addressed in Bishop (1994). This paper again looks at the impact on the wages of individuals of training but because the data was generated at the level of firms, Bishop is able to go beyond the analysis of both Booth (1991) and Lynch (1992). He uses two data sets, both of which contain information provided by employers on two of their recent hires. By tracking the two individuals across a large number of firms and by assessing how the experiences of the two differ in terms of training received, wage growth and job performance, Bishop is able to measure the impact of training not just on wages but also on productivity.

One possible advantage of Bishop's measure of training is that it is the employers' estimates of the amount of training. In the cases of both Booth (1991) and Lynch (1992), it was the individuals who had provided the information. As employers are more likely to have kept records, it is likely that their information will be more accurate than that of the individuals who rely on memory. Bishop adds to the reliability of his training measure by going beyond the 'days measure' used by Booth and others. He creates a 'training-time index' by multiplying the amount of time spent in training by the value of the time. The value of the trainee's time is taken to be their wage rate; the value of any time devoted by another employee to the training of the trainee is also factored in according to their wage rate. In this way, Bishop produces a measure of training input that goes much further towards being an ideal measure.

Bishop's main finding is that training raises productivity more than it raises wages. This

is enormously important because it shows that attempting to estimate the full return on training by observing wage increases will lead to an underestimate of the return to training. Similar to Lynch (1992), Bishop also finds an effect of training provided by a previous employer in the current workplace. While Lynch's findings were restricted to wage effects, Bishop demonstrates that previously acquired training increases productivity with the current employer. As noted when discussing Lynch (1992), this implies that some employers benefit from the training investments of others; as those who paid for the training are not recouping the full benefit, there is a reduced incentive for investment in training.

Before leaving papers that have looked at the effects of training on the wages of individuals, I want to draw attention to an important point that is emphasised by Groot et al. (1994). In estimating the effect of training on individuals' wages, it is usual to look at a sample of people and to look at how much more is earned by those with more training, controlling for other factors that influence wages. When looking at the results that emerge, it must be remembered that training is not distributed randomly across the population. Instead, those who are likely to benefit from training are likely to acquire more of it. This could be because they choose themselves to train more or because an employer sees their potential and provides them with more training relative to less able employees. Either way, any observed relationship between training and wages may partly reflect the greater propensity to train by those who will use it best. The random distribution of training would produce a smaller relationship between training and wages.

As regards the estimation of the rate of return to training, an analysis of training benefits that does not take account of this 'self-selection' issue could seriously overstate the rate of return to training that would apply to a random selection of people. Groot et al. (1994) find for their sample that there would be no benefit from training for those who did not participate, had they participated, so the issue is a real concern. Statistical techniques are available to overcome the difficulty so in some senses this particular problem is less of

a concern when it comes to the estimation of rates of return to training. Nevertheless, it is important that researchers are aware of the difficulty and are sufficiently competent with the techniques to overcome it.

I began this section by pointing out that the studies I was about to explore were limited as regards making rate of return calculations. The crucial omissions are the failure to relate costs and benefits and the failure to measure benefits in a broader manner. I return to this issue below when I consider how work in this area can be expanded.

3. Firms and productivity

I now want to consider the returns to training from the perspective of the firm. I will follow a similar approach to the one just adopted in the case of individuals. I will firstly ask what would I ideally like to see measured and will then look at what the studies have actually explored. As with the case of individuals, it will be seen that the existing work is some distance from what we would like.

It seems reasonable to say that individuals' interest in training may be multifaceted, in the sense that they may undertake training in the hope of getting a wage increase, reducing their chances of unemployment or improving their job satisfaction. However, in the case of firms the interest in training is likely to be more narrowly focused on increasing profitability. It may be true that some firms have a sense of social responsibility or, in the case of family-run firms, an interest in providing employment. In most cases, however, firms' primary concern is in making profits. As such, the rate of return calculation of greatest interest to firms should be the increased profitability that arises from spending on training.

The route through which training increases profitability can be multifaceted. The most direct link would be the increase in each worker's productivity that comes about through training. Another link between training and profitability would arise if training improved job satisfaction among employees. Productivity could increase because the increased sat-

isfaction of the employees leads them to work harder or because of a reduced tendency to quit. In estimating the effect of training, these effects would be of interest but in estimating the underlying rate of return, these 'intermediate' effects can be captured by looking at profitability.

In this subsection, I will consider some of the studies which, in addition to Bishop (1994) mentioned above, have attempted to measure the effect of training on productivity by drawing on samples of firms. Although profitability would capture more directly the return to training for companies, little work has been done on that angle. As with the previous discussion of individuals and wages, it will be seen that while the studies are of value, they do not try to estimate the rate of return to training, thereby leaving a gap.

One of the earliest studies to look directly at the link between training provided by companies and subsequent productivity growth in those companies was Holzer et al. (1993). They generated a data set from a number of companies that applied for training grants under a programme run by the state government of Michigan. They found that training did lead to productivity growth but the methodological details are of greatest interest so I will consider some of these.

The first methodological issue is the point on self-selection, discussed already in the context of Groot et al. (1994). The first selection issue arises from the fact that all the firms in the sample had demonstrated an interest in training through applying for a grant (even though not all firms were actually awarded a grant). Holzer et al. maintain that this will produce a downward bias in their estimated effect of training on firm performance. As they are more interested in uncovering an effect of training, rather than in precisely measuring it, they are unconcerned about this bias. Clearly though, were a rate of return estimate to be made, this difficulty could not be ignored. The second selection issue arises because the firms who respond to the survey are not necessarily a random draw from the full sample. In particular, firms who had a positive experience of a programme are more likely to re-

spond to a survey about that programme. Although the authors explore this second selection issue to a degree, they do not employ any statistical techniques to overcome it, largely because some more casual observation leads them to believe that it is not a large problem.

The second methodological issue concerns the time period of analysis. If an analysis were conducted in which training provided in a particular year was related to productivity in the same year, the estimated relationship would almost certainly be biased. It could be that the most productive firms could afford to undertake more training, whereby the causation ran from productivity to training. This would produce an upward bias in the measured effect of training. It could also be that some firms had unobservable characteristics that lead them to be more productive and to provide more training. For example, if firms have good managers, it could be that they have positive impacts on productivity and training. A regression analysis will produce a positive estimate of the effect of training on productivity but clearly this may be a false conclusion. At least partly to overcome this difficulty, Holzer et al. estimate the effect of training on subsequent productivity growth. To do this, it is necessary to have information on the firms at two points in time. While this might seem like a simple requirement, in practice it can cause difficulties. There is the added expense of surveying companies at two points in time or the added complications that arise by surveying them once and asking for retrospective information.

An additional methodological issue that arises in the Holzer et al. paper concerns the measurement of productivity. Rather than using some measure of output per worker, the authors rely on what they describe as their most reliable measure of the quality of output, the scrappage rate. This is the proportion of items that must be scrapped because of faults. There is clearly of value in estimating whether training has the effect of reducing the scrappage rate but this is a long way from measuring productivity effects. The scrappage rate could be reduced if all employees worked more slowly; this in turn could actually reduce productivity.

Finally, Holzer et al. use annual hours of training per employee as their measure of training. I have already discussed under Bishop (1994) that measures of training need to be cost-based if a rate of return calculation is to be undertaken. Simply looking at hours tells us little about cost as I do not know if expensive instructors were hired, if expensive equipment was used and what the value is of the foregone time of the trainees.

I noted above in the context of another paper that the deficiencies I am pointing out with regard to rate of return estimates are not necessarily criticisms of papers. Holzer et al. were not trying to estimate a rate of return so it would be unfair to criticise them on that basis. My interest in discussing their methodology is based on the notion that the estimation of the benefits of training, which must underpin a rate of return estimate, would be based on a methodology similar to the one they use.

A paper similar to that of Holzer et al. is Bartel (1994). Like Holzer et al., her approach is based on the idea of estimating in a regression context the relationship between training and productivity. Her paper is an interesting contrast with the earlier paper in terms of its data strengths and weaknesses. Bartel's measure of productivity is much more direct than the scrappage rate; it is based on sales per employee which is clearly much closer to the ideal concept of productivity or output per worker. However, her measure of training is much weaker than that used by Holzer et al. For each of the companies in her sample, the workforce is divided into seven categories. The data provide information on what proportion of these seven categories receive some sort of training in each of the companies and this is Bartel's measure of training intensity. This is much weaker than Holzer et al.'s measure. Bartel again finds a positive relationship between training and productivity growth but her work clearly leaves us a long way from a rate of return measure.

The data limitations that characterise the papers of Holzer et al. and Bartel have more recently been overcome to some degree in a series of papers by Sandra Black and Lisa Lynch (Lynch and Black 1995; Black and

Lynch 1996, 1997). As the authors describe, the data set that they use 'was designed to overcome some of the limitations of previous studies and to collect more precise data on human-capital inputs and establishments'. One dimension along which the Black and Lynch data are superior is the number of observations. Whereas Holzer et al. and Bartel had data sets with around 250 observations, Black and Lynch have information on 1,621 manufacturing companies and 1,324 non-manufacturing companies. Clearly, such numbers give Black and Lynch much greater flexibility in the issues they can explore as cell sizes will remain sufficiently large as the data are cut in different categories.

The other dimension along which the Black and Lynch data are superior is the information on training. The usefulness of this information is seen in the results presented in the 1995 and 1996 papers. According to their results, simply looking at the numbers of employees trained does not lead to an observed positive relationship between training and productivity. However, by looking at *types* of training provided, positive relationships are observed. For example, in manufacturing, the higher the proportion of training that is off-the-job, the higher is the effect on productivity. In non-manufacturing, training in computer skills was seen to have a positive effect on productivity.

Although the data used by Barrett and O'Connell (1998) share with Holzer et al. and with Bartel the difficulty of a limited number of observations, their data also share with Black and Lynch a richness in terms of the dimensions of training included. The most original and useful element of these dimensions was the division of training into general and specific categories, where the distinction follows that of Becker. They find that while specific training does not have a statistically significant effect on productivity, general training does. As such, their results support those of Black and Lynch in that they show that the type of training matters.

I have now considered a range of studies that have sought to estimate the effect of training on productivity. While this is not the same as

estimating a rate of return to training, it is a first step because the productivity gain that results from training would generally be agreed to be an important component of the total benefit. Mincer (1991) takes estimates from a range of studies of the type just presented and attempts to translate them into rate of return estimates. To do this it is necessary to introduce a variable that I have not yet considered, namely, the depreciation rate. The studies I have looked at have typically estimated the effect of training on productivity within a short time period. However, it seems reasonable to assume that the benefits of training would last beyond the immediate period. I am not aware of any work that has attempted to empirically establish how fast training depreciates. It may be possible to derive some proxy estimates from the shape of the experience-earnings profile but in general, we do not know what the depreciation rate of training is. Mincer assumes an annual depreciation rate of 4% and produces rate of return estimates that range from 8.7% to 26%. These estimates would be quite sensitive to the depreciation rate assumed so their reliability would have to be questioned.

Before leaving studies of the link between training and productivity, I will draw attention to two additional pieces that have focused on methodological issues in this area. The first piece is by Barron, Berger and Black (1997, Chapter 5). They study the issue of differences between workers and their employers in survey responses to questions about the amount of training received, plus other labour market matters such as hours worked and wage rates. By separately surveying employers and their workers, Barron et al. develop a very direct test of the differences. They find that firms generally report more training than workers and describe the correlation between responses as being 'surprisingly low'. What is perhaps more surprising is that the differences in responses are of a similar order of magnitude for formal and informal training. A reasonable expectation would have been that greater agreement would exist about formal training. The implication of these findings for rate of return estimation is severe. If we are unsure about the reported information on training, even data sets like Black and

Lynch's become suspect in spite of their apparent richness.

A second paper that has addressed the methodological issues in this area is Huselid and Becker (1996). They consider two separate, yet related, problems. When discussing Holzer et al. above, I talked about the need to have information on firms at two points in time for meaningful estimates of the effects of training to be derived. To generate such information and avoid recall difficulties, it is useful to survey firms at two points in time. Huselid and Becker point out that survey response rates from firms are typically quite low and certainly lower than response rates from individuals. While this is a problem in a once-off cross-section, it is considerably more of a problem in a short panel. In the example of a survey the authors use, the response rate from the two surveys leaves usable information on only 10% of the original firms. Clearly such a low response rate raises questions about how representative a sample can be.

The second problem considered by Huselid and Becker again derives from the need to estimate how training leads to changes in productivity. In order to look at changes, it is necessary to difference the data. If the cross-sectional data suffer from measurement error, differencing compounds the associated difficulties. From the work of Barron et al. (1997), we know that measurement error is indeed a problem so the issue raised by Huselid and Becker is an important one.

3.1 Different forms of training

The discussion so far has generally looked at the impact of training, broadly defined, with less emphasis on work that explicitly aims to compare the effects of different types of training. In this section, I will briefly look at some such studies. Much of the discussion is taken from ILO (1998).

One issue that has been addressed is whether apprenticeships provide participants with better subsequent labour market outcomes relative to other forms of skill acquisition. According to Ryan (1998), the evidence for developed countries is that apprenticeship does yield bet-

ter outcomes in terms of pay and employment relative to public training programmes. However, comparisons between apprenticeships and vocational schooling show more mixed results. Another area of comparison explored is that between general and vocational secondary schooling. Psacharopoulos (1994) discusses how rate-of-return analysis has shown technical and vocational education to be less beneficial than more general, academic education. The ILO (1998), however, is sceptical of the use of the rate of return methodology in establishing priorities between vocational and general secondary education. In particular the ILO argues that the external benefits of vocational training are not adequately factored into the analysis. They also argue that the more important policy issue is the exploitation of complementarities between different levels and types of education.

Yet another comparison in this area has been between different systems of human capital use. Two studies of the engineering industry have attempted to assess the reason for productivity differences between plants in the Netherlands, Britain and the United States. The first study focused on the first two countries (Mason and van Ark 1993) and found that the higher level of productivity in Dutch plants relative to those in Britain was partly related to a higher proportion of the Dutch employees having craft-level skills and technical qualifications. In the second study (Mason and Finegold 1995) the higher level of productivity in the US plant was found to be related to the presence of a greater number of graduate engineers.

These comparisons of different elements of human capital investment and raise the issue of whether it is more useful to assess the value of training generally relative to other possible investments or whether we should focus within training and assess relative values of different approaches. Even the answer to this question depends on the relative costs and benefits. The benefits here are the information that can be generated on rates of return while the costs are the expense of generating those rates. To the extent that work to date has looked at training broadly defined and generally found evidence suggesting a

healthy return to training expenditures, it could be argued that the 'within training' analysis would now be of greater value.

4. Economic growth and education

In this section, I want to consider the research that has been concerned with the impact of human capital investments on the level of national income and the growth rate of income per capita. Much of the work on this issue has been done within the general context of growth theory. Growth theory in turn has been dominated by the move from neo-classical models of growth to endogenous growth models. As such, any discussion relating to this area must incorporate elements of these competing views.

My approach will be as follows. In the appendix, I outline the Solow growth model (1956) which is the starting point for much of developments in this area. This appendix is intended for those with a particular interest in the theory; other readers can proceed directly onto the next section. In the section that follows, I give more recent theoretical work; this may again be of greater interest to some readers relative others but it is useful to consider the mechanisms through which human capital is thought to influence growth. Then I go on to consider the empirical work of recent years that, broadly speaking, estimates how variations in human capital investment across countries are related to variations in output per head and its growth. I will end the section with an assessment of the work.

4.1 Recent theory of economic growth

The Solow model (which is discussed in the appendix) is a highly abstract version of an enormously complex phenomenon. It analyses growth per capita in terms of simple savings and investment functions and population growth. In spite of its simplicity empirical explorations of the US economy showed the model in a good light as it predicted well much of the American growth experience of the twentieth century. However, in more recent years a number of issues have been raised

which have prompted people to look beyond the Solow model.

Romer (1994) discusses the sources of these developments and makes the following points. One difficulty with the Solow model concerned its predictions on crosscountry growth experiences. Given its neo-classical underpinning, the model predicted that convergence in income levels across countries would be observed. Simple analyses of cross-country growth experiences do not reveal a pattern of poorer countries growing faster than richer ones.

A second difficulty with the Solow model according to Romer was the manner in which technological change was treated. There is something intellectually unsatisfying about treating technological change as being exogenous, especially as it is the engine of per capita output growth in the Solow model. Romer (1994) notes that technological advancement typically comes about through conscious economic decisions made by individuals and firms. Hence, an exogenous treatment seemed to avoid that fact. In addition, the Solow model assumed a world of perfect competition, one implication of which was that payments to capital and labour would exhaust output. In order for firms to recoup the benefits of research and development, it was necessary that scope exist for prices to be above marginal cost. For Romer, the need to move beyond perfect competition in modelling of this nature was the real motivator for what became known as endogenous growth theory.

Romer's (1986) model represents one of the early attempts at 'endogenising' growth. He included an assumption that broke away from the constant returns to scale assumption that characterised the Solow model. He did this by including in the production function a term that he calls 'knowledge'. Labelling the knowledge that each firm produces through its own research and development as k , the sum of knowledge across firms as K and some fixed factor of production as x , the production function can be written as:

$$Y = f(k, K, x)$$

This says that the output of each firm is partly dependent on the knowledge generated by

other firms. As this knowledge cannot be kept secret or perfectly patented, there are ‘spillovers’ in knowledge whereby all firms benefit from the research and development of others. By assuming that the production function exhibits increasing returns in K , an internal dynamic is generated that makes growth endogenous to the system. Increases in output lead to more resources being available for research and development; this in turn leads to more knowledge being generated and hence more output. By extension, this model also predicted that convergence across countries might not arise.

Lucas (1988), like Romer (1986), tries to introduce an endogenous engine of growth into a growth model and uses human capital for this purpose. He proposes two variations. First, he takes human capital to be the general skill level that a worker possesses and denotes this h . Each worker can add to his human capital by devoting part of his non-leisure time to human capital accumulation. Assume that each worker devotes a fraction u of his time to production and $1-u$ to human capital production. If there are $N(h)$ workers with skill level h , the effective workforce in production is

$$uNh dh$$

In addition to the effect of each individual’s human capital on production, Lucas proposes an additional effect. He assumes that there is an external effect of human capital (not unlike Romer’s external effect of knowledge) whereby the average amount of human capital in the economy also enters as an argument in the production function. As such, Lucas writes the production function as follows:

$$Y = A f(K, uhN).h_a$$

where h_a is the average level of human capital in the economy.

For human capital to become the engine of growth in the model, Lucas needs to specify the manner in which human capital is accumulated. He does this by assuming that human capital accumulation is a linear function of the existing level of human capital:

$$\text{changes in } h = h(t) \delta [1-u(t)].$$

Lucas tests his model against the data for the US and finds that while his model performs well, it does not perform substantially better than the Solow model. In spite of this, he still maintains that an advance has been made because the model that includes human capital in this manner is at least consistent with cross-country differences in the growth experience.

Lucas’ (1988) second approach to incorporating human capital hinges on the idea that human capital is generated during the production process, and not outside of it as his first model suggests. This distinction can be interpreted as that between formal education and learning on-the-job. He assumes there are two consumption goods, c_1 and c_2 . The production of good i is summarised as:

$$C_i = h_i u_i N$$

where h_i is the human capital specialised to the production of good i and u_i is the fraction of the workforce devoted to the production of good i . To operationalise the idea that human capital accumulation is the outcome of the production process, Lucas assumes that the growth in h_i is related to the effort devoted to the production of good i , u_i :

$$\text{changes in } h_i = h_i \delta_i u_i$$

While this equation for human capital growth may look very similar to the version above, the interpretation is quite different. In the equation above, the value u refers to time away from the production of consumption goods; in this equation, it refers to time spent in the production of consumer goods. Either way, human capital contributes to economic growth and is the engine for continued growth.

Romer (1990) introduces human capital into his growth model in another novel way. He specifies three types of skills:

- L, physical skills like eye-hand co-ordination and strength;
- E, educational skills acquired in primary and secondary school; and

S, scientific talent acquired in post-secondary education.

In addition to the educational variables, Romer also specifies an experience variable Z that denotes total man-hours of time spent on-the-job.

Consumption goods are produced using L, E, Z and intermediate producer durables $X^C = (X^C_1, X^C_2, \dots)$. Note that scientific education S is not a direct input into the production of consumer goods. Instead, S enters the model through its effect on X^C . The list of X includes as yet undiscovered inputs. Research is devoted to developing new inputs that make the production of consumer goods cheaper. The research process is improved by S and this is the mechanism through which S impacts upon economic growth. One of the values of Romer's (1990) approach is its explicit treatment of different forms of human capital which can be exploited in an empirical framework.

Mankiw, Romer and Weil (1992) also explicitly include human capital in their theoretical model but unlike Lucas and Romer, they base their model in the neo-classical spirit of Solow. They specify their production function to be:

$$Y = K^\alpha H^\beta (AL)^{1-\alpha-\beta}$$

where H is the stock of human capital. They do not assume increasing returns or the existence of externalities. They go on to test their model and their results will be outlined below. For now, it is sufficient to note that this is a theory emphasising the importance of human capital in explaining economic growth but which does not rely on the type of assumptions which characterise the endogenous growth models.

4.2 The empirics of economic growth

Much of the early empirical work on economic growth was concerned with what became known as growth accounting. By this it was meant that annual growth rates for an economy (typically the United States) were broken down into the sources of that growth, following Solow's model. These sources were

increases in the amount of capital and labour and a residual; the residual was thought to capture improvements in capital and labour, or alternatively put, technological improvements and human capital improvements. Griliches (1996) discusses this work and writes about his efforts and those of others to develop measures of human capital that could be used in these growth accounting exercises. One approach was to weight different types of labour (such as educational groups) by their market wage. The basic finding was that educational improvements could explain about a third of the residual that could not be explained by the growth in capital or labour.

With the development of cross-country datasets, the focus on a single economy shifted to international comparisons of the growth experience. Romer (1990) contains an empirical exploration of the growth process across countries and how human capital affects the pattern of growth across countries. The data used by Romer partly come from those assembled by Summers and Heston (1988); the measures of human capital are taken from the annual statistical yearbooks published by Unesco. The main human capital variable used is literacy. One reason for this relates to a general problem when undertaking cross-country analysis, namely, the difficulty of finding variables that are consistently defined and measured across countries and over time. Romer chooses to focus on literacy partly for this reason. His results therefore relate primarily to the connection between basic literacy and the rate of growth in output per head and the rate of investment.

The variables used by Romer are as follows (it is worth listing them as Barro (1991), discussed below, uses a similar set):

C: a constant;

Y60: real per capita income in 1960;

GROWTH: the annual average rate of growth of Y60 over the years 1960 to 1985;

GOV: the share of GDP devoted to government spending on items other than investment goods;

INV: the share of GDP devoted to investment;

LT60: the percentage of the population that is literate in a survey year that is close to 1960;

LT-DIFF: changes in the literacy rate between 1960 and 1980;

NP60: the consumption of newsprint in 1960;

RD60: the number of radios per 1000 inhabitants in 1960.

The sample included all the market economies included in the Summers and Heston data, except for Kuwait and Saudi Arabia; this left 112 countries. Regressions were run in which the dependent variable was GROWTH. The basic results show that the initial level of education (as measured by literacy levels) had a positive partial correlation with growth but subsequent analysis throws a question mark over this result. Romer is concerned about measurement error in both the income and literacy variables and so reestimates the basic equations using instrumental variables.

The reestimations give rise to a number of issues. Once instrumental variables are used to correct for measurement error in the income and literacy variables, neither is found to be significantly related to the rate of output growth. Part of the explanation for this arises because of the correlation between literacy and income. As such, Romer runs separate regressions in which he excludes literacy and then income. While income on its own is found to have a significant effect on growth, no such significant effect is found for literacy.

This finding of no significant effect of human capital is counter-intuitive but further analysis by Romer uncovers the reason for the result. The initial level of literacy and its rate of change are found to be positively correlated with investment. Once investment is excluded from the regressions both the level of literacy and the rate of change are found to have a significant effect on the growth rate. However, as Romer points out it is important to be careful in interpreting the partial correlations. It

could be that investment, the growth in output and the growth in literacy are simultaneously determined; the directions of causation are less clear.

Barro (1991) begins with the observation that one implication of the neo-classical growth models, such as Solow's (1956), is that a country's per capita income growth should be inversely related to its initial level of per capita income. Alternatively put, there should be convergence between countries in terms of per capita income. Barro then notes that these hypotheses appear to conflict with the evidence and that there is little evidence of convergence. His empirical work attempts to work out this contradiction. Whereas many studies had previously focused on the variables that Solow emphasised, namely the savings rate and population growth, Barro, like Romer (1990), incorporates human capital into his empirical modelling.

Again like Romer (1990), Barro draws on the data of Summers and Heston (1988) and examines 98 countries for the years 1960 to 1985; his data are supplemented with data from the United Nations, the World Bank plus some other sources. While Romer used literacy as his measure of human capital across countries, Barro uses school enrollment rates. In particular, his human capital variables are the 1960 rates of primary school and secondary school enrollment. By including these variables in cross-country regressions with the growth rate as the dependent variable, Barro can assess what impact their inclusion has on the relationship between initial levels of income and growth.

The human capital variables are found to have a positive and significant relationship with per capita growth. In addition, and this is the point stressed by Barro, once the human capital variables are included, the initial level of income is found to have a negative and significant coefficient. This leads him to note that 'for a given starting value of per capita GDP, a country's subsequent growth rate is positively related to [these] measures of initial human capital'. He goes on to note that 'given the human capital variables, subsequent growth is substantially negatively

related to the initial level of per capita GDP'. The implication of this latter statement is that while convergence may occur, it is conditional on there being an initial level of human capital. In this way, the importance of human capital from a macroeconomic perspective is seen.

I noted in the theory section that Mankiw, Romer and Weil (1992) construct a Solow-type model in which they explicitly include human capital. Their core empirical concern is then the following. The standard Solow model, which does not explicitly include human capital, assumes that all output is paid to capital and labour according to their marginal products; this is a consequence of the constant returns assumption. The shares of output that are observed to be paid to capital and labour can then be taken as measures of their marginal products. This in turn allows us to calculate the elasticities of output with respect to capital and labour growth. One empirical difficulty for the Solow model is that regression estimates of the effect of investment on output tended to be greater than that predicted by the model. This result was one of the motivators of the thinking behind endogenous growth theory, discussed above.

Mankiw, Romer and Weil (1992) use the percentage of the working age population that is in secondary school as their measure of human capital. They find that by adding human capital to the type of cross-country regressions which are run by Barro and Romer, the estimated elasticity of output with respect to investment becomes more in line with the predictions of the Solow model. This is because investment leads to higher income levels that in turn leads to higher levels of human capital.

They also find that human capital, as they measure it, is positively and significantly related to the level of national income for the sample of countries that they examine. Their confidence in their augmented-Solow model is reinforced by the finding that 80% of the variation in income levels across 98 countries can be explained by three variables: investment, human capital and the sum of population growth, technological change and depreciation.

Benhabib and Spiegel (1994) have made a particularly useful contribution which seeks to discover the mechanism through which human capital affects growth and income levels. In the theoretical section above, human capital was modelled as affecting output in two broad ways. First, in a model like Mankiw, Romer and Weil (1992) human capital affects output directly by being another input in the production function. But in a model like Romer (1990), we see human capital entering the picture in a second manner. Here human capital affects output indirectly by increasing total factor productivity. In Romer's case, the mechanism was that greater scientific skills increase the rate at which new and improved intermediate outputs were developed. The introduction of the new intermediate products into the production function acts as an impetus to growth. Benhabib and Spiegel (1994) refer to Romer's mechanism as a possible source of human capital's affect on output but they also mention the mechanism of Nelson and Phelps (1966). They suggest that the importance of human capital arises in the adapting of new technologies from abroad. Some countries will be technological leaders; others will need to acquire and use technologies being developed by the technological leader. Human capital facilitates this.

Benhabib and Speigels' (1994) empirical work tries to establish which of the two broad patterns of influence of human capital is true. They find no support for the Mankiw, Romer and Weil (1992) view. This is surprising given the positive results that Mankiw et al. produced. Benhabib and Spiegel address the discrepancy; one explanation lies in the different measures of human capital used. Support is found for the Romer/Nelson and Phelps view. But in addition to the roles suggested by these authors, Benhabib and Spiegel also discuss how their results point to the importance of human capital for countries trying to attract physical capital, or foreign direct investment.

In giving a general review of the work in this area, Griliches (1996) describes as robust the finding that the initial average level of schooling makes a positive contribution to growth. However, he also makes reference to 'the re-

peated finding' that 'changes in the estimated level of schooling or human capital do not contribute to growth, at least as measured over the 1965-85 period'. He offers one possible explanation of this apparent contradiction; in many countries increased numbers of educated people were absorbed in the public sector. To the degree that public sector employees make smaller contributions to economic growth, the increase in human capital will not have translated into economic growth.

Whether this argument by Griliches is true or not, it does draw attention to the possibility of a break in the link between human capital accumulation and growth.

5. Discussion

I have now reviewed the research that has been done on the impact of training on the wages of individuals, the impact of training on productivity and the impact of education on growth rates and income levels across countries. I now want to discuss what has emerged from two perspectives. First, I will discuss the implications for research; I will then go on to discuss the implications for policy.

5.1 Implications for research

In terms of calculating rates of return to education and training, the cross-country work provides the least scope for producing anything that might resemble a reliable rate of return.

The work that has been done across countries appears to show that an initial level of human capital is a necessary condition for development. However, as discussed by Benhabib and Speigels (1994), the precise mechanism through which education affects growth is unclear. Romer's (1990) finding of a positive correlation between investment in physical capital and an initial level of human capital suggests that human capital is a necessary condition for development. However, the evidence is much weaker when we ask if human capital provides a sufficient condition for development. It could be that without physical capital accu-

mulation, additions to the human capital stock do not add to growth.

Apart from the difficulties of demonstrating a link between human capital and growth, any effort at estimating a 'macro' return to education or training would have great difficulty in accounting for other benefits of training. For example, higher levels of human capital are often associated with reduced levels of crime. However, to capture this effect across countries with any degree of reliability would be enormously difficult. For this reason, both empirical and theoretical work at this level can best be directed towards uncovering the mechanism through which education and training influence growth.

The work at the level of individuals and firms provides much more scope for estimating reliable rates of return but as was made clear in the discussion above, there are many difficulties when it comes to such returns. In the case of individuals, these difficulties are not entirely insurmountable so let me propose an approach that would at least go some way to improving our estimates in this area. As I noted when discussing the benefits to individuals of training, in order to make a valid rate of return calculation it is necessary to have a full valuation of all costs and benefits. To the extent that individuals pay out of pocket expenses, this element of cost is transparent. If the individual partly pays for the training through reduced wages, it is clearly more difficult to estimate costs but it is not impossible. Through the estimation of wage equations, it is possible to estimate what the wage of an individual would be given a range of characteristics. By comparing a hypothetical individual with a similar person who is being trained, it is possible to derive an estimate of the wage disadvantage suffered while training.

But can we get a full valuation of the benefits to the individual of training? The wage gain has clearly been studied at length so we certainly have information on that point. The reduced incidence of unemployment could be estimated using a panel of individuals and associating differences in unemployment incidence and duration across individuals with

differences in training acquired. By applying the estimates over the life-cycle it would be possible to estimate how life-time earnings would be affected by training, through the reduced unemployment effect.

Valuing the intangible effects of training would be the most difficult element of this exercise but again it is possible to get some estimate. Take the case of increased job satisfaction. As no market exists in which people can buy job satisfaction, we do not know what people are willing to pay for increased job satisfaction or how they value it. But this issue has arisen in other areas of economics, in particular environmental economics, and innovative approaches have been developed to put values on "goods" that are not valued in the marketplace.

One such approach is called 'contingent valuation'. Any standard textbook on environmental economics will contain a discussion of this technique; one such example is Pearce and Turner (1991). To illustrate how this operates I will use as an example an area of scenic beauty. If a proposal exists to construct a motorway that will destroy the scenic attributes of the area the issue arises of what value people place on the scenic area. Without such a valuation it is not possible to determine whether the value of the motorway is sufficient to warrant the destruction of the area. Contingent valuation generates an estimate of the value by surveying people and asking how much they would be prepared to pay to keep the scenic area. Alternatively they can be asked how much they would be willing to accept to forego the scenic area. Either way, it is possible to generate an estimate of the value using carefully designed survey techniques to overcome some obvious difficulties with the method.

This approach to estimating value for 'goods' that are not traded in the marketplace could in principle be extended to provide an estimate of the value of the intangible effects of training. Referring again to the benefit of increased job satisfaction, it would be possible to get an estimate of the value of this benefit by surveying workers and asking them to place a value on the increased job satisfac-

tion they derived from any training they received. Such an approach would be laden with difficulties but as the methodology has been developed and refined in environmental economics, the lessons learned could be adopted. Possibly the biggest difficulty would arise from the employees' incentive to overstate the value of the job satisfaction if they valued the training for other reasons but thought that overstating the benefits would lead to increased training provision. One way of avoiding this would be to survey employees about training with previous employers; responses to these questions would be less likely to influence existing employers.

By carefully calculating costs and benefits in the manner just described, it should be possible to generate rate of return estimates for individuals. As the exercise for firms is more straightforward, rate of return estimates should also be possible for that group. If we accept that profitability captures the primary concern of the firm, rates of return could be calculated using the type of survey-based studies discussed above but focusing on profitability rather than productivity. Also, more information on the costs of training would be required. Such work could be supplemented with efforts to uncover the precise link between training and any increase in profitability, such as reduced turnover.

In spite of the possibilities, difficulties remain and so the issue arises of whether we should pursue the estimation of more reliable rates of return to employer-provided training or whether our research efforts might be better directed. To look at the issue from an entirely different perspective, let us stand back from the details and ask why we want to know the rate of return to training? In essence, we want to know because we believe the level of investment might be higher or lower than that which is optimal but without a rate of return estimate we cannot know. But rather than pursuing the issue by searching for an improved rate of return estimate, can we ask why there might be under or overinvestment? Alternatively put, can we ask why the free market might give rise to suboptimal levels of investment in training?

Let me develop this with a concrete example. Ever since Becker's work on general and specific training, we have been aware that under conditions of perfect competition in the labour market employers will not pay for training that can be used by the employee elsewhere, i.e. general training. This is because employees can take the general training and use it elsewhere, thereby denying the first employer a chance to recoup the investment. However, employees might pay for the training through lower wages during the training period. If there is some constraint on employees' ability to take lower wages (such as a minimum wage) then they may not receive general training and so the level of training provision will be below the optimum. In this situation, the rate of return to training will be high relative to other investments. Hence, we could get an insight in to the underprovision of training by estimating the rate of return or by identifying a reason for its underprovision.

This line of thinking will be familiar to labour economists. However, more recent work that has been written about by Acemoglu and Pischke (1999a and b) has begun to cast some doubt on the rigid implications of the Becker theory. They provide examples of where employers do provide and pay for general training and present scenarios which show rational economic behaviour on the part of the firms. For example, Bishop and Kang (1996) discuss a situation of asymmetric information. When an employee is not able to signal perfectly the generality of the training that they have received with one employer to another, skills that are technically general become *de facto* specific. In this situation, the employer has an incentive to contribute to the provision of general training. Acemoglu and Pischke (1999b) show how wage compression can produce the same effect of turning general skills into *de facto* specific skills. If workers who receive training cannot go elsewhere and earn a wage equal to their marginal product because wages have been compressed, for example by unions, then the mobility argument which is crucial to Becker's result breaks down.

The Acemoglu and Pischke line would suggest that concerns about underinvestment in

human capital may be unfounded. If this is so, then rate of return estimates may not be of great importance. However, the endogenous growth theory developments discussed above have introduced a new set of concerns over market failure in human capital. If the externalities of the sort suggested by Romer and Lucas are large and prevalent, then underinvestment in human capital from the aggregate perspective will arise. I have noted already that estimating returns at this macrolevel will be unproductive. For this reason, it appears that efforts to deepen our understanding of the link between education, training and growth and the possible existence of externalities and hence market failure may represent the most fruitful research avenue.

5.2 Implications for policy

The central question I want to address in this final section is whether governments should contribute to the funding of employer-provided training in the light of the research results discussed above. I will not consider the issue of education as the case for government funding in that area is well understood and accepted. As always, the principles upon which this question should be answered can be taken from elementary public economics. We know that government intervention should occur where there is market failure such as the existence of externalities or public goods, or where the government wishes to alter the distribution of resources. Hence, we must ask what market failure arises in the case of employer-provided training.

There are two standard arguments given in respect of employer-provided training. A market failure can arise in the case of employer provision of training because an employee may quit, thereby preventing the employer from gaining a return on the training. A second market failure can arise in that either firms or individuals with liquidity constraints may not be able to borrow money to finance training.

In the light of the studies presented above, I would argue that there is evidence to suggest that market failures may not be as prevalent

as is sometimes thought. The papers by Acemoglu and Pischke address the issue of market failure quite directly and cast doubt on its prevalence. Many of the studies that looked at the effect of training on company productivity are also indicative. As they generally found a positive effect of training on productivity, this would suggest that trained employees are not necessarily leaving but rather stay and allow the training they received to translate into productivity increases. We have also seen evidence that training increases profitability so it would generally appear that companies have an incentive to undertake training.

Even if companies have an incentive to undertake training, they may not undertake if they, or the employees, face liquidity constraints. In the case of large firms, it seems unlikely that this is a real constraint. As such, if governments were to fund training in these large companies it is likely that all that is

being achieved is the subsidisation of an activity that would have occurred anyway. As the training would be of value to the firm and they are in a position to finance it, the training would probably be undertaken in the absence of any government funding. In this way the government's money is not only wasted – as the money is transferred to a company that is already profitable, it is being transferred in a way that is counter to standard distributional considerations.

For firms which face genuine liquidity constraints, and these will typically be smaller sized enterprises, there remains an argument in favour of government funding. In this case, government funding will lead to training being provided that would not otherwise have been. What is more, by not offering finance to larger firms who are less likely to face liquidity constraints, extra resources are available for smaller firms, or for other programmes.

Appendix

The Solow model

Any discussion of growth theory must begin with an outline of the Solow growth model (Solow 1956). This model has been enormously influential in terms of generating empirical work on growth and additional theoretical work which has departed from the Solow view.

The model begins with the aggregate production function, which shows how output (Y) is a function of the amount of capital (K) and labour (L) employed, and the state of technology (A):

$$Y = A f(K, L)$$

Output increases with additional amounts of K and L, but at a decreasing rate if more L or K is added to a fixed amount of the other factor (i.e. diminishing marginal returns). If both K and L are increased by the same proportion, output also increases by that proportion (i.e. constant returns to scale). Should the amount of K and L remain the same but technology improves (i.e. an increase in A) then the amount of output produced also increases.

The focus of the model is on how output per capita grows over time so a restatement of the production function allows for a focus on this point. Given the assumption of constant returns to scale, it is possible to re-write the production function in per capita terms:

$$Y/L = A f(K/L, 1).$$

Denoting per capita values by lower case letters, we can write this as:

$$y = A f(k),$$

i.e. output per head is a function of capital per head and the state of technology.

Moving on to issues of growth, Solow noted that changes in capital per head would be the result of investment per head and population growth (assuming that all the population are in the labour force, which is a useful simplifying assumption). Investment per capita is assumed to be equal to savings per capita, which in turn is equal to output per capita

multiplied by the marginal propensity to save, s. In terms of our notation:

$$\text{Investment per capita} = sf(k).$$

Population growth is assumed to be at an exogenous rate of n. If capital per head is to be kept constant, investment per head would have to be at a rate of nk.

Combining these assumptions, we can say the following:

$$\text{changes in capital per head (k)} = sf(k) - nk.$$

Given the assumptions employed by Solow, the model generated an additional crucial implication. In the 'steady state', growth in output per capital will be zero; investment per head will be sufficient to maintain capital per head but this in turn will be enough only to maintain output per head. This result is derived from the assumption of diminishing marginal productivity. To understand why, assume initially that

$$sf(k) > nk.$$

Here, investment per capita is greater than the required replacement rate. As such, capital per head will rise and so $sf(k)$ and nk will rise also. But by the assumption of diminishing returns $sf(k)$ will eventually rise more slowly than nk and so will eventually will equal nk . A similar logic applies if $sf(k) < nk$. Now capital per head will be falling, until $sf(k) = nk$.

Given that output growth per person will be zero in the steady state, the model predicts that output per head will only increase if A increases, i.e. there is a technological improvement. This in turn took the focus away from human capital as being the engine of growth. Exercises that looked at the sources of economic growth typically measured increases in L and K and labelled the additional growth that could not be accounted for by changes in K and L as the Solow residual. While it was conceded that the residual may be picking up improvements in human capital, the focus of the exercise follows the explicit factors which Solow had modelled and hence relegated all besides capital and labour into the residual.

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Unemployment and skills from a dynamic perspective

Joost Bollens

Abstract

It has been suggested that during the last decades the relative labour market position of the low-skilled has declined markedly, due to a variety of factors. Some authors attribute a substantial part of the explanation of recent European unemployment history to this relative demand shift against the low-skilled. A general increase in skill mismatch is, in their view, one of the main causes of the peculiar persistence that has characterised European unemployment in the past 20 years. This view, however, has not gone unchallenged. Others have argued that the observed persistence is caused by other factors, the incidence of long-term unemployment and everything this brings about, being one of the most important. In this contribution, the two rival views, their microeconomic underpinning and the available empirical evidence as well as the corresponding policy implications are compared.

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1. Introduction

There is undeniably a relationship between skills and unemployment. Compared to better educated workers, the unemployment rates for workers with low educational attainment, are, almost without exception, consistently higher throughout the EU. As such, this is not a new phenomenon. However, it has been suggested that during the last decades the relative labour market position of the low-skilled has declined markedly, due to a variety of factors. Some authors attribute a substantial part of the explanation of recent European unemployment history to this relative demand shift against the low-skilled. A general increase in skill mismatch is, in their view, one of the main causes of the peculiar persistence that has characterised European unemployment in the last twenty years.

This view, however, has not gone unchallenged. Others have argued that the observed persistence is caused by other factors, the incidence of long-term unemployment and everything what this brings about, being one of the most important.

From a policy point of view, it is important to know which view is most in line with reality. Depending on the chosen theory, policy prescriptions differ. More particularly, there are

some implications for organisation of a VET policy to alleviate unemployment problems.

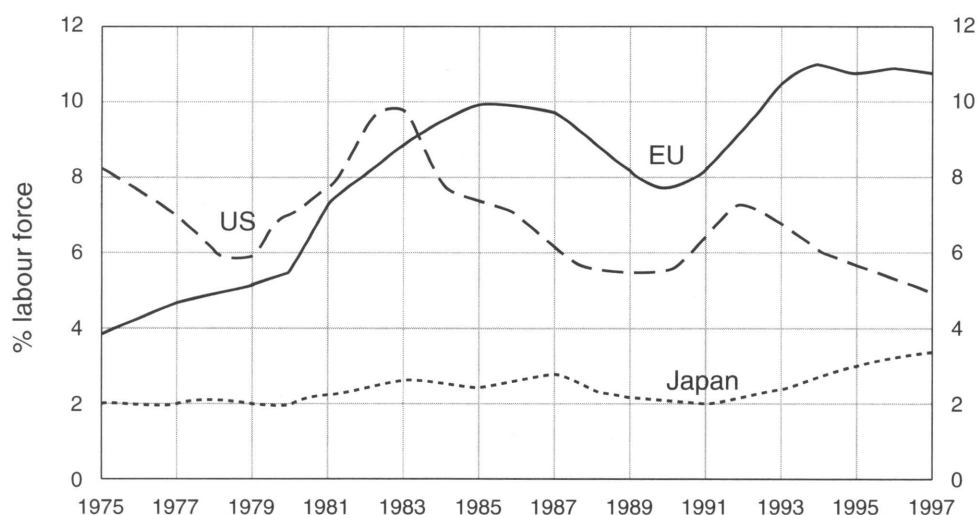
In this contribution, a comparison is made of the two rival views. Although both theories originally stem from a macroeconomic perspective, i.e. a highly stylised and aggregated world, and essentially deal with macro phenomena, most attention will be devoted to their microeconomic underpinning and the available empirical evidence at this level.

2. Basic facts

2.1 Unemployment

A good overview of the recent unemployment history of European countries can be obtained from looking at Figure 1. Two particular evolutions attract attention. A first remarkable observation is that, while US unemployment rates were invariably above European rates during the first part of the observed time span (and for that matter, also during the 1960s and the beginning of the 1970s), from 1983 onwards US unemployment rates are consistently below European. If a straight trend line was drawn through US and EU unemployment evolution, the US line would decrease, starting at 10% in 1975 and arriving at 5% to 6% in 1997. The European trend line, on the contrary, would definitely increase.

Figure 1: Unemployment rates in the EU, US and Japan, 1975-97



Source: European Commission 1999, p. 27.

Table 1: Long-term unemployment (in %)

	1985	1990	1995	1996	1997
EUR15	53.5	51.0	49.1	48.2	49.0
Belgium	69.2	68.2	62.4	61.2	60.5
Denmark	38.6	32.5	28.1	26.6	27.2
West Germany	47.9	46.0			
Germany			48.7	47.8	50.1
Greece	46.2	51.8	51.2	56.7	55.7
Spain	58.5	54.7	54.6	52.9	51.8
France	46.8	44.8	40.2	38.3	39.6
Ireland	64.0	66.7	61.4	59.6	56.6
Italy	65.8	70.8	63.6	65.6	66.3
Netherlands	58.8	47.1	46.6	49.0	49.2
Austria			27.5	25.7	28.5
Portugal	56.1	47.5	50.9	53.0	55.4
Finland			37.0	35.9	29.6
Sweden	11.7	7.0	20.2	19.1	34.2
UK	48.1	35.5	43.6	39.8	38.6

Source: European Commission 1999.

Another striking observation relates to the cyclical behaviour of both series. The US series displays a nice cyclical pattern, with alternating valleys and peaks. In the European series, on the other hand, in the observed time span there was actually only one substantial decline. Still, there seems to be some relationship between the behaviour of both series. Whenever US unemployment starts to rise, European unemployment will follow suit, suggesting a common underlying cause. However, once peaked, US unemployment starts to decrease quite instantaneously, while European unemployment seems to need much more time.

2.2 Unemployment duration and educational attainment

Someone who is in unemployment for at least one year, is called long-term unemployed. As can be seen from Table 1, long-term unemployment is quite significant in most European countries, contrary to the US, where long-term unemployment as a percentage of total unemployment is almost negligible (6% in 1990 for North America).

Another important feature of unemployment relates to the fact that unemployment rates

differ between educational attainment groups, typically the lower skilled experiencing a much higher probability of being unemployed than the higher skilled, although there are a few exceptional countries with a reverse relationship. Tables 4 and 6 to 8 document the relation between educational attainment and unemployment rates. While this inverse relationship is not particularly European, nor limited to the past 30 years, there are some indications that the position of the lower skilled has markedly deteriorated in recent history.

A last remarkable fact regards the relation between skills and unemployment duration. As Table 2 indicates, long-term unemployment is disproportionately hitting lower-skilled workers.

2.3 Summary: some stylised facts

Under the proviso that not all countries in the EU have experienced an identical development, still some stylised facts can nevertheless be drawn from the preceding figures:

- over time, unemployment rates have grown, sometimes dramatically;

Table 2: Long-term unemployment, 1997, age groups 25 to 64

	Composition of LTU			Composition of unemployment		
	H	M	L	H	M	L
Austria	0.03 ⁽²⁾	0.58	0.38	0.06 ⁽¹⁾	0.61	0.33
Belgium	0.11	0.31	0.58	0.14	0.33	0.53
Germany	0.14	0.58	0.28	0.15	0.60	0.25
Denmark	0.19	0.52	0.30	0.20	0.51	0.29
Spain	0.19	0.18	0.64	0.18	0.16	0.65
Finland	0.07	0.48	0.45	0.11	0.56	0.33
France	0.09	0.37	0.54	0.13	0.41	0.47
Greece	0.15	0.44	0.41	0.16	0.41	0.44
Ireland	0.07	0.16	0.77	0.11	0.21	0.68
Italy	0.09	0.34	0.57	0.09	0.32	0.59
Netherlands	0.19	0.40	0.42	0.19	0.38	0.42
Portugal	0.05	0.14	0.81	0.05	0.14	0.81
Sweden	0.13	0.49	0.38	0.13	0.55	0.32
UK	0.09	0.30	0.61	0.13	0.33	0.54
	LTU rates			Unemployment rates		
	H	M	L	H	M	L
Austria	0.5 ⁽⁴⁾	1.3	2.7	2.7 ⁽³⁾	4.2	7.3
Belgium	1.8	4.3	9.2	3.4	7.0	12.7
Germany	2.7	5.1	9.7	5.7	9.8	16.3
Denmark	1.1	1.6	2.8	3.4	4.6	7.9
Spain	7.6	10.6	10.5	13.3	17.5	19.1
Finland	1.5	4.4	8.6	5.5	13.1	16.3
France	2.1	3.9	7.7	6.6	9.7	15.0
Greece	3.0	5.6	3.4	5.5	9.0	6.3
Ireland	1.4	3.1	9.9	3.5	6.5	14.2
Italy	4.6	5.7	6.7	6.6	8.0	10.3
Netherlands	1.7	2.2	3.7	3.3	4.1	7.0
Portugal	1.3	4.0	3.8	2.0	6.5	6.1
Sweden	1.7	3.6	6.0	4.2	10.1	12.6
UK	1.0	2.4	3.9	3.0	5.9	7.7

Source: Eurostat, labour force survey and own calculations.

Legend: Educational attainment: H = Third level education; M = Upper secondary Level; L = Less than upper secondary level

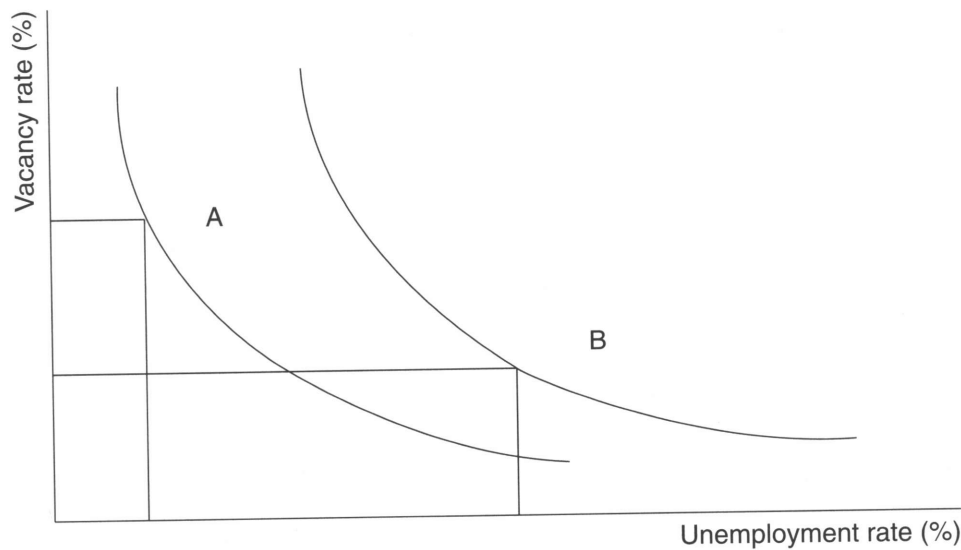
(1) If U is the number of unemployed, and U^H is the number of unemployed with third level education, etc., then 0.06 is equal to U^H/U , i.e. the share of group H in unemployment.

(2) Analogously, if U^{LTU} is the number of long-term unemployed (12 months or more), and U^{H-LTU} is the number of long-term unemployed with third level education, then 0.03 is equal to U^{H-LTU}/U^{LTU} , i.e. the share of group H in long-term unemployment.

(3) If W^H is the number of employed with third level education, then $LF^H = (W^H + U^H)$ is the number of persons with third level education in the labour force, and then 2.7 is equal to $(U^H/LF^H) \times 100$, i.e. the unemployment rate for group H.

(4) Here the same denominator is used to scale the number of long-term unemployed from group H, etc., i.e. 0.5 is equal to $(U^{H-LTU}/LF^H) \times 100$.

Figure 2: Beveridge curve: postulated evolution



- ❑ unemployment appears to have a persistent nature, i.e. once the unemployment rate has gone up, e.g. in a period of a cyclical downturn, it has a tendency to remain on this higher level, i.e. it does not return to its initial equilibrium level, even when the business cycle becomes more favourable;
- ❑ typically, the unemployment rates are higher for lower skilled than for higher skilled workers, even though the share of the lower skilled in the labour force is decreasing over time;
- ❑ the incidence of long-term unemployment (more than one year) is on a historically unprecedented high level. Moreover, it is typically the lower skilled workers who are worst hit by long-term unemployment;
- ❑ here it is noteworthy that over time, inflow rates into unemployment in EC countries changed little. What did change over time are the outflow rates, which dropped substantially. In other words, increase in unemployment rates can not be attributed to an increased probability of losing a job. It is the decreased probability of finding one, once unemployed, that is the driving

force for EU unemployment growth (Bean 1994; Layard et al. 1991). This evolution is particular for EU countries. In North America, both inflow and outflow rates are high, and consequently, the duration of a typical unemployment spell is low, while in Nordic countries and Japan, at least until the end of the 1980s, inflow rates were low, and outflow rates were high, which also gave rise to a low duration (ibid.);

- ❑ high unemployment rates sometimes go hand in hand with high vacancy rates.

This latter relationship can be illustrated by the so-called Beveridge curve (OECD 1993; Calmfors 1994; Van Der Linden 1997). The Beveridge curve depicts the relationship between the number of job seekers (unemployment rate) with the number of vacant jobs (vacancy rate). This relationship is assumed to be inverse, i.e. an increase in the number of vacancies will *ceteris paribus* reduce the number of unemployed, and vice versa. This curve can be seen as a measure for the effectiveness of the matching process between vacancies and unemployed (Calmfors 1994). The observed evolutions (higher unemployment rates, persistence, simultaneously high unem-

ployment and high vacancy rates) imply that over time the Beveridge curve has shifted outwards, as depicted in Figure 2. A point like A is typical for the beginning of the 1970s, whereas a point like B corresponds to the actual situation, *i.e. the unemployment rate compatible with a given vacancy rate is much higher than it used to be.*

Apparently, the matching process has become less efficient over time. How can this be explained? In the next section, we introduce two competing theoretical frameworks that both fit the above-mentioned observations. One is an approach of equilibrium unemployment, enriched with a hysteresis component. The other emphasises the importance of skill mismatch. The remainder of this survey will be devoted to an elaboration of the different claims put forward by these theories to establish which theory is most in line with reality. This is important, because, as will be duly shown, policy prescriptions differ, depending on the chosen theory.

3. Explaining the facts

3.1 Equilibrium unemployment, persistence, hysteresis and state dependence

3.1.1 Equilibrium unemployment and hysteresis

To grasp the main gist of the first approach we labelled 'equilibrium unemployment, enriched with hysteresis', we start with a short intellectual history of the main ideas.

During the 1960s, economic policy-making was to a large extent founded on the so-called Phillips curve, which posits an inverse relationship between inflation and unemployment. According to the then prevailing consensus, one could achieve and maintain a permanently low level of unemployment merely by tolerating a permanently high level of inflation (Mankiw 1990). However, in 1968 Milton Friedman and Edmund Phelps, independently, concluded that the trade-off between inflation and unemployment as described by the Phillips curve, could not be generally true.

Subsequent developments proved Friedman and Phelps correct. With the 1970s came an era of stagflation, where rising inflation rates went together with high unemployment. Both authors had, in their refutation of the Phillips curve, put forward the notion 'natural rate of unemployment'. This natural rate is a kind of long-term equilibrium rate of unemployment. Actual unemployment rates can differ, but in the end they will drift towards this underlying equilibrium value. The natural rate depends on the 'actual structural characteristics of the labour and commodity markets' (Friedman 1968, as quoted by Cross 1995). The natural rate does not depend on nominal variables, such as the level of aggregate demand. A demand shock, e.g. a traditional stimulation of demand by fiscal policy, will affect the actual unemployment rates, but not the equilibrium rate. Thus unemployment will drift towards its equilibrium value.

As already said, macroeconomic developments in the 1970s coincided with the predictions of the natural rate hypothesis. A series of supply shocks (e.g. rise in commodity prices, such as oil) led to a sharp increase in the actual unemployment and inflation rates in the OECD. With the 1980s, however, came some rather puzzling new developments, especially in Europe. As a reaction to the high levels of inflation, at the beginning of the 1980s disinflationary policies were pursued, with a tight monetary policy, and a major and prolonged fiscal contraction (Blanchard and Summers 1986a, 1986b). This large, adverse demand shock resulted in a further rise of (European) unemployment.

After inflation had been stabilised at a lower level by 1985, and after a beneficial oil shock in 1985-86, the original factors that had propelled unemployment growth, had largely disappeared. One expected now a substantial decrease of unemployment. This, however, did not occur (Cross 1995; Bean 1994; Layard et al. 1991;). Or, put differently, as the equilibrium unemployment rate is the rate at which inflation is constant, the then prevailing actual unemployment rate appeared to be the equilibrium rate, suggesting that not only the actual, but also the equilibrium unemployment rate had risen sharply.

'While this could as a matter of logic be due to shocks increasing both the equilibrium and the actual rates, empirical attempts to identify such shocks have failed. Lower productivity growth and higher oil prices may help explain the 1970s, but there are very few identifiable adverse shocks which can explain a doubling of *equilibrium* unemployment in the 1980s' (Blanchard and Summers 1986a, page 1, our italics).

At this point, the issue of hysteresis was brought forward. The persistence of European unemployment rates, which could not be reconciled with prevailing theory, switched attention away 'from the original source of increase in unemployment toward the question of how the effects of shocks are propagated over time, leading to an equilibrium rate of unemployment that depends not only on the current values of the relevant forcing variables, but also on the history of unemployment' (Bean, 1994, p. 603).

By introducing hysteresis, one incorporates the empirical observation of the 1980s that, once unemployment has risen, it has a tendency to remain at this higher level, so that today's equilibrium unemployment level depends partly on past unemployment. Several possible explanations for the emergence of persistent unemployment have been given: insider-outsider models (and hiring and firing costs) (e.g. Blanchard and Summers 1986a, 1986b; Lindbeck and Snower 1986, 1987), outsider characteristics (e.g. Budd et al. 1987; Franz 1987; Price 1988; Tötsch 1988; Layard et al. 1991), and capital shortage (Modigliani et al. 1987; Burda 1988; Bean 1989)¹.

We will principally discuss the 'outsider characteristics' explanation. In their influential 1991 textbook, R. Layard, S. Nickell and R. Jackman (or LNJ for short), use the acronym NAIRU, which stands for 'non accelerating-inflation rate of unemployment'. The long-run NAIRU happens to be equal to the natural rate of unemployment. However, there is some 'short-run NAIRU', consistent with stable in-

flation, which, violating the natural rate hypothesis, can partly be determined by nominal variables, such as aggregate demand, which affect actual unemployment. Therefore, 'there is short-term "hysteresis", in the sense that past events affect the current short-run NAIRU. But there is no long-term "hysteresis": there is a unique long-term NAIRU. In the end, the unemployment rate always reverts.' (LNJ 1991, p. 10).

The underlying mechanism is as follows. An increase in actual unemployment rates leads to an increase of long-term unemployment. For reasons which will be elaborated later (see 3.1.2), long-term unemployment leads to a distance between the long-term unemployed and the labour market, in fact rendering them unemployable. Therefore, they no longer exert a downward pressure on wages, which is in a sense a change in the structural characteristics of the labour market. The effectiveness of a given level of unemployment i.e. the exertion of a downward pressure on the wage is lower, the higher the share of the long-term unemployed. The equilibrium rate of unemployment determined by wage-setting and price-setting, will therefore at any given level of unemployment be higher, the higher the share of the long-term unemployed.

For the sake of completeness, it should be mentioned that LNJ also consider insider power as a potential source for hysteresis. The argument runs essentially as follows: 'if last year's workforce was small relative to this year's expected employment, then [requesting] a higher wage this year will involve little extra risk, since most existing workers are already safe.' (LNJ 1991, p. 28). However, on the basis of empirical evidence, they conclude that the outsider is more important than this insider variant.

The capital shortage version of hysteresis states that depressed demand has negative effects on investment and capital accumulation, induced by the reduction of capacity utilisation (Heylen 1993).

The measurement of persistence has been a hot topic in applied econometrics, but has now

¹ Some other references are Bean 1994; Cross 1995; Cross et al. 1997; Franz 1990; Graafland 1990; Roed 1997.

Hysteresis

Hysteresis is derived from the ancient Greek $\nu\sigma\tau\epsilon\rho\epsilon\omega$, meaning to come later, and was first used in physics by James Ewing in 1881 (Cross 1995). Amable et al. 1995, as well as Cross 1995, argue that the hysteresis concept as used in economics, does not square with the usage of the term in physical sciences. Although this is largely a discussion of semantics, the arguments are convincing:

Hysteresis is essentially a non-linear phenomenon, as opposed to the linear version used in economics. 'The equilibrium unemployment rate no longer returns to the status quo ante once a temporary shock is reversed, but instead displays remanence. This means that the new equilibrium will not be the same as the old, but will remain displaced' (which can not be reconciled with the natural rate hypothesis). Moreover, 'the equilibrium rate of unemployment retains a selective memory of past shocks: It neither forgets all past shocks, as in the natural rate hypothesis; nor does it, like the elephant, remember all past shocks'. 'Only the non-dominated extremum values of shocks affect the equilibrium path', implying that 'shocks arising from changes in nominal variables, can, by way of the selective memory process, shape the equilibrium path for unemployment'. Which, again, contradicts the natural rate hypothesis.

What is generally called 'hysteresis' in economic usage, therefore, is not hysteresis at all, but rather 'a form of persistence of deviations from the natural equilibrium path'. From now on, we will avoid usage of the term 'hysteresis', and will speak about 'persistence' instead.

been pushed somewhat into the background. Models that attempt to model the dynamic behaviour of unemployment are to some extent rather empty or data driven, and, at best, say something about persistence, but seldom are able to discriminate between the possible causes or mechanisms of this persistence, and are thus not particularly helpful from a policy point of view. Moreover, the statistical tests used in these exercises are often questioned (since they have very low 'power' against alternatives).

A recent collection of papers (Henry and Snower 1996) from the IMF (International Monetary Fund) is interesting because, using a comparable methodology for different European countries, it concludes that there is quite a lot of variation in the degree of persistence between individual European countries. The authors use structural VAR² models, simultaneously modelling the dynamic

behaviour of (un)-employment, labour force and wage formation. Table 3 gives model simulations of a temporary labour demand shock (see p. 26). (The authors also investigate the dynamics of permanent shocks).

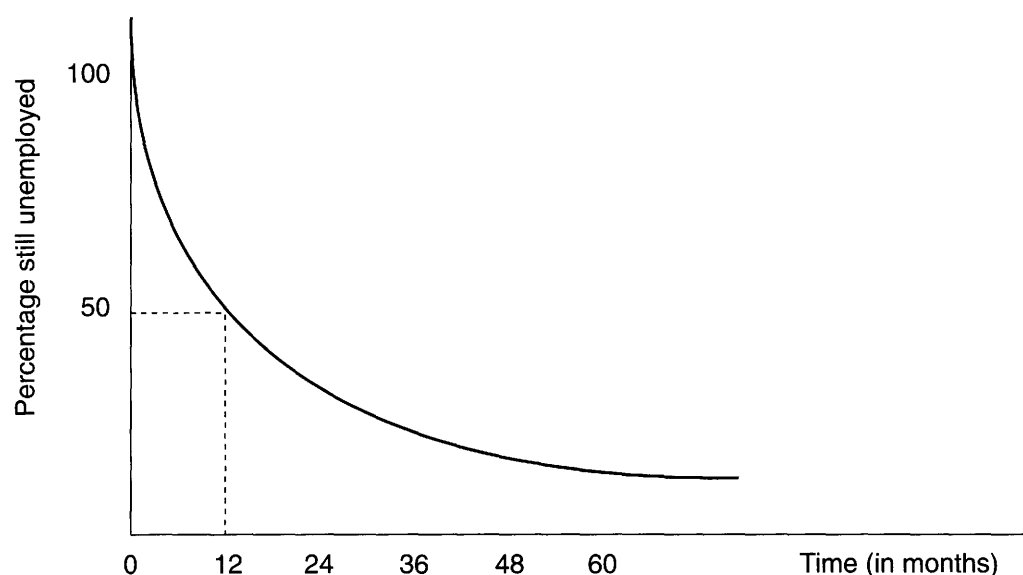
Though these results should be handled with care, they suggest that most major European economies exhibit a substantial degree of unemployment persistence (Spain is also included in the study, albeit not in the table). Moreover, they suggest that the degree to which each country is characterised by this persistence, differs significantly. 'In France, persistence seems relatively low, but the minimum wage and social security policy have probably led to high trend rates in unemployment. Over the 1980s, unemployment has risen in Spain, but persistence has declined. In Germany [...] the

Table 3: Unemployment: indices of persistence

	Mean lag* (in years)
France	3.0
Germany (West)	6.5
Italy	5.0
United Kingdom	5.0

* The mean lag is the familiar half-life of the response to the shock. Half-lives are taken to be the time taken to get halfway to full equilibrium, in the case of a temporary shock, this means halfway to the base solution.

² VAR stands for vector autoregression, which is the multiple time-series generalisation of the more usual (single) autoregression, in which a variable is regressed on its own past values. Traditional macroeconomic model-building is very theory driven, (an) economic theory is necessary to impose restrictions. The VAR approach on the other hand, is rather atheoretical, just trying to model and forecast the simultaneous behaviour of the important macroeconomic variables, with as little interference of theory as possible.

Figure 3: Survivor curve: % of inflowers that remain unemployed after x months

responsiveness of the general labour market to shocks appears low [...]. Italy and the United Kingdom exemplify policy initiatives that can improve the resilience of the economy to shocks. The evidence that this is happening is not clear, however, even in the United Kingdom, where reform has been in train for over a decade.' (see p. 31-32). Persistence in Spain is confirmed by Dolado and Jimeno 1997. Some other recent studies are Song and Wu 1997, 1998; both using panel data and panel-based tests, and Roed 1996. The only robust result seems to be that the hysteresis hypothesis is rejected for the US. For other countries, results remain rather inconclusive.

3.1.2 The duration of unemployment

The persistence in the LNJ view of the world is, to a large extent, due to the existence of long-term unemployment. In this section we review how long-term unemployment could lead to persistence. We start with a short description of exit rates.

3.1.2.1 Exit rates

Consider an age group (cohort) of persons who become unemployed at a given moment t . As time goes by, some will leave unemployment (because they find a job, or because they leave

the labour force), while others will remain in unemployment. This can be graphically illustrated with a so-called survivor curve (Figure 3).

At point 0 on the horizontal axis, the cohort flows into unemployment. Therefore all, i.e. 100%, are still in unemployment. Twelve months later, in this example, 50% of the original group remain in unemployment ('survive'), indicating that in this first year 50% have left unemployment. The exit rate in this first year, i.e. the probability of leaving, is thus 50%. In the same fashion, we can compute the exit rate in the second year as the ratio of the number of persons who will have left unemployment by the end of the second year to the number of persons who were still unemployed at the beginning of the second year.

Exit rates are taken over time periods of one year. It is of course possible to extend the idea to shorter periods of time, e.g. months, or weeks. By the same logic, one can make the time period infinitesimally small. In this case, the exit rate is called a hazard rate. The hazard rate is an instantaneous exit rate, or, in other words, the probability of leaving a particular state (e.g. unemployment) at point t (say, after 12 months), given that one has remained in that state until t (say, during 12

months). Over time, hazard rates can be either constant, increasing or decreasing. A constant hazard implies that the probability of leaving unemployment does not change over time, i.e. the duration of the unemployment spell does not influence the exit probability ('someone who is long-term unemployed has, *ceteris paribus*, essentially the same probability of leaving unemployment today as someone who is only in unemployment since six months').

When the hazard is not constant, one speaks of duration dependence. When the hazard is decreasing over time, also called negative duration dependence, the probability of leaving unemployment becomes smaller, the longer one remains unemployed. The reverse holds in case of positive duration dependence, i.e. when the hazard rate increases.

3.1.2.2 State dependence

People do differ. Characteristics such as age, gender, educational attainment, work experience, ethnicity, etc. do have an important impact on the probability of leaving (and in the first place, on the probability of entering) unemployment. When one states that there is negative duration dependence in the hazard rates out of unemployment, one actually claims that the length of the stay in unemployment, i.e. the duration itself has, in some sense an autonomous impact on the exit probability, over and above the impact of the aforementioned individual characteristics. Negative duration dependence implies that something happens or changes during the stay in unemployment, either because the unemployed themselves change, or because they are perceived to have changed.

In fact, there is a huge and thusfar unresolved debate on these matters. A lot of research points to negative duration dependence and thus state dependence, but there is also a lot of evidence that points to the absence of duration dependence. In this last case, observed differences in hazard rates are completely accounted for by heterogeneity, i.e. personal characteristics that were already present at the beginning of the unemployment spell (in Section 4.1 the evidence will be surveyed).

Assuming that negative duration dependence is present, there have to be some processes or forces that act during the course of the unemployment spell. Some of these processes are readily identifiable.

- The fact of being unemployed, especially for persons that find it hard to find another job, can trigger off a process of *discouragement* and *demotivation*, which eventually can lead to *habituation* and *resignation* (see Section 4.2). This will probably lead to a reduction of the job search activity, and hence to a reduction of the exit probability.
- Being in unemployment, particularly long-term, can lead to a *loss* or an *erosion* of acquired skills (be it skills acquired by formal or informal learning, or more general skills (such as reading and writing) or more specific skills) (Phelps 1972a; Pissarides 1992; Acemoglu 1992). Moreover, even if there is no loss, previously acquired skills and knowledge can quickly become obsolete and outdated when no longer used and updated. Working is, in a sense, continuous training on the job (Section 4.3). If erosion and depreciation of skills take place over an unemployment spell, there is a direct effect on employability, and hence on the exit probability.
- Unemployment, and more particularly long-term unemployment, is said to affect work attitudes and work discipline (Phelps 1972a) such as keeping appointments (e.g. starting on time), accepting authority, being able to concentrate on one task for a longer period, social functioning and in general meeting the strict requirements which exist within most labour situations. This process does not necessarily affect the individual's employability in a direct way, since a loss of work attitudes is not always directly observable and often only becomes apparent after he/she has been hired. Indirectly, it can be of influence if potential employers come to associate long-term unemployment with loss of work attitudes.
- This last mechanism can be generalised as a loss of *reputation* argument. Given that a hiring process is a situation with asym-

metrical information, where the potential employer normally has only limited information about the productivity of a potential employee, employers may use the unemployment duration as a signal of productivity, and thus rank candidates by their unemployment duration (Blanchard 1991; Blanchard and Diamond 1994) (see Section 4.4). This can be seen as a form of statistical discrimination (Phelps 1972b; Arrow 1972). If this mechanism acts, the hazard rate obviously will decrease with duration. Note that this will be the case, even if the former explanations have no or only a marginal significance (Cockx 1998). This mechanism will possibly be reinforced if public employment services discriminate between unemployed with different unemployment durations (Winter-Ebmer 1991). The common practice of ranking unemployed by their employability in order to tailor activities, can easily become a self-fulfilling prophecy.

3.1.3 Relation with observed facts and policy conclusions

Two of the most singular stylised facts from Section 2.3, namely persistent unemployment and the apparently shifted Beveridge-curve, can be readily explained. A rise in unemployment, due to a succession of severe negative shocks, leads to long-term unemployment. The long-term unemployed become disenfranchised from the labour market, which, through the mechanism(s) described above, leads to persistence. As the long-term unemployed become unemployable, the number of effective unemployed will be lower than the total number of unemployed, and therefore, a higher unemployment rate will be compatible with a given vacancy rate.

As to the huge differences between the unemployment rates of different skill levels, LNJ observe that the lower skilled are more likely to become unemployed than higher skill groups, but that, once unemployed, they do not remain unemployed longer.³ Therefore

³ This empirical evidence produced by LNJ relates only to the US and UK labour markets which are hardly comparable with continental economies.

their higher unemployment rates are primarily due to higher inflow rates and not to a longer average duration (LNJ, 1991, p. 44-45, figures for Britain 1984 and the USA 1987). The authors acknowledge the importance of skill mismatch, but argue that skill (and other) mismatches are not a new phenomenon. Mismatch existed before the advent of the rise in European unemployment, and moreover, according to the authors, did not increase afterwards (except Sweden). Therefore, in their opinion, skill mismatch can not be held responsible for the observed changes in unemployment.

What has changed over the past decades, is the emergence and tremendous growth of long-term unemployment. The policy implications thus center on the prevention of long-term unemployment and the activation of the (long-term) unemployed. If long-term unemployment leads to discouragement and habituation, loss of skills and worker attitudes, it is important to act preventively by creating e.g. temporary work experience and recruitment subsidies programmes to prevent the disenfranchising processes. The long-term unemployed on the other hand, can be reactivated by training programmes that upgrade lost or outdated skills, and reestablish worker attitudes. Mandatory participation can be a solution for problems of habituation, while job-search programmes can be a remedy for discouragement (Cockx 1998).

These are the main ingredients of what has come to be known as active labour market policy (Calmfors 1994). These policies are strongly advocated by the OECD (1994), and are also recommended by the EU Luxembourg Summit of 1997.

3.2 Structural unemployment and skill mismatch

3.2.1 A shift in the demand for unskilled workers

In the persistence-framework elaborated in the previous sections, a rise in actual unemployment can have long-lasting consequences, but the underlying equilibrium unemployment rate is not necessarily affected. In the

end unemployment will tend to its long-run equilibrium. Active labour market policies will be necessary to enfranchise disenfranchised workers, but once this has been achieved, these policies are no longer needed.

A rival view states that during the course of past decades, not only actual, but also equilibrium unemployment rates have increased. This line of reasoning builds on the observation that over time, there has been a dramatic deterioration in the position of the low-skilled members of the labour force. In Europe, the shift in demand against the low skilled reveals itself in growing unemployment differentials between higher and lower-skilled workers. In the US labour market on the other hand, where wage rigidity is lower, the demand shift manifests itself through a substantial decline in the relative wages of the lower skilled, generating an increase in wage inequality.

Over time the qualification level of the population increases (Tessaring 1998). The shift in demand against the low-skilled, however, is not counterbalanced by this analogous shift in the skill composition of labour supply. Given the downward rigid wages, the low-skilled get struck in unemployment, and become long-term unemployed. Long-term unemployment persists because those unemployed do not possess the skills demanded by the labour market, and not, or not necessarily, because they become disenfranchised. In other words, this view does not demand negative duration dependence in the exit rates from unemployment, and can be compatible with pure heterogeneity (compare Section 3.1.2.2).

The demand shift against the low-skilled, together with the relative wage rigidity, is seen by several authors as an explanation for the persistence of high unemployment in Europe (Krugman 1994; Drèze and Sneessens 1997). It is in this context that the notion 'skill mismatch' is introduced. Loosely speaking, skill mismatch is a mismatch between the skill composition of labour demand and supply. However, before elaborating this concept, we will give some figures on the claimed demand shift against the low-skilled, and subsequently, a brief overview of possible causes.

For the time being, educational attainment is taken as a proxy for skill level (see Section 3.2.4). But even then, it is difficult to obtain figures that are really comparable over longer time periods (due to changing definitions of unemployment, changing categories of educational attainment, etc.).

Table 4 records the evolution of unemployment rates for low and high education groups for several countries. The table is taken from Nickell and Bell 1996, p. 303. It gives unemployment rates for low and high education groups over time, and only for males (the relationship between unemployment and skill level tends to be stronger for males, OECD 1994). It indicates that there has indeed been a deterioration for the low education groups over time, although a reverse process has taken place in some countries more recently. The North American countries and the UK are said to have a less rigid wage formation, which is thought to account for their particular evolution (Blau and Kahn 1996). Table 5 gives some indications about the evolution of relative wages, and it suggests that earnings inequality in the US has increased, while the same seems to be the case in the UK more recently.

Some more recent figures can be found in Tables 6 to 8 which confirm that the unemployment risk is unevenly distributed among the working population: typically unemployment rates decline with educational attainment, Italy, Portugal and Spain being remarkable exceptions.

3.2.2 Structural changes

There has undeniably been a shift in demand against the low-skilled, particularly during the 1980s. How can this be explained? The three following explanations are put forward (Drèze and Sneessens 1997):

- a) skill-biased technological change: the introduction of new technologies leads to an increase in demand for more highly-skilled labour, at the expense of the low-skilled. The underlying mechanisms are related to the fact that more highly-skilled labour can adapt more easily to new technologies, many types of new technology are related

Table 4: Unemployment rates by level of educational attainment (males only)

Country		1971-82	1983-90	1991-93
Germany	Total (UR)	3.1	5.6	4.1
	High education (UR _h)	1.7	3.1	2.2
	Low education (UR _l)	6.4	13.0	10.7
	Ratio (UR _l / UR _h)	3.8	4.2	4.9
	Difference (UR _l -UR _h)	4.7	9.9	8.5
Italy	Total (UR)	7.7	11.2	11.2
	High education (UR _h)	12.2	13.1	12.5
	Low education (UR _l)	4.6	7.3	7.5
	Ratio (UR _l / UR _h)	0.38	0.55	0.6
	Difference (UR _l -UR _h)	-4.7	-5.8	-5.0
Netherlands	Total (UR)	6.3	10.0	6.8
	High education (UR _h)	3.2	5.7	5.0
	Low education (UR _l)	7.0	14.0	9.9
	Ratio (UR _l / UR _h)	2.2	2.5	2.0
	Difference (UR _l -UR _h)	3.8	8.3	4.9
Spain	Total (UR)	8.9	16.9	15.1
	High education (UR _h)	6.2	9.9	9.0
	Low education (UR _l)	10.6	19.6	20.0
	Ratio (UR _l / UR _h)	1.7	2.0	2.2
	Difference (UR _l -UR _h)	4.4	9.7	11.0
Sweden	Total (UR)	2.4	2.5	5.8
	High education (UR _h)	1.0	1.1	2.8
	Low education (UR _l)	2.9	3.3	6.9
	Ratio (UR _l / UR _h)	2.9	3.0	2.5
	Difference (UR _l -UR _h)	1.9	2.2	4.1
UK	Total (UR)	5.0	9.0	10.8
	High education (UR _h)	2.4	4.4	6.2
	Low education (UR _l)	7.5	15.9	17.1
	Ratio (UR _l / UR _h)	3.1	3.6	2.6
	Difference (UR _l -UR _h)	5.1	11.5	10.9
Canada	Total (UR)	6.8	9.1	11.5
	High education (UR _h)	2.5	3.9	5.1
	Low education (UR _l)	8.3	11.9	16.1
	Ratio (UR _l / UR _h)	3.3	3.1	3.2
	Difference (UR _l -UR _h)	5.8	8.0	11.0
US	Total (UR)	4.9	6.2	6.0
	High education (UR _h)	2.0	2.4	3.0
	Low education (UR _l)	7.8	11.3	11.0
	Ratio (UR _l / UR _h)	3.9	4.7	3.7
	Difference (UR _l -UR _h)	5.8	8.9	8.0

Source: Nickell and Bell, 1996; See Nickell and Bell, 1995 for sources and construction.

Table 5: Ratio of earnings by educational qualification: level E/level A (levels D and E/level A for Germany)

	Early 1970s	Late 1970s	Early 1980s	Middle/late 1980s	Early 1990s
France, men	3.85	4.23		3.81	
France, women	3.11	3.20		3.11	
Germany, men			2.00	1.94	
Netherlands, men			1.96	1.86	
Netherlands, women			2.20	1.87	
UK, men	1.83	1.69		1.87	2.04
US, men	1.92	1.94		2.33	2.47
US, women	1.85	1.78		2.15	2.32

Source: OECD job study, 1994. Level A corresponds to primary education or no qualifications, level E corresponds to university education or equivalent.

to machines taking over the repetitive tasks traditionally performed by low-skilled labour and the observation that computer technology leads to a greater increase in productivity among more highly-skilled workers than low-skilled workers;

- b) 'deindustrialisation': the structural shift from employment in industrial sectors to the services sectors. Many jobs have been lost in industry. Moreover, this loss of employment relates largely to low-skilled jobs, as is clear from the fact that in the 1980s, employment among white-collar, highly-skilled employees in industry in countries such as Germany, France and Italy actually increased (OECD 1996). The ad hoc labour market survey of the EC, conducted in 1994, shows that 70% of all jobs in industry and retail are skilled jobs (Tessaring 1998);
- c) increased competition from low-wage countries which have abundant low-skilled, low-paid labour. This can be interpreted as an increased implicit supply of less educated workers.

A quantitative assessment of these three effects and of their relative importance is difficult. There still remains a vigorous debate as to the question whether these effects actually do exist. This can hardly be surprising, given that, referring once again to the quotation of Blanchard and Summers in Section 3.1.1, the 'hysteresis'-assumption in the first place was

put forward because there were few identifiable shocks which could explain the unemployment history in the 1980s.

As to the last effect, trade with low-wage countries has indeed risen over time: the proportion of imports into EU countries from non-OECD countries amounted to 5% in 1970 and had risen to 12% by 1990 (OECD 1996). From a traditional Heckscher-Ohlin model of trade, one can deduce that, given certain conditions, this kind of trade will eventually lead to an equalisation of factor prices (wages) between the trading countries. None the less, most studies on this matter observe that this increase only had a relatively small effect on the division of wages and employment (OECD 1996). The main argument is that, although trade with low-wage countries has increased, overall this trade is relatively small within European GNP. Moreover, this type of trade relates chiefly to manufactured goods and therefore primarily exerts an influence on the secondary sector, a sector that is increasingly losing importance.

'Deindustrialisation' on the other hand, can hardly be denied. However, the destruction of jobs in the secondary sector in many countries went together with a dramatic increase in service sector employment. Moreover, in addition to the many highly-skilled jobs, many low-skilled white-collar jobs have been created in the services sectors of the aforementioned countries.

Table 6: Unemployment rates by level of educational attainment (male and female)

		1989	1992	1995	
Germany	Pre-primary, primary	x	x	13.3	
	Lower secondary	13.8	8.9		
	Upper secondary	6.8	6.4		7.9
	Higher non-university	3.7	4.5		5.2
	University	4.5	3.7		4.7
	Total	7.3	6.2		8.1
Italy	Pre-primary, primary	5.9	6.5	9.1	
	Lower secondary	6.8	7.8		
	Upper secondary	7.7	8.2		7.9
	Higher non-university	x	x		x
	University	4.8	6.0		7.3
	Total	6.6	7.4		8.5
Netherlands	Pre-primary, primary	13.6	11.1	07.9	
	Lower secondary	7.6	6.5		
	Upper secondary	4.8	4.7		4.8
	Higher non-university	4.6	x		x
	University	5.0	3.9		4.1
	Total	6.5	5.6		5.6
Spain	Pre-primary, primary	12.7	15.3	20.6	
	Lower secondary	15.6	17.6		
	Upper secondary	13.1	14.1		18.5
	Higher non-university	x	12.5		16.6
	University	10.7	9.9		13.8
	Total	12.9	14.7		19.0
Sweden	Pre-primary, primary	x	x	10.1	
	Lower secondary	1.4	4.6		
	Upper secondary	0.9	4.3		8.7
	Higher non-university	0.9	2.3		4.8
	University	1.0	2.0		4.2
	Total	1.0	3.8		7.8
UK	Pre-primary, primary	x	x	12.2	
	Lower secondary	10.0	12.3		
	Upper secondary	5.6	8.3		7.4
	Higher non-university	2.7	3.3		4.1
	University	2.4	3.6		3.5
	Total	6.4	8.4		7.4
Canada	Pre-primary, primary	10.3	15.5	13.0	
	Lower secondary	9.8	15.0		
	Upper secondary	6.8	9.7		8.6
	Higher non-university	5.0	9.0		7.5
	University	3.6	5.2		4.6
	Total	6.7	10.0		8.3
US	Pre-primary, primary	8.5	13.2	10.0	
	Lower secondary	9.1	13.7		
	Upper secondary	4.6	7.2		5.0
	Higher non-university	3.3	4.6		3.6
	University	2.2	2.9		2.5
	Total	4.4	6.6		4.7

Table 6 (Continued)

		1989	1992	1995
Belgium	Pre-primary, primary	14.0	19.9	13.4
	Lower secondary	9.2	7.9	
	Upper secondary	4.7	4.7	7.5
	Higher non-university	2.7	2.3	3.5
	University	2.0	2.2	3.6
	Total	7.5	7.8	8.5
France	Pre-primary, primary	11.8	10.8	14.0
	Lower secondary	10.5	13.2	
	Upper secondary	6.6	7.4	8.9
	Higher non-university	3.4	4.6	5.9
	University	3.0	4.4	7.0
	Total	8.1	8.8	9.7
Ireland	Pre-primary, primary	25.8	22.5	16.4
	Lower secondary	15.1	17.3	
	Upper secondary	6.6	9.3	7.6
	Higher non-university	3.9	5.8	5.0
	University	2.6	3.3	3.4
	Total	13.9	13.6	10.7
Portugal	Pre-primary, primary	6.0	5.4	6.2
	Lower secondary	5.8	5.1	
	Upper secondary	6.4	4.5	6.4
	Higher non-university	6.0	1.9	3.1
	University	6.1	1.8	3.3
	Total	6.0	4.9	5.8
Denmark	Pre-primary, primary	x	x	14.6
	Lower secondary	12.1	15.6	
	Upper secondary	7.1	9.1	8.3
	Higher non-university	4.0	5.8	5.3
	University	3.4	4.8	4.3
	Total	8.3	10.6	10.0
Finland	Pre-primary, primary	x	x	21.6
	Lower secondary	4.1	14.9	
	Upper secondary	3.1	12.1	16.1
	Higher non-university	1.6	5.7	9.7
	University	1.7	3.4	6.2
	Total	3.0	11.4	15.8
Austria	Pre-primary, primary	x	x	5.7
	Lower secondary	3.6	5.6	
	Upper secondary	2.4	3.2	2.9
	Higher non-university	x	x	1.4
	University	1.1	1.3	2.1
	Total	2.7	3.6	3.5

Source: OECD, Education at a glance, several issues; Figures for persons aged 25-64.

Legend: x=no data available

Table 7: Unemployment rates by educational attainment (persons aged 25 to 59)

		1995	1996	1997
B	Third level education (UR _h)	3.4	3.7	3.3
	Upper secondary (UR _m)	7.7	7.6	7.0
	Less than upper secondary (UR _i)	12.4	13.6	12.8
	Total (UR)	8.1	8.4	7.7
	Ratio1 (UR _i / UR _h)	3.6	3.7	3.9
	Ratio2 (UR _i / UR _m)	1.2	1.8	1.8
DK	Third level education (UR _h)	4.9	3.8	3.4
	Upper secondary (UR _m)	6.0	6.0	4.6
	Less than upper secondary (UR _i)	10.4	10.4	8.1
	Total (UR)	6.4	6.1	4.9
	Ratio1 (UR _i / UR _h)	2.2	2.7	2.4
	Ratio2 (UR _i / UR _m)	1.7	1.7	1.8
D	Third level education (UR _h)	4.9	5.3	x
	Upper secondary (UR _m)	8.1	8.8	x
	Less than upper secondary (UR _i)	14.2	14.5	x
	Total (UR)	8.2	8.8	x
	Ratio1 (UR _i / UR _h)	2.9	2.7	x
	Ratio2 (UR _i / UR _m)	1.7	1.6	x
GR	Third level education (UR _h)	5.7	5.6	5.6
	Upper secondary (UR _m)	8.6	9.1	9.0
	Less than upper secondary (UR _i)	6.4	6.7	6.7
	Total (UR)	7.0	7.3	7.3
	Ratio1 (UR _i / UR _h)	1.1	1.2	1.2
	Ratio2 (UR _i / UR _m)	0.74	0.74	0.74
E	Third level education (UR _h)	14.7	14.3	13.6
	Upper secondary (UR _m)	19.3	17.9	17.5
	Less than upper secondary (UR _i)	21.1	21.2	19.9
	Total (UR)	19.4	19.0	17.9
	Ratio1 (UR _i / UR _h)	1.4	1.5	1.5
	Ratio2 (UR _i / UR _m)	1.0	1.2	1.1
F	Third level education (UR _h)	6.5	6.5	6.7
	Upper secondary (UR _m)	9.1	9.9	9.8
	Less than upper secondary (UR _i)	14.1	14.8	15.3
	Total (UR)	10.2	10.9	11.0
	Ratio1 (UR _i / UR _h)	2.2	2.3	2.3
	Ratio2 (UR _i / UR _m)	1.6	1.5	1.5
IRL	Third level education (UR _h)	4.2	4.2	3.4
	Upper secondary (UR _m)	7.5	7.3	6.5
	Less than upper secondary (UR _i)	16.9	17.3	14.9
	Total (UR)	10.8	10.7	9.2
	Ratio1 (UR _i / UR _h)	4.0	4.1	4.4
	Ratio2 (UR _i / UR _m)	2.2	2.4	2.3
I	Third level education (UR _h)	7.1	6.4	7.0
	Upper secondary (UR _m)	7.6	8.0	8.1
	Less than upper secondary (UR _i)	9.6	10.1	10.6
	Total (UR)	8.6	9.0	9.2
	Ratio1 (UR _i / UR _h)	1.3	1.6	1.5
	Ratio2 (UR _i / UR _m)	1.3	1.3	1.3

Table 7: (continued)

		1995	1996	1997
NL	Third level education (UR _h)	4.7	4.0	3.3
	Upper secondary (UR _m)	5.8	4.8	4.0
	Less than upper secondary (UR _i)	10.7	8.1	7.2
	Total (UR)	6.2	5.5	4.7
	Ratio1 (UR _i / UR _h)	2.3	2.0	2.2
	Ratio2 (UR _i / UR _m)	1.8	1.7	1.8
A	Third level education (UR _h)	2.4	2.6	2.7
	Upper secondary (UR _m)	3.7	4.7	4.2
	Less than upper secondary (UR _i)	6.0	7.4	7.5
	Total (UR)	4.1	5.1	4.8
	Ratio1 (UR _i / UR _h)	2.5	2.8	2.8
	Ratio2 (UR _i / UR _m)	1.6	1.6	1.8
P	Third level education (UR _h)	3.2	3.3	2.3
	Upper secondary (UR _m)	6.7	6.1	6.5
	Less than upper secondary (UR _i)	6.4	6.8	6.2
	Total (UR)	6.0	6.2	5.7
	Ratio1 (UR _i / UR _h)	2.0	2.0	2.7
	Ratio2 (UR _i / UR _m)	0.95	1.1	0.95
FIN	Third level education (UR _h)	8.9	6.7	5.7
	Upper secondary (UR _m)	15.5	12.7	13.4
	Less than upper secondary (UR _i)	18.8	17.0	16.8
	Total (UR)	14.2	12.4	12.4
	Ratio1 (UR _i / UR _h)	2.1	2.5	2.9
	Ratio2 (UR _i / UR _m)	1.2	1.3	1.2
S	Third level education (UR _h)	3.5	4.3	4.1
	Upper secondary (UR _m)	7.7	9.5	10.1
	Less than upper secondary (UR _i)	8.9	10.0	11.9
	Total (UR)	6.7	8.2	8.9
	Ratio1 (UR _i / UR _h)	2.5	2.3	2.9
	Ratio2 (UR _i / UR _m)	1.2	1.0	1.2
UK	Third level education (UR _h)	3.8	3.6	3.0
	Upper secondary (UR _m)	7.2	6.6	5.8
	Less than upper secondary (UR _i)	9.8	9.4	7.90
	Total (UR)	7.5	7.0	5.9
	Ratio1 (UR _i / UR _h)	2.6	2.6	2.6
	Ratio2 (UR _i / UR _m)	1.4	1.4	1.4

Source: Eurostat, labour force survey.

Legend: x=no data available

Table 8: Unemployment rates by educational attainment (males aged 25 to 59)

		1995	1996	1997	1995-97
D	Third level education (UR_h)	4.2	4.7	x	
	Upper secondary (UR_m)	6.5	7.9	x	
	Less than upper secondary (UR_i)	14.3	15.5	x	
	Total (UR)	6.9	8.0	x	
	Ratio1 (UR_i / UR_h)	3.4	3.3	x	
	Ratio2 (UR_i / UR_m)	2.2	2.0	x	
I	Third level education (UR_h)	4.5	4.6	5.2	4.8
	Upper secondary (UR_m)	5.3	5.8	6.1	5.7
	Less than upper secondary (UR_i)	7.5	7.9	8.4	7.9
	Total (UR)	6.5	6.9	7.3	6.9
	Ratio1 (UR_i / UR_h)	1.7	1.7	1.6	1.7
	Ratio2 (UR_i / UR_m)	1.4	1.4	1.4	1.4
NL	Third level education (UR_h)	4.3	03.5	2.8	3.5
	Upper secondary (UR_m)	4.7	3.4	2.9	3.7
	Less than upper secondary (UR_i)	9.5	6.3	5.2	7.0
	Total (UR)	5.3	4.3	3.5	4.4
	Ratio1 (UR_i / UR_h)	2.2	1.8	1.9	2.0
	Ratio2 (UR_i / UR_m)	2.0	1.8	1.8	1.9
E	Third level education (UR_h)	10.7	10.3	9.8	10.3
	Upper secondary (UR_m)	13.4	12.1	11.6	12.4
	Less than upper secondary (UR_i)	16.8	17.1	15.7	16.5
	Total (UR)	15.1	14.9	13.8	14.6
	Ratio1 (UR_i / UR_h)	1.6	1.7	1.6	1.6
	Ratio2 (UR_i / UR_m)	1.2	1.4	1.3	1.3
S	Third level education (UR_h)	3.6	5.1	5.1	4.6
	Upper secondary (UR_m)	8.7	10.4	10.4	9.8
	Less than upper secondary (UR_i)	9.6	10.7	11.9	10.7
	Total (UR)	7.6	9.1	9.6	8.8
	Ratio1 (UR_i / UR_h)	2.7	2.0	2.3	2.3
	Ratio2 (UR_i / UR_m)	1.1	1.0	1.1	1.1
UK	Third level education (UR_h)	4.2	4.2	3.3	3.9
	Upper secondary (UR_m)	7.9	7.2	6.2	7.1
	Less than upper secondary (UR_i)	12.3	11.9	9.7	11.3
	Total (UR)	8.7	8.2	6.7	7.9
	Ratio1 (UR_i / UR_h)	2.9	2.8	2.9	2.9
	Ratio2 (UR_i / UR_m)	1.5	1.6	1.5	1.5

Legend: x=no data available

This leaves the skill-biased technological change argument (or SBTC for short) as the main culprit, to some extent by default. A powerful counter argument against the role of SBTC is that, at least in the long run, there is no relationship between technological change (and SBTC for that matter) and unemployment: 'output per head has roughly tripled since the middle of the nineteenth cen-

tury, yet the average unemployment rate has remained virtually unchanged' (Bean and Pissarides 1991, p. 330).

However, this does not necessarily preclude that there can be a short run relationship. In fact, in recent years there has been a renewed research interest in the issue of SBTC. The general proliferation of computer technology

in the 1980s is regarded as an important explanation for the asymmetrical effects of technological change (Krueger 1993; Autor et al. 1998). Machin and Van Reenen (1998) find a strong relationship between technical change (measured both by R&D intensity and by computer usage) and the changing relative demand for skilled workers, not only for the US and Japan, but also for a number of European countries (Denmark, France, Germany, Sweden and the UK).

Berman et al. (1998) state that a comparable kind of SBTC occurred simultaneously in many countries (the research is limited to the manufacturing sector) in the 1980s and 1990s, and therefore can be regarded as pervasive. Draper and Manders (1997) conclude that in the Netherlands, over the period 1972-93, labour-saving technological change explains most of the displacement of low-skilled workers. Greenhalgh et al. (1997) conclude for the UK that, although trade and technological change both have a negative impact on the employment of the lower skilled, and changing domestic demand was more favourable for higher skilled workers, the technological change effects were by far the largest. This is confirmed by Machin (1996).

Summing up, one can conclude that most authors give the highest weight to the SBTC argument, while trade and deindustrialisation effects seem to have had a minor contribution. However, even the role of SBTC has not been unchallenged, and the empirical evidence remains fairly limited and circumstantial, as stressed by Drèze and Sneessens (1997). These authors, on the other hand, warn that some of the described mechanisms can become more important in the future. European trade with low wage countries having been relatively negligible to date, presumably will become more important. In particular, trade with eastern Europe is thought to be still far from having exerted its full effects.

3.2.3 Mismatch

When a jobseeker finds a job, a match has been realised between a worker and a vacancy. This matching process not only relates to what is conventionally described as the labour

market, but also occurs within firms, i.e. on internal labour markets (Schettkat 1992). A mismatch situation then refers to a situation where some matches for one reason or another are difficult to achieve, resulting in either vacancies that remain unfilled, or in high unemployment in certain regions or among certain groups, and possibly the simultaneous existence of both difficult to fill vacancies and high unemployment.

This description of mismatch is rather loose, reflecting to some extent the state of the art of mismatch research. Quoting the editor of an influential book on the proceedings of a conference on mismatch:

‘The major result of this volume, in my opinion, consists in highlighting the looseness of the “mismatch” concept [...] which explains why different mismatch definitions lead to such widely varying judgements on the same observable facts’ (Padoa-Schioppa 1991, p. 2).

One element on which there seems to be growing consensus, is the fact that the use of the concept ‘mismatch’ is to be limited to structural, long-term imbalances. This implies that frictional unemployment, induced by turnover and job search, and resulting in a permanent coexistence of a certain level of unemployment and unfilled vacancies, is ruled out as a form of mismatch, since it is essentially a short-term phenomenon.

Different forms of mismatch can be distinguished:

- ❑ skill mismatch, which implies that there is a mismatch with respect to skills, i.e. that the skill requirements of jobs differ from the skill composition of labour supply;
- ❑ regional or geographic mismatch, which implies that there will be simultaneously regions which witness high unemployment, and regions where the labour market is tight. This is essentially a problem of low geographic mobility (either of workers or of jobs);
- ❑ industrial or sectoral mismatch, which, *to a certain degree can be related to occupa-*

tional and/or geographical mismatches, and therefore will not be *completely* independent.

3.2.4 Definitions and measurement problems

The measurement of mismatch is concerned with measuring the level and trends in mismatch. Several rival measures have been proposed. These measures are generally applicable for all kinds of mismatches. However, in what follows, we will focus on skill mismatch.

A first series of empirical measures use data on unemployment and vacancies. If U_i is the number of unemployed in category i , and U is total unemployment (over all categories), then the proportion of unemployed in category i (e.g. skill category, region, sector, etc.) is U_i/U , or u_i , for short. Analogously, if V_i is the number of vacancies in category i , and V the total number of vacancies, the share of category i is equal to V_i/V , denoted v_i . A first measure is as follows (Jackman and Roper 1987; Franz 1991):

$$M1 = (1/2) \sum |u_i - v_i|$$

If $u_i = v_i$ for all categories, $M1$ will be 0, indicating that the coexistence of unemployed and vacant jobs is not associated with a dispersion between categories. If there are no categories where there is simultaneously unemployment and vacancies, $M1$ will be equal to 1 (note that $u_i = u = 1$, and analogously, $v_i = v = 1$). A similar measure is as follows (Jackman and Roper 1987; Bean and Pissarides 1991):

$$M2 = 1 - (\sum u_i v_i)^{1/2}$$

$M2$ will, like $M1$, move between 0 and 1, under the same conditions.

Though intuitively appealing, the practical application of these measures has been limited because few countries have suitable vacancy data. Vacancies are difficult to measure (Muysken 1994). In the first place, the notion has some ambiguous features. Muysken illustrates this with the following example, which is quite relevant for mismatch measures:

'let a vacancy turn out to be hard to fill and therefore be filled by somebody who is not really qualified. Then does the vacancy cease to exist?' (Muysken 1994, p. 1).

Secondly, as opposed to unemployment figures, generally there does not exist one specific channel through which all, or most, vacancies are posted. A lot of countries collect vacancy figures based on the registration of vacancies by the public employment services (PES). A problem with this source is that, apart from its rather administrative nature, employers often have little incentive to notify their vacancies, especially when unemployment is high. For Flanders (Belgium) for example, it is known that the number of vacancies registered at the PES is only a fraction of the total number of vacancies, despite a legal obligation for all enterprises (with 20 or more employees) to notify. In addition, the vacancies reported tend to be those which are hardest to fill.

A third problem with these administrative data, is the fact that they are sensitive to institutional changes and do not seem to be comparable over time, making it hard to detect trends. For Germany, an analysis based on the official unemployment and vacancy figures shows little if any shift in the U/V relationship since 1970. However, between 1970 and 1985 the share of vacancies mediated by the PES is thought to have fallen from 45% to under 25% (Abraham 1991). In the UK, an opposite trend has been witnessed; here the share of notified vacancies has increased over time (cited above).

Alternative sources of information about vacancies are the 'help-wanted' advertisement (e.g. in newspapers). Here is a danger of duplicate measurement, and it is also questionable whether advertisement behaviour has been constant over time, minimising the potential to detect real trends.

A last source of vacancy data, namely large vacancy surveys regularly conducted, happens to be the most reliable one. However, this approach is not very widespread because it is costly. In addition, countries that have conducted surveys have often only done so inci-

dentally, the Netherlands being an exception (Muysken 1994).

During the past few years in Belgium, an annual vacancy survey has been conducted (Simoens et al. 1997; Denolf and Denys 1996, 1998). These surveys suggest yet another potential problem for vacancy figures, which is more general, i.e. regardless of their source. It is shown that the required qualifications in vacancies are only one side of the picture: although for 1997, 42% of a representative sample of 1600 vacancies required only a lower secondary education degree, 67% of those low-skilled vacancies were eventually filled by candidates holding higher degrees. The same phenomenon of overeducation has been found for the other years.

Since disaggregated vacancy data are not available for many countries, or are not very reliable if they are, some mismatch measures have been proposed which only use information about unemployment. If N denotes the labour force (i.e. both workers and unemployed), and N_i is the corresponding number for category i , one can construct the following measure (Jackman, Layard and Savouri 1991):

$$M3 = (1/2) \text{ var } [(U_i/N_i)/(U/N)]$$

that is, measure 3 is based upon the dispersion (measured with the variance) of the relative unemployment rates for each category. Here one can discuss whether it is the dispersion of relative unemployment rates (as in $M3$) which is relevant or rather if the dispersion of absolute unemployment rates should be studied ($\text{var}(U_i/N_i)$). If aggregate unemployment U is not stable, e.g. is increasing, it is possible that the absolute and the relative measure will move in opposite directions.

As noted by Abraham (1991), if hiring behaviour differs between sectors (or between skill categories), a given categorical unemployment rate may imply quite different categorical vacancy rates. Then, an increase in the dispersion of categorical unemployment rates, holding mean unemployment constant, might either raise or lower the value of measures

such as $M1$ and $M2$, which do take vacancy rates into account. In other words, if hiring behaviour differs between categories, neither the dispersion of absolute, nor relative unemployment rates is necessarily a good mismatch proxy.

On the other hand, if hiring behaviour is identical everywhere, it can be shown that both $M1$ and $M2$ depend on the dispersion of relative unemployment rates, which provides an argument for preferring the relative above the absolute variant.

However, this debate is far from concluded. Some authors derive on the basis of their theoretical model that relative unemployment rates are preferable to construct a mismatch indicator (Layard et al. 1991), while others, using another theoretical model, derive that the differences between unemployment rates are preferable (e.g. Sneessens and Shadman-Metha 1995, Sneessens et al. 1997).

Thus, Sneessens et al. 1997 argue that the variance of relative unemployment rates as a measure can be defended, provided one is willing to assume that for all categories the wages are equally sensitive to their own unemployment rates. This, according to these authors, need not be a very realistic assumption 'when the focus is on the effect of downward wage rigidities at the low end of the wage spectrum (least-skilled workers)' (see p. 8). In the event that for some category the wage is less sensitive to its own unemployment rate, (typically when categories relate to skills, less or not at all if categories relate to regions or sectors), the contribution of structural disturbances to the change in the equilibrium unemployment rate should be measured by the change in the discrepancy between the unemployment rates of each category, rather than by the variance of relative unemployment rates.

Another forceful critique of the variance of relative unemployment rates as a measure for mismatch has been made by Entorf (Entorf 1998). He derives that if unemployment figures reveal additive upward shifts, this measure will be biased towards zero. Both with deterministic and stochastic shifts, these

'measures of mismatch are likely to decline without any changes in the *relative* structure of sectors, skills or other grouping criteria' (Entorf 1998, p. 43). In addition, it is shown that there is empirical evidence for sustaining the claim that actual unemployment figures in fact behave like a non-stationary time series. Therefore, the mismatch trends based on this indicator might be a simple statistical artifact.

A feature by which all the measures are plagued, is the fact that the obtained results often crucially depend on the classification used, that is, whether the categories used are more or less disaggregated. If the unemployment categories are too fine, implying that workers who compete for the same kind of jobs are assigned to different categories, the mismatch may be exaggerated. If the categories are too coarse, probably the more realistic case, mismatch may be understated. Moreover, one can argue that, as regards skills, the degree of heterogeneity within classifications has risen over time, which, again, jeopardises the potential for studying trends. 'For example, factory operatives might once have been largely interchangeable, but today there may be an important distinction between factory operatives who have education or training that prepares them to work with computerised technologies and those who do not' (Abraham 1991, p. 466). Another disturbing feature, at least for occupational classifications, is that an occupation can easily change as is illustrated by the fact that a lot of job changers do report changes in occupation.

This may explain why skill measures in empirical applications often rely on educational categories, rather than on occupational or professional classifications. However, education as proxy for skills is not without its problems either. Skills can, broadly speaking, be acquired in three different ways: by formal education, by training and by experience (on-the-job training, work experience). When educational attainment is taken as proxy for the skill level, obviously two potentially important skill determinants are neglected.

As for the training component, which we define broadly to include all kinds of permanent

and recurring adult education, it is well known that participation is not evenly distributed among the population. Typically, the higher educated tend to participate more in adult education and training (OECD 1997). Though the correlation between the acquired formal educational attainment and the probability of participating in adult education will be far from perfect, its existence suggests that neglect of the training aspect in an operationalisation of skills by educational attainment, is not necessarily a hindrance.

A similar relationship between the level of educational attainment and the probability of gaining work experience is less obvious (apart from the higher unemployment rates for the low skilled). However, one can argue that the 'low skill, bad job trap' (Snower 1996), where bad jobs are the ones associated with low wages, deficient training and low productivity, also relates to a rather limited potential to gain work experience valued by the labour market.

Educational attainment indices also have a few drawbacks. Educational categories used in different countries are notoriously difficult to compare, which hampers international comparisons. However, for the present purposes, it is primarily comparisons within countries which have to be made. Therefore the requirement is that the educational classification remains reasonably stable over time within a country, which in general seems to be a realistic assumption.

Another drawback relates to the fact that educational attainment is not necessarily a good indicator of the quality of education (OECD 1994). Thus, in the US, where educational attainment at the level of secondary education is measured by time spent in formal education, wide variation can obviously be observed in pupil performance levels for a given level of educational attainment. This seems to be less of a problem for most European countries, which normally have a form of performance testing, at least at the end of secondary education.

Still, the more general critique regarding the effects of the level of aggregation in any clas-

sification on the 'observed' mismatch results, remains in full force for a classification based on educational attainment. For example, a tertiary level of educational attainment often comprises both academic and vocational degrees, and one can argue that it would be preferable to distinguish between those two fields.

Based on the preceding discussion, one can conclude that, while educational attainments cannot simply be equated to skill levels, they are the best proxy available for skills. However, a recent contribution of Manacorda and Manning (1997) puts this conclusion in an entirely different perspective.

They state that, when assessing whether there has been a shift in relative demand against the lower-skilled, it is of course necessary to take into account the changes in relative supply. That is, a shift in relative demand that is entirely offset by a comparable change in the skill composition of the labour force need not be problematic. This last situation can be called a neutral change, as opposed to an asymmetric, non-neutral or skill-biased change. Jackman et al. (1996, as quoted by Manacorda and Manning 1997) call a change neutral if the relative demand and supply changes mean that the unemployment rates for different skill groups are constant through time and the relative wages of different skill groups are constant as well.

Manacorda and Manning (1997) remark that, if the relative supply of better educated groups (education being taken as a measure of skills) increases over time, and if the unemployment rates of higher educated workers are lower, which seem to be two reasonable assumptions for most countries, this kind of 'neutral change' inevitably must lead to lower aggregate unemployment. They argue that the foregoing definition of neutral change therefore is not very sensible, and propose a rival definition, which leads to yet another measure of skill mismatch.

They 'define changes in demands and supplies for different skills (with other relevant factors constant) as neutral if the unemployment rate of the person at a given position in the

skills distribution is constant and their wage relative to the average is also constant' (see p. 3-4). Now, someone's position in skill distribution is determined by his or her educational attainment, but, as the supply of educated labour grows over time, the position of a person with a given educational attainment will be falling over time: assume that educational level X corresponds to the median position at a certain point in time, half of the labour force having a higher and half having a lower level.

As the labour force becomes more educated, 10 years later, level X will have moved to the left, say to the 40th percentile, with 60% of the labour force having a higher educational level. In this framework, a neutral change implies that unemployment rates are constant for a given position in the skill distribution, but the consequence is that unemployment rates for a given educational level will be increasing over time, at least if the labour force is becoming more educated. Another consequence is that the aggregate unemployment rate will remain constant. This is, according to the authors, a more sensible assumption, because over the past century there have been dramatic increases in educational attainments without a noticeable trend in the unemployment rate.

While conceptually appealing, this definition of neutral change is much harder to operationalise empirically than the conventional definition. Whereas someone's level of education is directly observable, his/her position in the skill distribution is not directly observable, because the classification of educational levels typically consists of discrete categories. The authors assume that the level of human capital also varies within educational categories. Therefore, they have to impose some structure on the distribution of human capital within a given level of education.

A skill mismatch measure based on this framework will, in a comparison over time, compare changes in the position of skill groups, and therefore possibly lead to results which differ a lot from a more classical measure which compares changes in the position of educational groups. In Section 4.5 some

empirical results regarding the level and trends in skill mismatch are surveyed.

A last criticism which can be made of all the preceding measures of mismatch, is the fact that they conceive, or at least measure, mismatch as a one-dimensional phenomenon. Entorf (1998, p. 27) shows that, in a simple world with two regions and two skill categories and thus four possible combinations, one can easily construct examples in which a situation of perfect mismatch (all the unemployed in the first region being concentrated in the first skill category, and all vacancies in this region being in the second skill category, and the other way round for the other region) completely fades whenever one measures the mismatch along one dimension, either region or skill.

The necessity to measure mismatch as a multidimensional phenomenon is empirically confirmed by Sneessens et al. 1997, who obtain different results for the measured level of skill mismatch, depending on whether regional mismatch has been controlled or not.

Moreover, 'even with very detailed levels of disaggregation, mismatch measurement remains subject to potential misinterpretations. Structural problems might occur due to missing mobility also within well defined sectors. Recent evidence reveals that workers tend to move within sectors, rather than across sectors [...]. Thus, the very important aspect of match and mismatch within sectors is not captured by the data, and the idea that mismatch could be reduced by moving labour across sectoral borders may be misleading.' (Entorf 1998, p. 28).

3.2.5 Relation with observed facts and policy conclusions

An increase in the level of mismatch (and skill mismatch) on the labour market will, other things being equal, lead to an outward shift of the Beveridge curve, such as the shift described in Section 2.3. Increased mismatch can thus be a sufficient condition for this shift, but is not a necessary condition: the observed shift as such does not prove that mismatch problems actually have increased.

For example, the framework developed in Section 3.1 offers a rival explanation. The hypothesis that (skill) mismatch increased, on the other hand, offers a more straightforward explanation for the apparent deterioration of the position of the lower skilled than the theory of disenfranchised unemployed. To some extent, the opposite holds for an explanation of the increased share and persistence of long-term unemployment. While this observation is perfectly compatible with increased mismatch, the disenfranchised-workers-approach is perhaps a more straightforward explanation. However, as in reality the lower skilled are typically over-represented in long-term unemployment, these two phenomena are difficult to distinguish.

As regards policy, a situation of increased skill mismatch probably will not be permanently alleviated, let alone solved, by the classical ingredients of an active labour market policy. Temporary work experience and recruitment subsidies programmes will be of little help. 'As soon as the subsidy is cancelled, the low-skilled worker will lose his job and unemployment will persist' (Sneessens 1995b, p. 19). Mandatory participation will be counterproductive, while job-search programmes will be discouraging for the lower skilled.

Several authors emphasise that only measures that aim at changing the relative cost of low-skilled workers (permanent subsidy, labour tax cut, lower social insurance contributions on the minimum and low wages, etc.) will prove effective to eliminate the skill mismatch problem (Drèze and Malinvaud 1994; Sneessens 1995b; Drèze and Sneessens 1997). This position can be defended, but it may be too pessimistic. As skill mismatch is primarily a problem of low skills which are no longer in demand (admittedly, no longer in demand at the going wage rate), obviously there has to be some scope to remedy the skills problem through training and education.

On the other hand, it is doubtful whether traditional programmes of labour market training, which either aim at upgrading lost or outdated skills and reestablishing worker attitudes, or have a rather narrow and specialised content and therefore are targeted on

workers who already possess a lot of qualifications, will prove sufficient. What these training programmes have in common, is their average short duration. The upgrading of the skill level of the lower-skilled, on the other hand, can only be brought about by programmes that are sufficiently long.

3.3 Job competition

The skill mismatch-hypothesis and the theory of unemployment persistence due to the disenfranchising effects of long-term unemployment can both explain the stylised facts outlined in Section 2.3. Which theory is more in line with reality, is largely an empirical matter. An empirical judgement however, will not prove easy, among other things because, even on a theoretical level, there is not really a consensus as to how mismatch should be defined, let alone measured. Yet, as already mentioned earlier, an examination of the behaviour of the exit rates from unemployment could possibly give an indication of which theory is dominant for a given country. That is to say, if for a particular country one observes that negative duration dependence is absent or negligible, this will be a strong indication for downplaying the role of the disenfranchised workers hypothesis. If, on the other hand, one observes negative duration dependence, both hypotheses become possible (or a mixture of them). The criterion of the duration dependence thus is at best a half-hearted judgement.

And even a situation of pure heterogeneity (where duration dependence is absent) will not prove that mismatch is to be the preferred explanation. As pointed out by Cockx (1998), a job competition hypothesis could equally well be responsible for high heterogeneity in exit rates. Job competition (ladder-effect, displacement-effect, bumping) occurs in a context of high unemployment. The higher skilled can always fill the vacancies which initially were intended for lower skilled. Therefore, a cyclical downturn with an increase in unemployment will hit the lower skilled much harder than the higher skilled, because the latter can always descend the skills-ladder, while the former soon reach the bottom. How-

ever, with an upswing of economic activity and a tightening of the labour market, the position of the lower skilled should improve again, at least, if job competition is the only mechanism in operation.

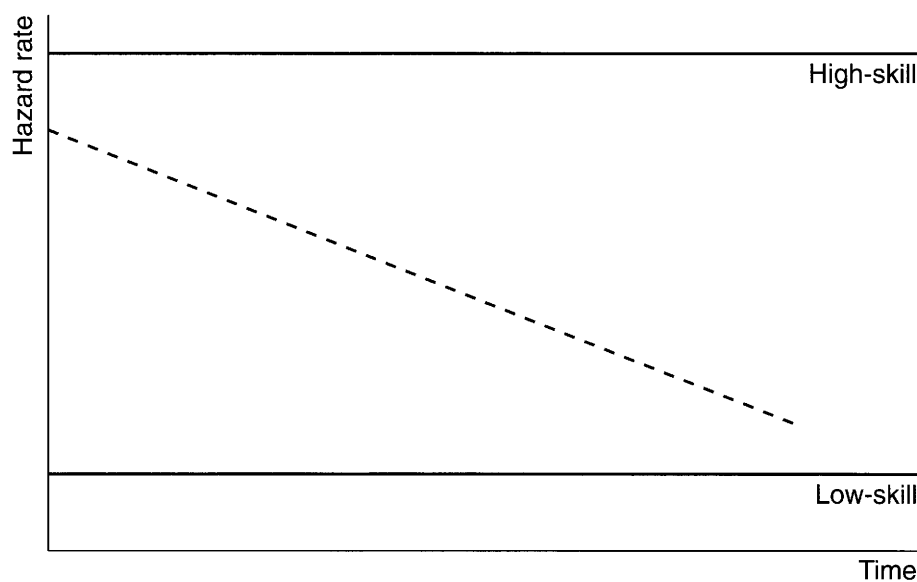
Job competition, in other words, can not explain unemployment persistence and therefore is, at best, a secondary explanation. This does not mean that job competition has to be excluded from the recent unemployment history of some countries. It is quite possible that it has substantially aggravated the position of the lower skilled, on top of the already devastating (joint) effect of skill mismatch and/or persistent long-term unemployment. It cannot be attributed a role of protagonist, either in explaining unemployment growth or in explaining unemployment persistence.

4. Corroborating evidence

4.1 State dependence versus heterogeneity

4.1.1 Introduction

In an empirical attempt to model the effect of unemployment duration on the exit probability, the basic variable is unemployment duration. Duration data are typically analysed with a specially adapted statistical tool, so-called hazard models ('event history models', 'duration models', 'survival analysis'). In conventional statistical approaches, such as OLS regression, the omission of a relevant independent variable will bias the estimators of coefficients that are included only if the omitted variable correlates with the included variable (a typical example being the regression of income on years of schooling, omitting a measure of ability). In hazard models, this bias will be present even if omitted variables are not correlated with included variables. More disturbing yet, the omission of relevant variables will lead to the impression that the hazard rate out of unemployment is characterised by negative duration dependence, even if the hazard rate is constant. This is due to a sorting out process. The intuition behind this result can be shown with the following simple example. Suppose that there are two groups of people in unemployment, say the

Figure 4: Spurious duration dependence

low-skilled and the high-skilled. Suppose further that the high-skilled at each point in time have a high and constant probability of leaving unemployment, while the low-skilled also have a constant hazard rate, which however, as opposed to the high-skilled, is low. Figure 4 gives the hazard lines for both groups.

Now, if a student of this group of unemployed for one reason or another is not able to identify who belongs to the high-skill group and who belongs to the low-skill group, he will observe the dotted line, which suggests that hazard rates are decreasing. This can be explained as follows: at the beginning (inflow into unemployment), the population consists of both high-skilled and low-skilled unemployed. However, since the high-skilled have a high propensity to leave, as time goes by, i.e. if we move to the right, the share of high-skilled still left in unemployment will steadily decline. The share of low-skilled unemployed therefore will increase. The share of persons with high exit rates will decrease, and in the end only persons with low exit rates will be left. Without information with respect to skill, one will therefore, wrongfully, be inclined to infer that hazard rates are declining, i.e. that there is nega-

tive duration dependence. This is called spurious duration dependence, due to unobserved heterogeneity.

The crux of this argument is that in hazard models it is extremely important to model heterogeneity. Characteristics such as age, gender, educational attainment, work experience, ethnicity, etc., which have an important impact on the probability of leaving unemployment, will often be available and therefore can be included. However, other characteristics such as motivation, temperament, appearance, clothing, demeanour, or even certain aspects of acquired skills (command of language, literacy skills) will, more often than not, not be available for research and yet could exert a great influence on the exit rate from unemployment.

One has to admit that in more recent applications, attempts have been made to model unobserved heterogeneity (going from rather mechanical 'ad hoc' procedures to more advanced approaches which impose less 'difficult to justify' structure on data (Chamberlain 1985; Lancaster 1990)). Therefore, one should primarily be sceptical about first gen-

eration studies that demonstrate negative duration dependence.

4.1.2 Survey of some empirical results

The economic analysis of unemployment duration is based on job search theory (Devine and Kiefer 1991, 1993). A basic job search model predicts that hazard rates out of unemployment will be constant. After all, if an unemployed person finds out that obtaining a job is more difficult than expected, and the duration of the unemployment spell therefore longer than expected, he/she can always reduce his/her demands (be it by lowering the reservation wage, or by accepting job offers which he/she up to then did not consider). On the other hand, it can be argued that the prevailing systems of unemployment compensation interfere with this simple reasoning.

It is often asserted that unemployment benefit levels, replacement rates, the duration of entitlement to unemployment benefits and other aspects of unemployment compensation policies have an important impact on the probability of exit from unemployment. However, in a comprehensive survey of literature, Atkinson and Micklewright conclude that 'on the empirical side, we have found that, despite the large literature, there is relatively little evidence concerning several potentially important effects of unemployment compensation on labor market transitions' (Atkinson and Micklewright 1991, p. 1721).

More recent research confirms this conclusion to some extent. Several authors find no effects (Groot and Jehoel-Gijsbers 1992, Netherlands; Hernaes and Strom 1996, Norway; Wadsworth 1992, UK; Schmitt and Wadsworth 1993, UK; Gorter and Gorter 1993, Netherlands;), while others find small and sometimes more important effects (Stancanelli 1996, UK; Jensen and Verner 1996, Denmark; Lubyova and Van Ours 1997, Slovak Republic; Winter-Ebmer 1998, Austria; Ahn and Ugidos-Olazabal 1995, Spain; Lilja 1993, Finland). The overall picture therefore is quite blurry, although this reflects to a certain degree the huge differences between the unemployment compensation policies of different European countries.

As to the empirical standing of state dependence versus heterogeneity, Meager and Evans (1998) give a useful overview:

'Early US research with panel data, particularly on young people, suggested that an explanation rooted in heterogeneity had more explanatory power [Ellwood 1982, Chamberlain 1985, Lynch 1985]. European research yielded somewhat different results initially, however. Thus youth unemployment studies in the UK [Lynch 1989, Narendranathan and Elias 1993] indicated a role for both factors, [...]. Further UK studies, [Jackman and Layard 1991, Narendranathan and Stewart 1989, Layard et al. 1991] however, indicated evidence of state dependence, with the probability of a spell of unemployment ending being negatively related to the duration of that spell (after allowing for heterogeneity, both observed and unobserved). Recently, however, the balance of evidence has shifted again. Research in the UK quoted in Elias (1996), as well as that of Portugal and Addison (1995) and van den Berg and van Ours (1996) for the US, and van den Berg and van Ours (1994) for France, the Netherlands and the UK, suggest a limited role for state dependence, and that most variation in observed durations of unemployment can be explained by heterogeneity [...].' (Meager and Evans 1998, p.14.).

A few qualifications: van den Berg and van Ours (1994) find little support for state dependence, however, with one remarkable exception: for British male unemployed they find strong genuine negative duration dependence and little empirical evidence that heterogeneity counts for this group. Similarly, van den Berg and van Ours (1996) report for US white males negative duration dependence which dominates heterogeneity.

Korpi (1995) starts from the observation that earlier Swedish studies have repeatedly reported non-negative or constant duration dependence in the hazard. The author attributes this result to the (then actually) large scale of the labour market programmes, which typically focused on the unemployed with the worst employment prospects. Dejemeppe and Cockx (1998b) find for Wallonia (Belgium)

important heterogeneity effects, and a limited role for negative duration dependence.

The bottom line of this review seems to be that, given the present state of the art, the evidence points increasingly towards heterogeneity at the expense of duration dependence. The US and the UK, however, at least for males, are clearly exceptions to this general observation.

4.2 The impact of unemployment on psychological wellbeing

The impact of unemployment on psychological wellbeing has been profoundly studied and documented by social psychologists. Early work started back in the 1930s with the now classical *Die Arbeitslosen von Marienthal*, published in 1933 by Jahoda, Lazarsfeld and Zeisl. In the recent past, a lot of research attention has been devoted to the problem, both on theoretical and empirical levels (Jahoda 1982, Hayes and Nuttman 1981, Ellwood 1982, Kelvin and Jarett 1985, O'Brien 1986, Schaufeli 1988, Banks and Ullah 1988, Catalano and Dooley 1988, Furnham 1988, Fryer 1992, Gershuny 1993, Winefield et al. 1993, Leana and Feldman 1994, Burnett 1994, Whelan 1994, Cazals et al. 1995, Hovland et al. 1996, Underlid 1996, Smari et al. 1997, Winefield 1997, Wanberg et al. 1997, Taris 1998, Theodossiou 1998).

De Witte (1993) offers a comprehensive survey of empirical studies, in particular with respect to long-term unemployment. McFadyen and Thomas (1997) make a useful comparison between the psychological approach and the economic models of job search.

Longitudinal studies in several countries have shown that becoming unemployed often goes hand in hand with a significant deterioration of psychological health (De Witte 1993). Goldsmith and Darity (1992) cite a study that linked unemployment to significantly higher levels of anxiety, depression, somatisation, hostility and paranoia. Besides the impact on psychological health, physiological changes have also been reported (Baum et al. 1986 give some references).

Feather (1990) reviews a wide panoply of possible theoretical explanations for this observed reduction of psychological health. One approach, developed by Jahoda, starts from the functions of paid employment (Jahoda 1982). Apart from manifest functions, such as earning a wage, employment is thought to have several latent functions: imposition of a time structure, provision of social contacts, involvement in shared goals, assignment of status and identity, and enforcement of activity. The loss of a job will quite possibly involve a deprivation of both the manifest and the latent functions, which then is linked to psychological wellbeing.

Another, not necessarily conflicting explanation is that becoming unemployed is either initially perceived as uncontrollable, e.g. when due to a layoff, or over time becomes perceived as uncontrollable, e.g. due to a prolonged but fruitless search. This loss of control 'reduces an individual's perception of internal locus of control, presumably leading to a sense of helplessness' (Darity and Goldsmith, 1993, p. 60). 'Helplessness theory' can be summarised as follows: 'highly desired outcomes are believed improbable [...] and the individual expects that no response in his repertoire will change their likelihood' (Abramson et al. 1978, as quoted by Feather 1990, p. 71). However, not all authors agree that loss of control immediately leads to helplessness. Wortham and Brehm (1975) state that the first response of an individual to a loss of control is one of 'reactance', i.e. trying to reestablish control. As soon as it becomes apparent that this can not be successful, helplessness emerges.

Now, as stated by De Witte (1993), the deterioration of psychological health typically will stabilise after a certain period of time. The stabilisation of psychological wellbeing, albeit on a lower level, is explained by an adaptation process: the long-term unemployed adapt to their new role and withdraw from the labour market by lowering their employment commitment and their job search.

Thus, the line of reasoning is as follows: upon becoming unemployed, the unemployed persons experience a serious deterioration of

their psychological wellbeing, e.g. due to a deprivation of manifest and latent functions and/or due to a sense of helplessness. This results in a high level of stress, possibly cumulating, if it becomes clear that the probability of finding another job is small. These unemployed therefore will become discouraged and demotivated. However, high stress levels are not sustainable for long periods of time. Therefore, as the unemployment spells becomes longer, in an attempt to reduce cognitive dissonance, the unemployed will adapt to the new situation, by changing their preferences. The long-term unemployed thus will withdraw from the labour market and lower their employment commitment. Job search will be substantially reduced. Psychological health settles on a stable albeit lower level.

In the event that a long-term unemployed does find a job, according to De Witte (1993) this will lead to a substantial and instantaneous improvement in psychological wellbeing, possibly even to a restoration of the status quo ante. Darity and Goldsmith (1993) confirm that a myriad of studies find improved psychological wellbeing upon reemployment. However, they question whether this necessarily means that all adverse effects of unemployment are transitory and are readily offset by reemployment. They cite some studies that reported adverse psychological effects of unemployment that were not fully offset immediately by the emotional improvement due to reemployment. They conclude that 'it is evident that there is at least an extended interval where motivation and performance are likely to be reduced relative to the baseline even after reemployment' (see p. 61).

However, this last observation could be related to the fact that the long-term unemployed sometimes accept jobs that do not fully utilise their skills, which could account for some residual helplessness, since it is reported that 'satisfactory employment, relative to dissatisfied employment, increases self-esteem and decreases depressive effect to a greater extent' (see p. 61). De Witte (1993) also mentions that it has been reported repeatedly that long-term unemployed, when finding another job, often sacrifice on wage,

status and work conditions in comparison with their previous job (which of course can be explained by the lowering of their reservation wage). Whether this sacrifice itself affects the restoration of psychological wellbeing or not, however, is not mentioned by the last author.

On balance, and acknowledging that this short and selective overview does no justice to what has become a discipline in its own right, one can conclude that the empirical evidence collected during the past 20 years by students on the psychological impact of unemployment, does sustain the hypothesis that long-term unemployment is characterised by negative duration dependence⁴. The key observation is that long-term unemployed will tend to lower their employment commitment and will reduce their job search activity.

This last observation, however, is not entirely confirmed in non-social-psychology literature. Layard et al. (1991) review several job search surveys (US and UK), and conclude that, while unemployment duration does not seem to affect the time spent searching (hours per week), it does seem to affect the effectiveness of searching (less active methods, such as direct contacts with employers, as duration increases). However, they conclude that search activity only declines to a rather small extent with duration.

4.3 Loss and obsolescence of skills

The discrepancy between the number of authors who support the idea of loss and obsolescence of skills during protracted spells of unemployment and the number of studies that really give empirical evidence is enormous.

⁴ Although not directly related to this section, it is noteworthy that occupational skills training programmes for the unemployed are reported to have had a beneficial effect on the psychological distress of participants, by improvements in self-esteem, life satisfaction, and reductions in levels of depression (Creed et al. 1996, who also give some useful references). It is, however, not reported whether these beneficial effects were durable or not.

Basically, three mechanisms can be distinguished that relate unemployment to the retention and acquisition of skills:

- a) unemployment may lead to a loss or erosion of acquired skills, primarily because they are no longer practiced due to being out of work;
- b) unemployment may lead to an obsolescence of acquired skills;
- c) unemployment may reduce (temporarily or permanently) the individual's potential to learn and acquire new skills;

Loss of skills

Some broad indications can be obtained from the International Adult Literacy Survey (IALS)-study (OECD 1997), which measured the literacy skills of adults in several OECD countries. A broad concept of literacy skills was used. Unsurprisingly, the literacy skills correlate with educational attainment. However, one consistently observed that literacy skills correlated with the labour force status of a respondent. Thus the unemployed score lower on literacy skills than working people. Obviously, to draw conclusions, one should check on educational attainment, but such exercises have not yet been reported. Moreover, since the IALS results are based on cross-sections of the population, one can never be sure about the direction of causality: do the responding unemployed in the sample score lower on literacy due to their being unemployed, or are they unemployed because they possess less literacy skills in the first place?

Obsolescence of skills

From the alleged great and increasing importance of on-the-job training and non-formal learning, coupled with the observation that employed persons participate more in training and education, one can infer that unemployment, while not necessarily bringing about an absolute decrease in acquired skills, will tend to widen the relative skill gap compared to those remaining in employment.

Acquisition of skills

Social psychology literature also gives some insights into the acquisition of new skills. Helplessness, so the theory goes, may reduce the motivation to acquire new skills, and possibly also diminish cognitive efficiency so that the unemployed may find it more difficult to learn new skills, even if they are motivated. Helpless people are for instance reported not to memory scan as rapidly as someone who is not helpless⁵ (Darity and Goldsmith 1993). Fleming et al. (1984) report that, in a laboratory setting, a control group of employed persons solved significantly more problems than the group of unemployed. Moreover, the stress levels of the unemployed rose during the task. Baum et al. (1986) compared persons who had recently entered unemployment with persons who were unemployed for between three to five months. They found that the longer-term unemployed persisted less on very difficult tasks requiring both persistence and concentration, and also solved less tasks. It is, however, not reported whether cognitive efficiency and motivation are restored upon reemployment. The results do suggest that training programmes for the unemployed could benefit from psychological support.

4.4 Employer behaviour

Employers may use unemployment duration as a signal for productivity, and thus rank candidates rather indiscriminately by their unemployment duration. In that case long-term unemployment leads to a loss of reputation and stigmatisation. Empirical evidence about such behaviour can be obtained from employer surveys. Meager and Evans (1998) give an overview of several studies which all confirm that a significant share of employers do take account, when recruiting, of unemployment duration: Atkinson et al. 1996, Colbjornsen et al. 1992, ESRI 1991, Gazier and Silvera 1993, Meager and Metcalf 1987, Ronayne and Creedon 1993. This list covers the UK, Norway, Ireland and France.

⁵ Memory scanning is searching the memory for appropriate information.

These results are confirmed for Flanders (Belgium) in Lamberts (1993), and for Austria by Winter-Ebmer (1991). It can be concluded that this kind of behaviour is quite consistently present in a lot of countries, which is an important indicator for supporting the presence of state dependence.

From a policy point of view, it is important whether discriminating behaviour is based on an objective evaluation by employers on the basis of previous experiences (e.g. because loss of skill, loss of worker attitudes, etc. really are prevalent), or on a more subjective, to some extent prejudiced, appraisal of the employability of 'the long-term unemployed' in general. If the latter case is more common, information campaigns and programmes to promote the employment of long-term unemployed to unmask received wisdom might remedy the problem. If the former is more common, a quite different approach is called for, e.g. policies to remedy loss of skills, work attitudes and the like.

4.5 Mismatch

An empirical evaluation of the importance of, and the trends in skill mismatch has been made by different authors, using different measures, based on sometimes substantially different theoretical underpinnings. Unsurprisingly, the resulting picture is most varied.

Layard, Nickell and Jackman (1991) (and subsequent work), using a measure based on relative unemployment rates, observe substantial mismatch in a variety of countries (occupational, sectoral, industrial and age mismatch), but do not detect a trend evolution. Mismatch therefore is important, they assess that the combined sources of mismatch can be held responsible for raising Britain's unemployment by some 40 % above what it would have been otherwise, but the particular unemployment evolution of the past decades cannot be attributed to an increased mismatch. In their view, other forces were at work. Bean and Pissarides (1991), using a comparable measure, do not find compelling evidence for technology-induced skill mismatch in Britain.

Sneessens and Shadman-Metha (1995) and Sneessens (1995), using differences between unemployment rates, observe a significant increase in skill mismatch for France in recent decades. Sneessens et al. (1997) state that most of the increase in structural unemployment in France is related to skill mismatch, while increases in structural unemployment (skill and regional mismatches) are capable of explaining 75% of the increase in actual unemployment, at least until 1990.

For Spain, the picture is more complex. The increase in structural unemployment only represents 55 to 60% of actual unemployment changes, the remainder relating to a movement along the Beveridge curve (instead of a shift).

Franz (1991), working with both unemployment and vacancy figures for Germany, does detect some regional and skill mismatches, but states that it is less obvious whether these imbalances have increased.

Manacorda and Manning (1997), measuring skill mismatch based on their concept of the skill distribution, find evidence for an increased skill mismatch in the US and the UK, but find no increase for France, the Netherlands, Germany and Italy.

Entorf (1998) uses highly disaggregated data for Germany. Using panel-econometrics on a panel of 40 occupational groups for the period 1971 to 1992, he obtains that the matching efficiency is declining over time. However, matching efficiency seems to vary with the prevailing economic situation. Thus periods of easy match are typically times of high unemployment (1975/76 and 1983/84), and therefore he concludes that high unemployment is accompanied by lower mismatch. Moreover, the general level of mismatch is higher in the 1980s than in the 1970s.

After this overview, one may have the feeling that research results are rather inconsistent and therefore not very conclusive. However, although there is not a clear picture of the evolution of mismatch over time, most authors find, irrespective of the approach they use, that the level of mismatch is not negligible, and

sometimes even substantial. This observation warrants a policy interest in mismatch problems. Whether a policy oriented towards reducing mismatch problems will be enough, or whether it has to be supplemented by policies aimed at other malfunctionings of the labour market, depends on whether there has been an unfavourable trend in mismatch or not.

At present this last question cannot be answered unambiguously. Much more work is needed, both at theoretical level, to obtain a better theoretical underpinning of the mismatch concept (which possibly will lead to some convergence in the now widely different approaches), and at empirical level, to establish richer data with consistent time series and preferably, at a more disaggregated and multidimensional level.

As regards this last aspect, the last Holy Grail of labour economics, LEE (linked employer-employee data) (Hamermesh 1999), which consists of linking household data with establishment/firm data, looks promising.

4.6 Conclusion

On balance, the evidence is quite mixed. Some observations (e.g. the fact that genuine duration dependence appears to be negligible in a lot of countries; see Section 4.1.2 for France, the Netherlands, United Kingdom and Wallonia), are a strong argument against the theory of unemployment persistence due to the disenfranchising effects of long-term unemployment. Other elements, in particular the well documented observation regarding recruitment behaviour, as well as vast theoretical and empirical literature regarding the effects of (long-term) unemployment on wellbeing and job search behaviour, corroborate this theory. The demonstration of an increase in (skill) mismatch over time, on the other hand, has been notoriously difficult, due to measurement problems and the absence of suitable data, and also due to lack of consensus among its students. To decide that an increase in skill mismatch problems is not relevant because such an increase has not yet been demonstrated convincingly, is possibly too hasty.

Therefore, a conclusion could be that a mix-

ture of both explanations has been, and still is, responsible for the particular unemployment problems encountered by European countries. This, however, does not preclude that different countries struggle with a different mix, some having predominantly a skill mismatch problem, while others are more obstructed by the burden of long-term unemployment.

In this contribution, it was asserted that the policy mix necessary to tackle and remedy a situation of skill mismatch is potentially quite different from active labour market policies that aim at the activation of the unemployed and prevention of long-term unemployment. While some countries or even particular regions within countries predominantly have a mismatch problem, other countries or regions seem to have less of a problem, so a differentiated policy approach is called for.

While this may sound logical, the actual policy approach recommended by the EU through its guidelines starts from the premise that European unemployment can be alleviated by a uniform and common set of policies for all countries. The two first guidelines are directed at the prevention of long-term unemployment. While the prevention of long-term unemployment may be a goal in its own right, e.g. for social and political reasons, the economic rationale for preventive policies, namely the claim that unemployment duration itself has a clear negative impact on employability, is questioned by a growing number of empirical results.

The massive deployment of labour market programmes that seek to intervene in the early stages of an individual's unemployment spell, e.g. training for the unemployed which has an important share, can thus be questioned on two grounds.

In the first place, dead-weight effects can be taken to be substantial, since early intervention will direct scarce resources towards the unemployed who would leave unemployment early anyway.

Second, for those unemployed really at risk of becoming long-term unemployed, early in-

intervention could be warranted provided it were possible to identify who is at risk and who is not (literature is rather pessimistic on the possibility of early identification). However, even if the unemployed at risk would benefit from current early interventionist programmes if they were targeted exclusively at the groups at risk – which is questionable since existing measures either lack enough depth to remedy their problems fundamentally (e.g. short training courses), or only have a temporary nature (e.g. temporary wage subsidies) – it stands to reason that the unemployed at risk will not benefit much when all the unemployed are targeted.

As regards the problems encountered when measuring mismatch phenomena, the absence of suitable and internationally comparable vacancy data has been one of the main obstacles. It could be argued that here remains a challenge for the EU statistical authorities.

5. Summary

5.1 Introduction

There is undeniably a relationship between skills and unemployment. In comparison with better-educated workers, the unemployment rates for workers with low educational attainment, are, almost without exception, consistently higher throughout the EU. This is not a new phenomenon. However, it has been suggested that during past decades the relative labour market position of the low-skilled has declined markedly, due to a variety of factors. Some authors attribute a substantial part of the explanation of recent European unemployment history to this relative demand shift against the low-skilled. A general increase in skill mismatch is, in their view, one of the main causes of the peculiar persistence that has characterised European unemployment in the past 20 years.

This view, however, has not gone unchallenged. Others have argued that this persistence is caused by other factors, such as long-term unemployment and everything this brings about.

From a policy point of view, it is important to

know which view is most in line with reality. Depending on the chosen theory, policy prescriptions differ. More in particular, there are some implications for the organisation of a VET policy to alleviate unemployment problems.

In this contribution, a comparison is made of the two rival views. Although both theories originally stem from a macroeconomic perspective, i.e. a highly stylised and aggregated world, and essentially deal with macro phenomena, most attention will be devoted to their microeconomic underpinning and the available empirical evidence on this level.

5.2 Some stylised facts

- Over time, unemployment rates have grown, sometimes dramatically;
- unemployment appears to have a persistent nature, i.e. once the unemployment rate has gone up, e.g. in a period of a cyclical downturn, it has a tendency to remain on this higher level, i.e. it does not return to its initial equilibrium level, even when the business cycle becomes more favourable;
- typically, unemployment rates are higher for lower-skilled than for higher-skilled workers, even though the share of the lower skilled in the labour force is decreasing over time;
- the incidence of the long-term unemployment (more than one year) is on a historically unprecedented high level. Moreover, it is typically the lower-skilled workers who are hit most by long-term unemployment;
- high unemployment rates sometimes go hand in hand with high vacancy rates.

5.3 Theoretical background

5.3.1 A first theory: equilibrium unemployment, persistence, hysteresis and state dependence

By introducing hysteresis, one incorporates the empirical observation of the 1980s that, once

unemployment has risen, it has a tendency to remain on this higher level, so that today's equilibrium unemployment level depends partly on past unemployment. Several possible explanations for the emergence of persistent unemployment have been given. We have principally discussed the 'outsider characteristics' explanation. The underlying mechanism is as follows. An increase in actual unemployment rates leads to an increase in long-term unemployment. For reasons which have been elaborated in section 3.1.2, long-term unemployment is thought to lead to a distance between the long-term unemployed and the labour market, in fact rendering them unemployable. Therefore, they no longer exert downward pressure on wages.

How can long-term unemployment lead to persistence? The basic idea is that the length of stay in unemployment, i.e. the duration has an impact on the exit probability, over and above the impact of individual characteristics, such as age, gender, educational attainment, work experience, ethnicity etc. Negative duration dependence (which is present if the exit rates from unemployment decrease, the longer one is unemployed) implies that something happens or changes during the stay in unemployment, either because the unemployed themselves change, or because they are perceived to have changed. The following processes have been suggested:

- the fact of being unemployed, especially for persons that find it hard to find another job, can trigger off a process of discouragement and demotivation, which eventually can lead to habituation and resignation. This will probably lead to a reduction of the job search activity, and hence to a reduction of the exit probability;
- being in unemployment, particularly long-term unemployment, can lead to a loss or an erosion of acquired skills. Moreover, even if there is no loss, still the once acquired skills and knowledge can quickly become obsolete and outdated when no longer used and updated. If erosion and depreciation of skills take place over an unemployment spell, there is a direct effect on one's employability, and hence on the exit probability;

- unemployment, and more particularly long-term unemployment, is said to affect work attitudes and work discipline, which, indirectly, can be of influence if potential employers come to associate long-term unemployment with loss of work attitudes;
- this last mechanism can be generalised as a loss of reputation argument. Given that a hiring process is a situation with asymmetrical information, where the potential employer normally has only limited and incomplete information about the productivity of a potential employee, employers may use the unemployment duration as a signal of productivity, and thus rank candidates by their unemployment duration. If this mechanism acts, the exit rate obviously will decrease with duration.

Two of the most singular stylised facts from Section 2, namely persistent unemployment and the apparently shifted Beveridge curve (simultaneously more unemployment and more vacancies), can be readily explained with the former theory. A rise in unemployment due to a succession of severe negative shocks leads to long-term unemployment. The long-term unemployed become disenfranchised from the labour market, which, through the mechanism(s) described above, leads to persistence. As the long-term unemployed become unemployable, the number of effective unemployed will be lower than the total number of unemployed, and therefore, a higher unemployment rate will be compatible with a given vacancy rate.

In past decades, there was an emergence and tremendous growth of long-term unemployment. The policy implications thus centre on the prevention of long-term unemployment and activation of the (long-term) unemployed. If long-term unemployment leads to discouragement and habituation, loss of skills and worker attitudes, it is important to act preventively by creating e.g. temporary work experience and recruitment subsidies programmes to prevent the disenfranchising processes. The long-term unemployed can be reactivated by training programmes that upgrade lost or outdated skills and reestablish

worker attitudes. Mandatory participation can be a solution for problems of habituation, while job-search programmes can be a remedy for discouragement. These are the main ingredients of what has come to be known as active labour market policy.

5.3.2 A rival theory: structural unemployment and skill mismatch

This line of reasoning builds on the observation that over time, there has been a dramatic deterioration in the position of low-skilled members of the labour force. In Europe, the shift in demand against the low-skilled reveals itself in growing unemployment differentials between the higher and lower skilled workers. In the US labour market on the other hand, where wage rigidity is lower, the demand shift manifests itself through a substantial decline in the relative wages of the lower skilled, generating an increase in wage inequality. Over time the qualification level of the population increases. The shift in demand against the low-skilled, however, is not counterbalanced by this analogous shift in the skill composition of labour supply. Given the downward rigid wages, the low-skilled get stuck in unemployment, and become long-term unemployed. Long-term unemployment persists because those unemployed do not possess the skills demanded by the labour market, and not, or not necessarily, because they become disenfranchised. In other words, this view does not demand negative duration dependence in exit rates from unemployment, and can be compatible with pure heterogeneity.

The demand shift against the low-skilled, together with the relative wage rigidity, has been designated by several authors as an explanation for the persistence of high unemployment in Europe. It is in this context that the notion 'skill mismatch' is introduced. Loosely speaking, skill mismatch is a mismatch between the skill composition of labour demand and supply.

To explain the shift in demand against the low-skilled, the three following explanations are put forward:

a) skill-biased technological change: the in-

roduction of new technologies leads to an increase in the demand for more highly-skilled labour, at the expense of the low-skilled;

- b) 'deindustrialisation': the structural shift from employment in industrial sectors to the services sectors;
- c) increased competition from low-wage countries abundant in low-skilled, low-paid labour. This can be interpreted as an increased implicit supply of less educated workers.

Most authors give the highest weight to the skill biased technological change argument, while the trade and the deindustrialisation effects seem to have had a minor contribution. However, even the role of SBTC has not been unchallenged, and the empirical evidence remains fairly limited and circumstantial.

The measurement of mismatch is concerned with measuring the level and trends in mismatch. Several rival measures have been proposed. A first series of empirical measures use data on unemployment and vacancies. Though intuitively appealing, the practical application of these measures has been limited because few countries have suitable vacancy data. Therefore, some mismatch measures have been proposed which only use information about unemployment (measurement problems and rival measures are discussed in the report).

How does this framework fit the stylised facts? An increase in the level of mismatch (and skill mismatch) on the labour market will, other things being equal, lead to an outward shift of the Beveridge curve. Increased mismatch can be a sufficient condition for this shift, but is not a necessary condition. For example, the framework developed in Section 3.1 offers a rival explanation. The hypothesis that (skill) mismatch increased, offers a more straightforward explanation for the apparent deterioration of the position of the lower skilled than the theory of disenfranchised unemployed.

As regards policy, a situation of increased

skill mismatch will probably not be permanently alleviated, let alone solved, by the classical ingredients of an active labour market policy. Temporary work experience programmes and recruitment subsidies programmes will be of little help. As soon as the subsidy is cancelled, the low-skilled worker will lose his/her job and unemployment will persist. Mandatory participation will be counterproductive, while job-search programmes will be discouraging for the lower skilled. Several authors emphasise that only measures aimed at changing the relative cost of low-skilled workers (permanent subsidy, labour tax cut, lower social insurance contributions on the minimum and low wages, etc.) will prove effective. This position can be defended, but it may be too pessimistic. As skill mismatch is primarily a problem of low skills no longer required (admittedly, no longer required at the going wage rate), obviously there has to be some scope to remedy the skills problem through training and education. On the other hand, it is doubtful whether traditional programmes of labour market training, which either aim at upgrading lost or outdated skills and re-establishing worker attitudes, or have a rather narrow and specialised content and therefore are targeted at workers who already possess a lot of qualifications, will prove sufficient.

5.3.3 Job competition

The skill mismatch hypothesis and the theory of unemployment persistence due to disenfranchising effects of long-term unemployment can both explain the stylised facts from Section 2.3. Which theory is more in line with reality, is largely an empirical matter. An empirical judgement however, will not prove easy, among other things because, even at a theoretical level, there is not really a consensus as to how mismatch should be defined, let alone be measured. Yet, as already mentioned earlier, an examination of the behaviour of the exit rates from unemployment could possibly give an indication of which theory is dominant for a given country. That is to say, if for a particular country one observes that negative duration dependence is absent or negligible, this will be a strong indication for downplaying the role of the dis-

enfranchised workers hypothesis. If on the other hand, one observes negative duration dependence, both hypotheses become possible (or a mixture of them). The criterion of duration dependence is thus at best a half-hearted judgement.

And even a situation of pure heterogeneity will not prove that mismatch is the preferred explanation. A job competition hypothesis, where higher skilled fill vacancies which initially were intended for lower skilled, could equally well be responsible for high heterogeneity in exit rates. However, with an upswing of economic activity, and a tightening of the labour market, the position of the lower skilled should improve again, at least, if job competition is the only mechanism operating. Job competition, in other words, can not explain unemployment persistence and therefore is, at best, a secondary explanation.

5.4 Corroborating evidence

State dependence versus heterogeneity

The bottom line of a review of recent research seems to be that, given the present state of the art, the evidence points increasingly towards heterogeneity at the expense of duration dependence. The US and the UK, however, at least for males, are clearly exceptions to this general observation.

Discouragement and habituation

On balance one can conclude that the empirical evidence collected during the past 20 years by students on the psychological impact of unemployment, does sustain the hypothesis that long-term unemployment is characterised by negative duration dependence.

Loss and obsolescence of skills

The discrepancy between the number of authors who support the idea of loss and obsolescence of skills during protracted spells of unemployment and the number of studies that really give empirical evidence is enormous. The few references found seem to support the claim.

Employer behaviour

From a survey of literature it can be concluded that a significant share of employers do take account, when recruiting, of unemployment duration. This kind of behaviour is quite consistently present in a lot of countries, which is an important indicator for supporting the presence of state dependence. From a policy point of view, it is important whether discriminating behaviour is based on an objective evaluation by employers on the basis of previous experiences (e.g. because loss of skill, loss of worker attitudes, etc. really are prevalent), or on a more subjective, to some extent prejudiced, appraisal of the employability of 'the long-term unemployed' in general. If the latter case is more common, information campaigns and programmes to promote the employment of long-term unemployed to unmask received wisdom might remedy the problem. If the former is more common, a quite different approach is called for.

Mismatch

An empirical evaluation of the importance of and the trends in skill mismatch has been made by different authors, using different measures, based on sometimes substantially different theoretical underpinnings.

Unsurprisingly, the resulting picture is most varied. The overview (in the report), may give the feeling that research results are rather inconsistent and therefore not very conclusive. However, although there is not a clear picture of the evolution of mismatch over time, most authors find, irrespective of the approach they use, that the level of mismatch is not negligible, and sometimes even substantial.

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The demonstration of an increase in (skill) mismatch over time has been notoriously difficult, due to measurement problems and the absence of suitable data, and also due to lack of consensus among its students. To decide that an increase in skill mismatch problems is not relevant because such an increase has not yet been demonstrated convincingly, is possibly too hasty.

Therefore, a conclusion could be that a mixture of both explanations has been, and still is, responsible for the particular unemployment problems encountered by European countries. This, however, does not preclude that different countries struggle with a different mix, some having predominantly a skill mismatch problem, while others are more obstructed by the burden of long-term unemployment.

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Overqualification: reasons, measurement issues and typological affinity to unemployment

Felix Büchel

Abstract

This paper focuses primarily on two essential aspects of overqualification research: the reasons why people find themselves in underskilled jobs and the problems involved in establishing a valid means of identifying such a situation.

Starting with an extensive terminological discussion, the paper briefly introduces the various theories explaining the phenomenon of overqualification and discusses some influential factors that have rarely been examined in any work of literature, namely institutional and macroeconomic conditions and labour utility and productivity assessments on the supply and demand sides.

The next step is a systematic examination of the problems involved in identifying underskilled jobs. It begins with an explanation of the two main measurement strategies (the 'objective' and the 'subjective' approaches) and their diverse variants including unorthodox measurement processes. Thereafter, an extension of the subjective measurement strategy is introduced; in terms of validity, it is probably superior to the forms of categorisation that have been used hitherto.

The paper goes on to provide a comprehensive review of research literature, beginning with the origins of the debate in the educational expansion of the 1970s and 1980s. It retraces the academic discussion on the overqualification problem in the United States, then portrays the German situation as an example of the early development of overqualification research outside the United States. It goes on to introduce more recent work from the United States and Europe, including international comparative studies.

On the basis of longitudinal data from Germany, the theoretical analogy between unemployment and overqualification is empirically tested. The first part of this test focuses on four subjective indicators, which are tested for divergences between unemployed people, people in underskilled jobs and people whose jobs match their qualifications; the four indicators, which are already established in the field of static unemployment research, are problem-solving skills, morale, concerns about the future and participation in the political process. In the second part of the test, the set of instruments used in dynamic unemployment research is applied to analyse overqualification. The analysis is based on examples of movements from various types of employment status into underskilled work and from underskilled work into unemployment (downward career moves) as well as transitions from underskilled to adequately skilled jobs (upward career moves). Particular interest attaches to the question of the extent to which underskilled work and unemployment are alternative situations. Finally, the paper examines longer-term income effects of overqualification. Here, too, the main question is whether a period spent in an underskilled job creates income effects which – as should theoretically be the case – lie somewhere between the effects of a period spent in an adequately skilled job and those of a spell of unemployment.

The study ends with a catalogue of methodological conclusions, aimed at employment researchers, and substantive considerations, aimed at policymakers in the fields of education and employment.

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'There can never be too much education' (Rumberger, 1981b, p. 7).

'He is an overeducated s.o.b.' (Harry S. Truman on J. William Fulbright)¹

1. Introduction²

It has gradually come to be recognised and is now an unchallenged truism that the human capital a society has accumulated in the form of education, and especially vocational education, is a crucial location factor in the context of global economic competition. If the matter is considered in this light, however, the entire human capital created through the education system is not what counts but only that which is 'productively' invested in the economy. Because of the mass unemployment that prevails in most European countries, substantial volumes of human capital are lying dormant. The result of this is economic underachievement by the Member States of the European Union. The 'superfluous' skills and qualifications, in other words those for which there is no demand in the labour market, are not just temporarily sidelined but are also rapidly devalued as a result of disuse and the consequent absence of training opportunities. This hysteresis phenomenon, in which the unbalanced labour market is both an effect of past unemployment and a cause of future unemployment, causes the problems to escalate with the passage of time.

The losses to national economies and the social problems that are generated by unemployment are clearly recognised, not only in employment research but by the general public too. One of the main aims of this study is to draw attention to the fact that the actual surplus of vocational skills and qualifications produced by the education system considerably exceeds the surplus indicated by unemployment statistics, even if analyses of hidden labour reserves are taken into account.

¹ s.o.b. = son of a bitch. Source: *Die Zeit* of 17 February 1995, p. 9.

² The author thanks Manfred Tessaring for most important observations and Johannes Giesecke for his valuable assistance in implementing an enhanced version of literature management software.

Unused and therefore unproductive skills also come into the reckoning when individuals have jobs for which they are palpably overqualified. The analogy between such underskilled work, where the employee's level of training exceeds the job requirements, and unemployment is unmistakable: the entire human capital of jobseekers lies idle, while only part of the human capital of overqualified employees lies idle. The latter phenomenon is also absolutely relevant to national economies; its significance can be measured if the number of overqualified employees³ is multiplied by the amount of skill wastage. The skill wastage may be empirically calculated, for example, as the difference between the remuneration of overqualified employees and the amount they would be earning if their job matched their skill and qualification level (see, for example, Duncan and Hoffmann, 1981; Daly et al. (forthcoming) and Büchel and Weißhuhn, 1997c and 1998). It is therefore no coincidence that the editors of the present report have combined the sections on unemployment and overqualification into a single section. A structural analogy between unemployed status and overqualification can also be derived from the terminological definition laid down by the OECD,⁴ which uses 'unemployment and underemployment' as a conceptual entity within its system. It divides the

³ The overqualified percentage of the labour force varies widely, depending on the measurement process (on this central problem of overqualification research, see for example Smith (1986), Groot and Maassen van den Brink (forthcoming) and section 5 of the present study, which goes into some detail on the subject). The crucial point, however, is that this percentage is so high in all the Western industrialised countries that it cannot be ignored. For example, it exceeds the national unemployment rate in every country. Hartog (1997) and Borghans et al. (1998), as well as Groot and Maassen van den Brink (forthcoming) and Hartog (1999b) provide international comparisons of the frequency with which overqualification is observed.

⁴ Resolution I of the International Conference of Labour Statisticians (ICLS) on the ILO: see OECD, 1995a, pp. 44-45.

category 'underemployment', into two subcategories, namely 'visible' and 'invisible' underemployment. The first term relates to people who are employed but who have fewer working hours than they would wish (see for example Terry, 1981); the second term describes underskilled work ('... refers to individuals who are working in jobs where their skills are not adequately utilised').⁵

At first sight, both of these subcategories appear almost too disparate to be two halves of the same whole. Visible underemployment is structurally closer to unemployed status, since the individual is working less than he or she would wish; in structural terms, it is akin to the German status of *Kurzarbeit*, applicable to employees on short time. On closer inspection, however, typological analogies are impossible to overlook. In neither of the situations can the full economic value of an individual's vocational skill be realised; in the case of visible underemployment, this is because of an unwanted part-time working arrangement, which is ultimately due to restricted demand for the available skill profile; in the case of invisible underemployment, the reason is the low skill level required for the jobs that overqualified individuals take, presumably for want of something better.

The analogy between overqualification in general and unemployment lies in the fact that both are due to the aforementioned lack of demand for particular skills – with unemployment reflecting a total absence of demand and overqualification a shortfall in the volume of demand. The deficit in market demand for vocational skills and qualifications which is a consequence of chronic mass unemployment

and which numerous studies have amply demonstrated is therefore systematically underestimated whenever overqualification is left out of the equation.

This typological analogy is presented in tabular form in some of the more recent publications of the U.S. Bureau of Labor Statistics. Hecker (1992, Table 1, p.4), for example, presents annual figures under the following three headings: 'All graduates in the labor force', 'Graduates in jobs that require a degree', 'Graduates in jobs that do not require a degree or who are unemployed', the last column being divided into two subcolumns for graduates in non-graduate posts and unemployed graduates.

The structural analogy between unemployment and overqualification, however, has scarcely featured in employment research and its empirical surveying strategies. When researchers examine underskilled work and unemployment simultaneously or accord a similar level of priority to both, they are inclined to assume rather intuitively that both phenomena are serious problems for those who are affected by them and that their widespread occurrence on a macroeconomic scale may be regarded as a symptom of a profound disorder in the labour market.⁶ One exception is an earlier study of mine (Büchel (1998b), which undertakes the first systematic examination with the instruments of dynamic unemployment research based on career cycles, assessing for example the probability of access to, continuation in and withdrawal from employment as well as the long-term effects of a period of overqualification.

The question arises as to why the causal link between dormant vocational skills and lower living standards has been clearly recognised and adequately researched in connection with unemployment, whereas considerably less attention has been devoted to the problem of insufficient coordination between the educa-

⁵ It should be noted that the term 'underemployment' is sometimes used in a different sense. Ruiz-Quintanilla and Claes (1996), for example, include part-time work, temporary work and unemployment in this category, ignoring the fact that the first two forms, especially part-time work, are often undertaken on a voluntary basis; this broad definition, however, is contrary to the intention underlying the OECD terminology. Another entirely unorthodox version is proposed by Lichter (1988), who uses a category labelled 'underemployment by low income'.

⁶ See for example Bielinski et al. (1994 and 1995) in relation to eastern Germany, which seems to illustrate this phenomenon particularly well, or Cedefop (Tessaring, 1998) in the European context.

tion system and the labour market, a problem that manifests itself in the form of overqualification.⁷

There are probably three main reasons. First of all, unemployment is a particularly flagrant waste of human capital, because the loss is absolute. Secondly, unemployment imposes a burden on national economies not only because the unemployed do not contribute to a country's productive output but also because part of the national product has to be diverted into a fund for the payment of unemployment benefits. And thirdly – an aspect that probably should not be underestimated – the precise volume of dormant human capital that results from unemployment has been statistically measured and recorded. Official statistics relating to overqualification, on the other hand, do not flag any problem, especially not in the highly aggregated form in which such statistics are characteristically produced and studied.⁸ Take the example of a man with a doctorate in philosophy who works as a taxi driver. He is not unemployed and therefore receives no state benefits – on the contrary, as far as the skill-related labour-market statistics are concerned, he even helps to furnish evidence that the economy employs philosophers and hence that there is a demand for philosophers. This signal is then transmitted to universities and their arts faculties and philosophy departments.

If dormant skills in the labour market are taken into consideration, it follows from the preceding observations that a new dividing line has to be drawn when we examine the labour market. The conventional boundary between jobseekers and employed persons

must give way to a division between jobseekers plus people in underskilled jobs on the one hand and employed persons whose jobs match their skill and qualification levels on the other.⁹ It is evident that this type of approach must take account of the fact that a considerably higher volume of skill lies dormant when individuals are unemployed than when they are in overqualification, nor can it be denied that unemployment has a far greater impact on both the individual and society than the phenomenon of overqualification. Nevertheless, as far as the utility of acquired vocational knowledge and skill is concerned, there is still a typological analogy between unemployment and overqualification.

The present study pursues three principal objectives. Once the terminological concepts have been clarified, we shall present the first comprehensive investigation designed to establish which of the competing labour-market theories can help to explain the persistence of overqualification (section 3). A politically guided improvement of the interaction between the education system and the labour market, and hence an increase in the efficiency of the education system, cannot be achieved without knowledge of these causal

⁷ The contrast here between the public interest and the present state of research is particularly striking (cf. Büchel, 1996b).

⁸ Although it is theoretically possible to differentiate, i.e. to break official data down into narrower categories, it is often impossible in practice, because such differentiation presupposes access to the original figures from which the statistics were compiled, and access to these figures is frequently restricted by the authorities. For an example of this type of approach in connection with the subject of the present study, see Plicht et al., 1994.

⁹ On this point, compare the generally analogous but considerably more radical and empirically almost unworkable approach presented by Müller and Beck (1993): 'We are speaking [...] of under-utilisation of the production factor labour when we refer to members of a country's active population who either do not have a job, even though they are prepared to work for the going rate of pay (unemployment type A) or do have a job but are not used efficiently in the production process (this is what we call hidden unemployment; unemployment type B)' (pp.54-55, including text in parentheses). The employees whom Müller and Beck define as 'not used efficiently' come from a wide variety of categories, such as employees who are surplus to requirements but cannot be dismissed, employees whose job dissatisfaction is reflected in reduced productivity and 'people who, in accordance with the accepted norms of administrative theory, remain in posts in which their services are effectively superfluous' (!) (p.54). For a critique of the conventional dichotomous division of the active population into employed and unemployed persons in a broader context, see also Sullivan, 1981, pp.335ff.

links.¹⁰ To supplement this investigation, we shall also review the current state of empirical research (section 4).

Our second objective is to discuss in detail the measurement problems associated with any attempt to define overqualification. It will emerge from this discussion that the volume of overqualification is less accurately measurable than unemployment. At the same time, it will become apparent that these measurement problems not only make international comparisons in the field of overqualification more difficult than those relating to unemployment; the diversity of measurement strategies, to which varying degrees of validity can be ascribed, also leads us to the unsatisfactory conclusion that there is scarcely a consensus on the volume of overqualification within the various national economies. This part of the study concludes with the presentation of our own model for the categorisation of overqualification.

The third objective of the study is to substantiate empirically the postulated analogy between jobseeker status and overqualified employee status. To this end, section 6 pursues an integrated approach, contrasting subjective indicators that are firmly established in employment research, such as satisfaction with life and concerns about the future, for unemployed people, people in underskilled jobs and those whose jobs match their qualification levels. The section also contains a longitudinal analysis of movements between these three types of employment status with a view to establishing whether significant exchange processes are observable, particularly between unemployment and overqualification, and whether the gap between these two situations is narrower than that between

skill-matched employment on the one hand and unemployment or overqualification on the other. Section 7 draws conclusions from the preceding reflections and findings.

2. Subject of the study and definitions

The term 'overqualification' is generally used to describe a situation in which the knowledge and skills acquired through the education system are not exploited to the full. This definition is clearly very vague. For that reason, German researchers at any rate do not speak of overqualification unless the required skill level for the job is so far below the formal qualification of the employee that the work could obviously be performed by someone with a lower level of formal qualification.

This interpretation is not unconnected to the degree of formalisation of vocational training. The more institutionally standardised the qualification, the more plausible this approach appears. Applied to a rigidly segmented system such as the German one, which is divided into vocational training (non-academic) and higher vocational education (academic), this means that, on the one hand, people who have undergone vocational training – in the form of an apprenticeship, for instance – and are now in jobs for which no formal vocational qualification is required (e.g. a carpenter who works as a car-park attendant) and, on the other hand, graduates in jobs which could be done by people without higher educational qualifications (e.g. an engineering graduate working as a technician or even as a fast-food chef) are considered to be in overqualification.

As the definition shows, the important factor is the vertical dimension of occupational flexibility, not the horizontal dimension.¹¹ Although the latter also results in the disuse of knowledge and skills acquired during the training process (if a qualified nurse, for example, works as a medical technician), the

¹⁰ Despite a comprehensive body of relevant American literature, this type of in-depth analysis has yet to be performed in the United States. As Hecker says, 'Currently, we do not know how many college graduates take noncollege-level jobs because of labor market supply-and-demand conditions, how many do so because their individual educational backgrounds limit their options, and how many do so through deliberate choice.' (Hecker, 1995b, p.41).

¹¹ On this distinction, see also Plicht et al., 1994, p.178).

type of 'skill spillage' that occurs when the training curriculum is out of alignment with the job description is considered to be inherently unavoidable when jobs are allocated to jobseekers.

It may be assumed that this form of horizontal mismatch will become increasingly commonplace as the industrial division of labour grows in complexity. Accordingly, a high incidence of horizontal mismatches in a national economy can scarcely be cited as evidence of an inefficient education system. In Germany, for example, a very high percentage of the active population state that they are not working in the occupation for which they were trained. Not least among the reasons for this is the fact that the dual system of alternating practical and theoretical training is based on a highly refined catalogue of occupational disciplines; an employee can therefore claim not to be doing the job for which he was trained even though the content of his actual job is very similar to the one in which he is qualified. Such 'skill spills', i.e. elements in the training curriculum that are not needed at work, also tend to affect every person who starts a new job.

So the decisive question is whether an employee's post could also have been filled by someone with a lower level of formal qualification, which would mean that the employee's vocational training represents a wasted personal investment, at least in part. In the case of the qualified nurse who was mentioned above, however, this situation is unlikely to obtain, since it may be assumed that she would not have obtained her post as a medical technician if she had not been trained to an equivalent standard in an associated discipline; her fellow technicians may therefore be expected to possess a similar level of qualification.

In the literature from the English-speaking world in which the terminology of employment research is coined, the terms 'overeducation' and, to a lesser extent, 'overqualification' have won acceptance as labels for the phenomenon described in this study. It should be noted, however, that in the initial phase of this discussion (see point 5.2.1

below) and even thereafter, in a few cases (see for example Dooley (1986) or Lambropoulos and Psacharopoulos (1992), who implicitly said the same thing, albeit in another context and without using the term 'overeducation') these concepts were used not only to refer to an individual in an underskilled job but also to refer in macroeconomic terms to a surfeit, or alleged surfeit, of paper qualifications in the labour market, which manifests itself, for instance, in diminishing returns from higher qualifications (cf. Rumberger, 1981c, p.294). However, other terms in frequent use, namely 'skill underutilization' (see for example Kalleberg and Sørensen, 1973, p.217, as well as Staines and Quinn, 1979, p. 8) and 'surplus schooling' (see for example B.Tsang et al., 1991), relate explicitly to the individual. The term 'mismatch' occurs occasionally; from each of the contexts in which it is used, it is clear that the mismatch is between the formal qualification level and the skill level of the job (see for example Clogg and Sullivan, 1983, p.121); now and then the term 'occupational mismatch' is also encountered (Clogg, 1979, and Sullivan, 1978). This concept, however, seems to pose semantic problems, because in the strictly literal sense it includes overskilled jobs,¹² which are irrelevant in the context of our study and which, in a different framework, would have to be regarded as overqualification.¹³

Other designations have not stood the test of time, such as 'overtraining' (Kalleberg and Sørensen, 1973) or the term 'nominal overeducation', which Halaby used (1984, p.48) and ascribed to Clogg and Shockey (1984), although

¹² Such a situation would arise, for example, if the holder of a master craftsman's certificate were the only non-graduate member of the management team of a sizeable construction company.

¹³ The difference between the theoretical approaches to the phenomena of underskilled and overskilled work is reflected, for example, in the fact that the proponents of the theory of career mobility (Sicherman and Galor, 1990) explicitly state that they can only explain the persistence of overqualification, not the occurrence of underqualified activity (cf. Sicherman, 1991, pp.109-110).

this reference could not be traced. The same fate awaited the terms *Grauzonentätigkeit* ('grey-area activity'), which Schlegelmilch used in 1982, and 'inappropriateness of skills' (Tessaring, 1998). Nor could Mincer win acceptance for his proposed alternatives to 'over-education'. He criticised the tendency to confuse 'education' with 'schooling', which was only part of an individual's education, and suggested the terms 'overschooling' and 'mis-schooling' (Mincer, 1984, p.208).

Finally, there is surely a touch of irony in the fact that the expression 'invisible underemployment' which was quoted from the OECD terminology in the introduction to this study is conspicuous by its virtual absence from the body of literature on the subject of over-qualification – *nomen est omen!*

3. Theoretical reflections on the causes of overqualification

3.1 Overqualification from the neoclassical perspective

From a neoclassical point of view, the phenomenon of overqualification, like that of unemployment, is a 'non-event'. Where overqualification occurs, the neoclassical view is that it can only be the symptom of a temporary imbalance. This opinion is expressed by the authors of earlier conventional macro-economic studies on overqualification (see for example Freeman, 1976b).

In the longer-term adjustment process, for which, these authors believed, political support would be needed, the stiffer competition for adequately skilled jobs would lead to pay reductions at the top end of the labour market. This in turn would induce companies to adapt their production structures, the general effect of which would be an increase in demand for higher qualifications. On the supply side – always assuming perfect information – the diminishing return on higher levels of skill and qualifications would make advanced training a less attractive proposition. The demand-side adjustment would thus be reinforced by a reduction in the supply of skilled labour.

As always happens in neoclassical models, a stable balance would be restored; any remaining imbalances between the supply of skilled labour and the demand for skilled labour, which would manifest themselves in unemployment and underskilled work, would then be no more than frictional loss.

Criticism of this view begins at the same points as the familiar criticism that has been levelled at the neoclassical understanding of unemployment. Market operators seem even less likely to conform to neoclassical theory in their responses to overqualification than they do in responding to unemployment. The information gaps are even wider, which means that longer reaction times may be expected on both sides of the market. Trusting solely in the healing powers of market forces to overcome overqualification 'in the long term' therefore seems just as inadvisable as it is in the case of unemployment; Keynes' criticism of the neoclassical insistence on patience is very apt here too. As he said, 'In the long run we are all dead'.

3.2 Decision-making in the event of an individual mismatch between a person's skill profile and the job description

In the general empirical literature on the subject of overqualification, the labour-market theories referred to in point 3.3.1 below are generally cited as possible ways of explaining the phenomenon. These various approaches are then evaluated in the light of research findings to establish their empirical legitimacy. The observable degree of concurrence among all the relevant empirical studies is remarkably high.

None of the studies presented in section 4 focuses on the precept that the interests of both employers and employees must always be reconciled in any job-matching process, a precept which is very important if we are to grasp the overall picture (Franz, 1991, chapter 6). Most of the attempts to explain the persistence of overqualification that are enumerated in point 3.3.1 below are only able to explain the calculation underlying the decision taken by one side; apart from the theory of career

mobility – and even in that theory the interests of the employers' side are only implicitly assumed – there is not a single theory that can explain why the same decision is taken simultaneously by different players.

Equally scant attention is devoted in the body of empirical literature to investigation of the decision-making options of both sides in the labour market. In fact, the nature of the decision-making problem differs quite markedly between the supply and the demand side.

The employee's decision

For the employees' side, the implicit alternative to underskilled work is normally unemployment or withdrawal into the hidden reserve (for empirical evidence see Schlegelmilch, 1982 and 1983b). According to this premise, the main difference between overqualified employees and the unemployed is the former's unconditional desire for a job, what Schlegelmilch refers to as an 'I'd have done almost anything' attitude (Schlegelmilch, 1982, p.414).

It must clearly be assumed – implicitly, once again – that a person's acceptance of an underskilled job will have been preceded by a fruitless search for more suitable employment. This perspective, however, systematically obscures two other possible scenarios. Firstly, a spontaneous switch from another form of economic inactivity (that of the non-jobseeker) to overqualification is conceivable if an acceptable underskilled job offer were to materialise – an unexpected opportunity, obviously – and if that job seemed likely to benefit the individual more than continued inactivity.

It is also conceivable that underskilled work could be a genuine alternative to adequately skilled employment. This implies a 'voluntary' choice of lower job status. Teichler (1994, p.30), in a résumé of the findings of a study by Teichler et al. (1992), surprisingly reports that the majority of the academic respondents who were in underskilled posts had voluntarily chosen that employment status; Hecker (1995b, p.41) also discusses the same option in the U.S. context, though without empirically testing a hypothesis.

Such a decision could be taken, for example, if advantageous non-monetary working conditions, such as a lighter workload, a shorter journey from home to work, a job with high regional status, shorter working hours (if preferred), etc., outweighed the monetary disadvantages of an underskilled job in relation to adequately skilled employment and if income maximisation were not the basis of the jobseeker's decision (see point 3.4.3 below, where this factor is addressed in greater detail). Moreover, it might also happen, albeit more rarely, that a higher net income can be earned – at least in the short term – from overqualification than could be obtained from a well-matched job (cf. Lucas, 1977).

Although all the indicators suggest that this favourable pay differential will not be sustainable in the long run (see for example Büchel, 1994b), if the jobseeker does not possess this information or only wants to do the job for a limited time, it is entirely logical for him or her to accept an underskilled job as an alternative to more appropriate employment. There is empirical evidence of both the aforementioned types of decision in the present report.

The employer's decision

The motives behind the employer's decision almost never feature as a subject of empirical literature either. Nevertheless, this decision is quite different to that of the employee. The main alternative in empirical terms to appointing an overqualified candidate is most probably the selection of an applicant whose skills and qualifications are commensurate with the job description. This, however, presupposes the absence of restrictions on the supply side.

It is entirely conceivable, for example, that the local labour market might be unable to deliver a 'suitable' person for a particular job, i.e. one whose skills and qualifications match the job profile, perhaps because of the specific nature of the job in question. At the same time, the job might not be important enough to warrant the additional cost of casting the recruitment net beyond the local area. In this situation it would be futile to investigate the employer's motives for choosing an overqualified applicant.

This turns the spotlight onto another option that is open to employers: if there is not even an overqualified candidate for a post, or if overqualification is automatically regarded as a reason for rejection of an application, the employer may simply decide not to fill the post at all.¹⁴

When the empirical effectiveness of the competing attempts to explain the persistence of overqualification is assessed, due consideration must be given to the difference between the parameters governing the employer's and the employee's decisions. This means that, even if an explanatory method (based on one party's decision) proves to be especially effective, it is still only a partial analysis, and the persistence of the phenomenon will not be fully explained unless plausible explanations are found for the behaviour of the other party.

3.3 Explanatory methods based on partial analysis

3.3.1 Established methods

The explanatory methods we call 'established' here are those that have featured in empirical studies in the field of overqualification research. This, however, does not automatically imply anything about the popularity of a given method or its empirical substantiation.

The human capital theory

The human capital of employees comprises not only the certified knowledge they have acquired at schools or technical colleges but

¹⁴ It should be noted, however, that the employer's assessment at this stage is based purely on paper qualifications. This systematically ignores the role of 'soft skills', to which increasing importance is attached (see for example Blaschke, 1987). There is much evidence to suggest that such qualities – especially in the service sector – are often a necessary, though not sufficient, condition for a successful career (in the case presented here, professional expertise – normally certified by a formal qualification – would also be essential). It is not inconceivable, however, that professional expertise and 'soft skills' could be alternatives. This would mean that a job applicant's soft skills could compensate, at least in part, for a lack of professional expertise and/or paper qualifications.

also contains other components, which are created as the employees gather work experience or which reflect their length of service with a company, for example. If these diverse components are interchangeable, it is conceivable that various people whose components are mixed in different proportions might possess an equal stock of human capital. In such a case, measuring the extent of a mismatch on the sole basis of formal qualifications would not furnish proof of inefficient skill deployment in the labour market.

This more methodological aspect of overqualification, however, only comes into play if a DOT/GED approach is adopted to measure the degree of overqualification; such an approach is not based on employees' subjective self-reported estimates but on a standard set of measures of required schooling for various occupational categories (see subsection 4.1 below). Accordingly, the human capital approach (Becker, 1964) is never used to explain the persistence of overqualification, except by Sichernmann (1991), who makes a study of this aspect of the overqualification problem (p.114). Since the human capital theory may be deduced from neoclassical premises (see subsection 3.1 above), Rumberger's comment, 'overeducation does not really exist in this conception' (Rumberger, 1981b, p.24) applies to the theory of human capital too.

Nevertheless, the great versatility of the human-capital theory surfaces once again in partial analyses in the field of overqualification research when, for example, it is demonstrated in western Germany that, in the course of a career in which a person's jobs generally match his or her qualifications, transitional periods spent in overqualification result in less erosion of human capital – and hence of subsequent earning power – than equivalent periods of unemployment (see subsection 6.6 below).

The assignment theory

The assignment theory, which was established by Tinbergen (1956), following preparatory work by Roy (1951), and was further developed by Sattinger (1975), Rosen (1978), Hartog (1980, 1981a and 1981b) and Mac-

Donald (1982) proceeds from the assumption that people with different skill levels are assigned to jobs with different requirement levels. Given the complexity of this allocation process, mistakes are inevitable. In other words, the phenomenon of underskilled (and overskilled) employment is inherent in an intricately structured market economy. The income effect of such mismatches is examined in assignment literature, which is able to demonstrate that the income differential arising from the discrepancy between individuals' formal qualifications and their job descriptions is exclusively incurred by neither the employer, as the job-competition model might lead us to expect, or by the employee, as the human-capital theory would suggest, but is actually divided between both parties (Hartog, 1986). Hartog shows this explicitly for a case of directly measured overqualification (Hartog, 1985a). The ratio in which this income effect is split between the two parties can also be established for Germany and other countries.¹⁵ When the income losses incurred by each party from a mismatch are reduced, this eases the pressure on either side to avoid overqualification and makes the phenomenon all the more persistent.

Filtering, signalling and screening approaches

Filtering, signalling and screening approaches¹⁶ all proceed in similar ways from the assumption that human capital created in formal education does not directly determine employees' pay levels. The exact future productivity of job applicants is not recognisable to a prospective employer, who faces the problem of 'hiring as investment under uncertainty' (Spence, 1973, p.356). The quality of the applicants' training certificates serves as a manifest indicator of the latent variable 'future productivity'.

¹⁵ See Rumberger, 1987 (United States), Daly et al., forthcoming (United States and Germany), Alba-Ramírez, 1993 (Spain) and Kiker et al., 1997 (Portugal).

¹⁶ See Arrow, 1973; Spence, 1973 and 1974; Taubman and Wales, 1974, pp.153 ff.; Stiglitz, 1975.

This resolves the crucial problem of uncertainty or imperfect information, since candidates with a higher or more relevant educational qualification are expected to be more productive than others. The certificate only acts as a signal, a screening mechanism and a filter in the recruitment situation. Once the new recruit has started work, he or she can be extensively tested, as can the efficiency of the basis on which the recruitment decision was made, in other words the approaches we are discussing here; the effect of the certificate diminishes rapidly: 'To the extent that the employer does filter and does so accurately, the value of the college filter is reduced' (Arrow, 1973, p.215). Even if some certificates and/or their holders prove unproductive when put to the test, this will scarcely change employers' decision-making criteria, since employees with higher educational qualifications are more productive on average than their less-educated colleagues: what counts is the level of expectation. So it is not the actual human capital that yields an investment dividend but the certificate. To put it another way, the certificate, being a manifest quantity, is a tangible indicator of the holder's human capital, which, being a latent quantity, is not directly measurable – at least not in the recruitment situation; presumably these two quantities are not perfectly equal. On the basis of these premises too, the return on individual certificates may be expected to fall when the market experiences a glut of labour; nevertheless, the fact that a certificate attesting to a higher level of education is not only directly rewarded but also indirectly, because it serves as a key to skilled employment, tends to increase demand for higher qualifications within the education system, irrespective of market demand for labour.

This growing demand is further stimulated by factors extraneous to the labour market, namely the non-monetary returns to higher education, such as the accretion of social status and prestige; here too, the educational certificate serves as a signalling device.¹⁷ If the demand for labour with the skills and

¹⁷ On this aspect of formal qualifications, see Smith, 1986, p.98.

qualifications in question cannot keep pace with this expansion, the result – once all the matched posts have been filled – will be a rise in the unemployment rate for people with higher qualifications and/or an increase in overqualification.¹⁸

The distinctive feature of the aforementioned approaches is that they are almost impossible to test empirically within a microeconomic framework. Although nearly all the relevant empirical studies on the subject of overqualification resort to these approaches when they advance their explanatory hypotheses, they offer no explicit test. They circumvent the measurement problem by relying on the fact that the empirical legitimacy of these approaches is generally held to be irrefutable.

This probably applies even more to European countries with sophisticated systems of vocational education than, for example, to the United States. In Germany, for instance, virtually every job offer – at least above a modest skill level – stipulates that applicants should possess a specific formal qualification. The function of the required certificate as a signal and a screening device is not altered by the fact that, in recent times, especially at the highly skilled end of the jobs market, mere evidence of vocational training is no longer enough to secure a job. Additional tests, such as those conducted in the assessment centres of large companies, seem to be a response to the appreciable weakening of the signal emitted by university degrees, for example. The implication – which may not be entirely unfounded – is that we are seeing a decline in universities' ability to measure their students' skills and to translate the results of their measurements into a valid form of certification when students complete their degree courses. The signal function of a certificate, however, is unquestionably preserved by virtue of the fact that, while it may not be a sufficient qualification in itself, in the vast majority of cases it is probably at least a *sine*

qua non for the jobs for which certificate holders apply.¹⁹

Job-competition model

The job-competition theory is based on the premise that an individual's place in the job queue is largely determined by the nature of the underlying variable 'education'. A higher level of education – whether or not the job actually requires it – implies lower training costs for employers. It will likewise take less time and effort to familiarise individuals with a job for which they are overqualified than for one that matches their formal qualifications.

Still greater importance attaches to the training costs involved in upgrading employees' skills and qualifications. The preference is to invest in employees who, on account of their educational background, are likely to be the cheapest to train. Accordingly, it is the overqualified candidates who raise the highest expectations in terms of returns on further educational investments and who therefore stand the greatest chance of being sent on training courses; these corporate expectations and the strategy of externalising training costs to which they relate (in the case of overqualified employees, the education system has already footed a good part of the bill) put overqualified people in pole position in the labour queue, ahead of those whose qualifications match the job description; in short, overqualified people have a head start in the recruitment stakes (Thurow, 1975, pp.75ff., pp.86 *et seq.* and pp. 91 ff.).

This model is therefore able to explain an employer's motivation for preferring overqualified candidates and, by the same token, the persistence of overqualification.

An important point is that the candidates' formal qualifications only determine their position in the job queue. They do not, however, affect the income they can expect to earn; that is determined by the job description

¹⁸ For detailed treatment of this phenomenon, see Rumberger, 1981b, pp. 25ff., as well as Tsang and Levin, 1985, p.95.

¹⁹ See also Rippe, 1984, pp.76 ff., on this point and, for a more general analysis, Weißhuhn, 1978.

alone.²⁰ So all that Thurow's job-competition model directly explains is the motivation of employers to put cost and productivity considerations first and opt for the candidate with the best formal qualifications.

This does not directly explain the incentive for the candidate to accept an underskilled job, because he or she cannot expect an education premium. Indirectly, though, the desire to acquire the highest possible level of educational certificate in order to secure the best possible position in the job queue helps to perpetuate overqualification from the supply side. If overqualification is always an option, this strategy seems rational, irrespective of the structure of demand for labour. The demand for education in this case is not based on absolute expectations but is governed by the desire to secure the best possible relative position in the labour market, even at the risk of subsequent devaluation of qualifications.

The upshot of this is that people with higher qualifications are squeezing the less qualified out of the jobs they have traditionally occupied.²¹ This applies at least to jobs with more than minimal skill requirements (cf. van Ours and Ridder, 1995). In this respect, the job-competition model is therefore compatible with the approaches described on the preceding pages.²²

Rumberger writes, '[...] the model does offer an intuitively appealing interpretation of the phenomenon of overeducation' (Rumberger, 1981b, p.29); this may be the reason why this is the most frequently cited approach in the empirical literature on overqualification.

There is, however, one serious problem in relation to empirical testing, although it has

²⁰ The same applies to non-monetary returns (see von Henninges, 1996, p.81).

²¹ For a more detailed treatment of this point, see Rumberger, 1981b, pp.27 ff., as well as Tsang and Levin, 1985, p.95).

²² For a more extensive discussion of this aspect, including employers' productivity considerations, see point 2.3.4 above.

surprisingly gone unmentioned in the literature that has been produced to date. This concerns the question of the type of training in which overqualified employees are expected to enjoy comparative advantages over their colleagues with well-matched jobs and less schooling. Is it initial training, when they are new to their jobs, in other words the training of recruits for their posts? Or do these advantages relate to *future* training courses to upgrade their skills and qualifications, particularly in connection with career development within the company? Thurow is not at all specific on this point.

The classic test of the job-competition model in relation to overqualification involves a comparison between the training activities undertaken by employees in underskilled jobs and those undertaken by employees in appropriate jobs (see for example Groot, 1993a and Hersch, 1995). If the validity of the initial premise is to be proved, it must be demonstrable that overqualified employees undergo less training than those whose jobs match their qualification levels, since people with better formal qualifications need shorter familiarisation periods and less training. In order to substantiate the second premise, however, we should need to arrive at the opposite result, since the greater learning capacity of the more highly educated employees will reduce training costs and therefore increase the return on investments in further training; at constant required skill levels, employees in underskilled jobs are therefore more likely to be sent for training than their less-educated colleagues whose jobs and qualifications are well matched.

There are several reasons why the second interpretation appears more credible. In very undemanding jobs, which would be underskilled for any employee, familiarisation normally takes the form of learning by doing. At least in European surveys, however, most of the training reported by overqualified respondents is formal in nature. If this line of argument is pursued, the training activities reported in surveys must relate primarily to further training designed to upgrade skills and qualifications. Such an interpretation also draws an analogy with the theory of ca-

reer mobility (see below). This not only concerns the employer's motivation but also that of the employee: the prospect of being at the front of the queue for further training and thus of achieving at least limited promotion is likely to increase a jobseeker's willingness to accept overqualification.

The job-matching theory

The theory of job-matching, which was developed in the 1970s, may be loosely divided into two types of model. In the first category, jobs are understood as 'pure search goods'. Information about an alternative job, in which an employee's qualifications and the job description are likely to be more closely matched, is obtainable at all times. If such an alternative is available elsewhere, the employee will switch companies (Burdett, 1978; Jovanovic, 1979a; Mortensen, 1988). In the second category of model, jobs are interpreted as 'experience goods': "That is, the only way to determine the quality of a particular match is to form the match and "experience it" (Jovanovic, 1979b, p.973, quoting from Nelson, 1970; for studies on this type of model, see Johnson, 1978; Jovanovic, 1979b; Topel and Ward, 1992).

Length of service with one company is traditionally regarded as a suitable indicator of the quality of a match: 'Job tenure is my (match) quality indicator under the assumption that "good matches endure"' (Bowlus, 1995, p.336; for analogous rationalisation, see for example Schasse, 1991, and Topel and Ward, 1992). The assumption is that a mismatch will be identified relatively quickly by one of the parties, and the employment contract will be terminated. A good match, on the other hand, benefits both sides, and the contract will therefore last longer.

In the context of the present study, it seems logical to measure the quality of the match directly by reference to the correlation between qualifications and job descriptions. Employment in a job that is commensurate with one's level of training is obviously more likely to prove a good match than overqualification. Accordingly, the 'experience-goods' variant of the job-matching theory is able to explain the persistence of overqualification on

the basis that, on the one hand, employees need a certain amount of time in the initial phase of their careers to find a 'good' match. Employers, on the other hand, do not respond quickly enough – if at all – to mismatches, sometimes because of a risk-avoidance strategy based on the precept that 'a bird in the hand is worth two in the bush', and therefore miss the opportunity to test whether the employee's skills are better matched to the requirements of a different job and hence the chance of improving their company's overall efficiency.

In the empirical studies on overqualification, the job-matching theory is only used on the odd occasion as a means of explaining the phenomenon. Sicherman (1991) uses it implicitly in testing his career mobility model: 'Overeducation might be an indication for a bad match in the sense that the worker's education might qualify him for a better-paying job. In such a case, it is likely that eventually the worker will change his job, that is, his occupation, firm, or both' (p.105). Sicherman tests it explicitly when he compares the job tenure of employees whose job descriptions are commensurate with their qualifications and those who are overqualified for their jobs. His finding that mismatched employees have shorter job tenures (p.106) is hardly surprising. To the extent, however, that a short stay with a company is a traditional indicator of a mismatch, as was mentioned above, this test is tautological in a sense; the best it can do is to verify the validity of the mismatch indicator selected by the job-matching theorists, namely job tenure.

Alba-Ramírez (1993) chooses a more effective test. He not only uses the duration of jobs, which can be observed longitudinally, but also has recourse to the employee's earlier career history. He examines the connection between the average duration of all previous jobs and the current job match. The analysis is extended to include two further partial indicators: whether the employee has ever changed firms and whether the employee has more than five years of seniority in his or her current job. On this basis, Alba-Ramírez likewise finds empirical evidence to validate the theory.

There are, however, two weak spots in this train of thought. The first is that Alba-Ramírez is only able to use prior work experience, a 'potential' measure; this is likely to cause serious reliability problems, especially in the case of older working women. The second is that he includes in the calculation the employee's seniority in his or her present job, which is a piece of right-censored data at the time of observation. Where employees have only had their present jobs for a short time, moreover, it will not yet be possible to establish a valid correlation between job duration and match quality.²³

In the present study, we intend to test the empirical evidence for the 'experience-goods' version of the job-matching approach even more explicitly.

The expectation raised by the theory is clearly that the match between the demands of the job and the worker's skills and qualifications will be all the more perfect the older and more experienced an employee is (Franz, 1991, p.203).

Although the argument that 'older and more experienced' employees stand a better chance of being in a well-matched job by virtue of the progressive improvement in their ability to assess their own career prospects is certainly plausible, it does raise the question of the validity of the personal attributes cited by Franz. Merely growing older is obviously not enough in itself. The second attribute, increasing experience, certainly seems to be more serviceable. If experience is not intended to be synonymous with age, it is plainly not experience of life but occupational experience that is meant here. The theory does not suggest that occupational experience, which in this context means the knowledge accumulated by the employee about his or her productive capacity and the uses to which it can be put in the labour market, is likely to increase through continuous employment in one and the same job but only through a process

²³ Alba-Ramírez, like Sicherman (1991), establishes a strong positive correlation between job tenure and match quality (pp.272-273).

of trial and error in various jobs with several different employers.

For this reason, it seems advisable to regard the frequency of job moves as a direct measure of occupational experience in empirical tests.²⁴ This would be used to check whether an increase in the number of career moves actually reduces the probability of a subsequent mismatch between formal qualification and job requirements. A specific test (Büchel, 1998b, p.139) demonstrates that – contrary to theoretical expectations – overqualified employees have a record of considerably greater career mobility than those in jobs that match their level of training. This finding does more to prove the plausibility of the segmentation approach (see below), which predicts weak company attachment among employees in undemanding jobs.

Career mobility theory

The theory of career mobility, developed by Sicherman and Galor (1990) on the basis of Rosen's groundwork (1972), postulates that the return on investments in higher levels of education not only manifests itself in higher starting pay but also in better prospects of promotion within a company or of an upward move to another company. In other words, it focuses on income development over a period of time and may be regarded as a refinement of the human-capital theory. If tests control for required skill levels, promotion prospects will increase with rising education levels.

One proposition ('Corollary 2') is as follows: 'Individuals may choose an entry level in which the direct returns to schooling are lower than those in other feasible entry levels if the effect of schooling on the probability of pro-

²⁴ Even within the work of individual authors, this configuration is presented in different ways and hence inconsistently. Hersch (1991), for example, rightly speaks of employees who 'move into better matching jobs' (p.144), which they clearly cannot do unless they make a change (such as obtaining promotion within a company or moving to another company), whereas Hersch (1995) refers generally to 'previous work experience' (p.620), which is measured in total years of employment.

motion is higher in this entry level' (Sicherman and Galor, 1990, p.177).

Sicherman (1991) operationalises this sort of promotion as both a 'move to higher-level occupation' and the attainment of a 'higher wage level' (p.109). A motive for accepting an underskilled job can be deduced from the above hypothesis: '[...] it will be rational for some individuals to spend a portion of their working careers in occupations that require a lower level of schooling than they have acquired. This observation can serve as a partial explanation for the phenomenon of 'overeducation' (Sicherman and Galor, 1990, pp.177-178; cf. Sicherman, 1987). The higher the probability of promotion, however, the greater is the possibility that the employee will quit if promotion is not approved; this is the other proposition ('Corollary 1') of the career mobility theory (see Sicherman and Galor, 1990, p.176).

The appeal of the career mobility theory does not derive solely from its high degree of plausibility but also from the fact that – unusually – it can explain both parties' motivation for accepting an individual job/education mismatch by means of the same approach.

Employees forego part of what they could be earning now in exchange for a favoured position in the promotion queue, thereby investing in increased future earning power. If, after some time in the job, they feel that their employer has reneged on the deal, their only option is to move to another company.

For employers this arrangement is enticing in the sense that it gives them an opportunity to 'test' new recruits, whose high level of qualification predestines them for managerial functions, at a reduced rate of pay over a certain period of time. There is something of an analogy between this and the training process under the German *Duales System* of alternating classroom and workplace training, in which the company with which a trainee has been working decides at the end of the training course whether to offer the trainee an employment contract, in other words to 'promote' him or her to the status of a skilled worker. A comparable configuration is becoming

increasingly commonplace in the academic world, whereby individuals are not appointed to traditional academic posts until they have completed a traineeship in the institution in question.²⁵ The 'course fee' that the trainee is implicitly expected to pay for his or her on-the-job training thus assumes the nature of an investment.

In a subsequent study, Sicherman (1991) went back to the test of the theory developed in Sicherman and Galor (1990) and tailored it explicitly to the phenomenon of overqualification. He found clear evidence, which is hardly surprising, of the validity of the career mobility theory he helped to construct. Employees in underskilled jobs, he established, are younger than those in well-matched jobs, have a higher rate of internal promotion and switch companies more often.

Alba-Ramírez (1993) arrives at similar results. The problem with the approach adopted in both studies, however, is that, in comparing employees in underskilled and well-matched jobs, they operate with a constant level of formal qualification but different levels of skill requirement. If the structures they identify correlate highly with job levels, the findings will inevitably be misinterpreted, because a causal link will be imputed between the various identified effects and the job/education mismatch, although it is possible that the differences between the two groups are entirely due to the fact that the members of one group have more demanding jobs than those of the other group.

In a test the author conducted on this theory (Büchel, 1998b, pp.140 ff.), allowance was made for this possibility by ensuring that, once the conventional qualification-based test had been completed, the effect of overqualification was only investigated for certain jobs which were as homogeneous as possible in terms of required skill levels. The test shows first of all that there is no significant differ-

²⁵ Evidently, in many companies, an employee's precise job is not determined until he or she has successfully completed the traineeship programme' (iwd, 1994b, p.5).

ence between the promotion prospects of overqualified employees and those of adequately educated employees. Secondly, on the basis of the same investigative strategy, the test actually did indicate a negative correlation between the internal promotion of an overqualified employee and the probability of that employee leaving the company, just as the theory predicts, but it also demonstrated the same phenomenon for adequately educated employees. These findings clearly do not deliver a resounding endorsement of the career mobility theory.

In a more extensive test by Büchel and Mertens (2000, and forthcoming), the Sicherman (1991) findings are replicated with German data (full-time male employees in western Germany) – with the required skill level again being held constant. This test actually demonstrates a higher probability of promotion into an occupational group with a greater mass of human capital for overqualified employees than for those with adequate education. This also applies if we pursue the approach adopted by Robst (1995a), who analyses changes in occupational status rather than transfers from one occupational group to another. It has been demonstrated, however, that these findings largely derive from blurred distinctions between categories of occupational status. If changes in income are examined instead, and if the test controls for the base effect (income in the base year), it emerges that overqualified employees experience less wage growth than their adequately educated colleagues. This finding is consistent with that of the sociological studies which have established a link between better job/education matches and brighter career prospects (see for example Sørensen, 1977, and Spilerman and Lunde, 1991, p.716). This is another finding which undermines the attempt made in Sicherman (1991) to apply the theory of career mobility to the phenomenon of overqualification.

The theory of differential overqualification

A remarkable theoretical approach to the explanation of a greater risk of mismatch between formal qualification and job requirements for married women in restricted

markets was developed by Frank (1978b; see also Frank, 1978a). He criticised the fact that the difference in the incidence of mismatches between male and female employees had always been ascribed to the personal characteristics of men and women (see for example Gwartney, 1970, Cohen, 1971, and Fuchs, 1971) and that the residual variance had been rather feebly explained away as 'discrimination' (see for example Oaxaca, 1973).

A theory of differential overqualification may be outlined as follows. The starting point is an income-maximising jobseeker. The expected rate of pay is governed by the skill level of the job alone, like the expectations in the job-competition model and the production theory (Frank, 1978b, p.362).

If 'qualification' is defined very broadly, jobseekers are, to a certain extent, overqualified for every job for which they are eligible to apply, since they will always possess certain knowledge that is never used in the performance of their duties. This overqualification gives rise to a wage deduction from the 'optimum' (purely education-dependent) income which would be obtained if a perfect match were to be made (p.362). The economically rational strategy for a single individual is therefore simple: the individual identifies that vacancy in the market system for which he or she is least overqualified. The sampling distribution of the degree of qualification depends on the total number of vacancies in all markets combined;²⁶ this follows from the fact that the mobility of an individual within his or her own region is not restricted.²⁷ The expected degree of overqualification (and hence loss of pay) for the single searcher approaches zero as the total number of vacancies in all markets approaches infinity.

In the case of married couples, the search problem is considerably more complex. Assuming an inclination towards paid employ-

²⁶ On the concept of local labour markets, see for example Topel, 1986.

²⁷ Frank chooses not to include transaction costs in the calculation underlying a migration decision.

ment on the part of both spouses, their aim would be to maximise the joint income. Because of the formal basis of the spouses' respective rates of pay, it is not possible simply to find the lowest possible degree of combined overqualification; consideration must also be given to the spouses' education levels, which may differ (pp.363-364). The optimisation process is further complicated by the assumed condition that both spouses will have to find work in the same local job market. Four general properties of the expectations with regard to a married couple are identified (pp.364-365):

- i) The expected amount of the added overqualification degrees of a searching couple will exceed the expected degree of overqualification for a single searcher.
- ii) The expected degree of overqualification of a husband will be lower than that of his wife, if his qualification is higher than her's (and vice versa).
- iii) The expected degrees of overqualification for both partners will approach zero as the total number of vacancies in the market system approaches infinity.
- iv) The expected degrees of overqualification for couples are not, as in the single-worker case, independent of the distribution of vacancies across local labour markets. The expected degrees of overqualification increase as vacancies are more evenly distributed across local labour markets – always assuming that migration is a possibility for the couple.

In this dilemma, the sheer complexity of which will overwhelm any couples trying to maximise their household income, Frank (1978b) says that the husband takes the initiative and acts in accordance with a 'male chauvinist family location decision rule' (p.364). He begins by seeking the best possible job for himself once he has performed the simple task of identifying the vacancy for which he is least overqualified (see above); in so doing, he also determines the local labour market in which both spouses will work. Once this decision has been taken, the wife conducts her own individual

search to find the best possible job for herself within that market.

Assuming that the couple are entirely free to migrate, the crucial point is that the husband is clearly able to conduct his search across the whole range of local markets, in other words to apply for any suitable job vacancy in any market. The wife's subsequent search, however, is restricted to the local job market selected by the man. Since the number of job vacancies in the local market is smaller – very much smaller – than in the global market, the wife may logically be expected to find a poorer match. This disadvantage will surely be all the greater if the husband finds his optimum job in a small local market.

The disadvantaged position of married women may be reflected in either of two ways. If the woman is unable to take up a more attractive job offer at another location because her husband has already found his optimum job locally and is not prepared to move, she is a 'tied stayer' (Mincer, 1978). If, on the other hand, the man has decided to accept a lucrative job offer far away from the couple's present home, his wife is compelled to move with him, irrespective of the quality of her current job or her employment prospects at the new place of residence; she is a 'tied mover'. So whereas marriage tends to enhance a man's status in the labour market,²⁸ the opposite may be expected to apply to women.

A high degree of empirical plausibility makes this another persuasive theoretical approach. It does not even rely on the assumption that the man will adopt an irrational 'macho' stance to establish the family location against the interests of his partner. Since, in terms of the whole population, the average level of formal qualification for husbands is always observably higher than that of wives, and since married women work fewer hours on average than married men, the use of the 'male chauvinist family location decision rule' should generally be rational too, given the aim of

²⁸ For a summary of the various reasons for this, see Cornwell and Rupert, 1997.

maximising the total household income – especially as it seems impossible to fully reconcile both sides' interests, not only because of the mathematical complexity of the decision-making operation but also because of crucial information gaps.

When Frank tested the theory (Frank, 1978b), the test was not explicitly tailored to overqualification but took the form of an income analysis.²⁹ Studies have traditionally focused on the 'tied stayer' variant, presumably because of data limitations.

An income-based analysis, however, raises significant methodological problems. If an unequivocal causal link is to be established between the phenomenon of differential overqualification and income differentials, it will be necessary to control for those income-level variations between larger and smaller local labour markets (the usual distinction is between municipal and regional markets) which are not productivity-dependent. Such variations include, for example, local weighting allowances designed to compensate for higher housing costs. In addition, there would be a need to control for differences between municipal and regional occupational structures, for instance by including several hundred occupational dummies in the income estimates. None of the studies that have appeared to date have come up with a satisfactory solution to this problem.

A less complex approach can be adopted if the examination of relative incomes (which are only used, after all, as indicators of the job/education mismatch that this theory studies) is replaced by direct examination of the mismatch, which might be done by measuring the degree of under- or overqualification. The only example of this line of enquiry is found in McGoldrick and Robst (1996),³⁰ who concluded that there was no empirical evidence to sup-

port the theory of differential overqualification, since the dummy variables they incorporated to denote different sizes of region did not have a significant effect in the model used to establish whether the probability of a married women being overqualified for her job was greater in smaller than in larger markets (p.282).

This test was reproduced in Büchel, 1998b, p.143 ff.³¹ The author's study was also the first to include tied movers in such a test. It also took heed of the criticism made by McGoldrick and Robst (1996) that the number of job vacancies was an inadequate indicator of the shortage of jobs since it did not take account of the number of people seeking those jobs; a more suitable measure of the 'tightness' of the labour market, they said, would be the regional unemployment rate. At the same time, for the sake of greater validity, this test included not only married couples but cohabiting couples too; married people not living together, on the other hand, were treated as single.

Like its predecessors, this study had to adopt an implicitly assumed correlative trend between the number of job vacancies, the total number of jobs and the population of the place of residence when it tested the theory, although it also controlled for the regional unemployment rate (see above). The problem of equating the place of residence with the job location can, however, be overcome by at least a proxy construction which controls for the distance from home to work.

The study demonstrated that married women in rural areas actually do register a significantly above-average overqualification rate if – and only if – an estimated distance from home to work is taken into consideration. This high-risk group can therefore avoid the overqualification syndrome if they commute into larger urban areas. However, where married women living in sparsely populated areas are unable or unwilling to commute, the probability that they will not find a well-

²⁹ For similar approaches, see Topel, 1986, and Ofek and Merrill, 1997.

³⁰ Teichler (1994), who focuses on Germany, identifies academics who have 'voluntarily' chosen underemployment in preference to a more appropriate post because they wanted to be close to their partner (p.30).

³¹ See also Büchel, 1999d, and Büchel (forthcoming).

matched job in the vicinity of their home is atypically high. This finding accords with the expectations of the theory.

The job-search theory

The basic assumption of the job-search theory (Stigler, 1961)³² is that jobseekers adopt a search strategy which will maximise their potential lifetime earnings. In the basic model of the theory, which has subsequently been extended in many different ways, it is assumed that, from a density function of wage offers, postulated as a known quantity, the jobseeker chooses the number of offers that will optimise the job search process. Once this chosen number of job offers has been reached, the jobseeker will select the highest wage on offer. The longer the jobseeker waits, the greater his or her chance of receiving an even higher wage offer. However, the longer the duration of the job search, which equates to a period of unemployment, the higher the cost to the jobseeker, not only in terms of higher direct expenditure arising from job applications but also in terms of opportunity costs, in other words the income the jobseeker has foregone in order to wait for a better offer, minus any unemployment benefit he or she might have received in the interim period. There is also a danger that acquired skills will become increasingly obsolete during that period.

As the job search goes on, the jobseeker's target wage may be expected to decrease, since the time limit on a person's working life will compel the jobseeker to operate within a restricted time frame. The longer the search for work lasts, the less will remain of the jobseeker's working life. After the wage level, this is the second decisive parameter governing the maximisation of lifetime earnings. The job search is maximised if the marginal cost of seeking a job is matched by the marginal increase in future earnings.

The expected decrease in the target wage as the off-the-job search continues may mean that the job-search theory can help to explain

why people accept underskilled jobs, because a lower wage is likely to equate with a lower required skill level, for which the jobseeker will often be overqualified. The findings contained in Büchel (1992), for example, show that a high percentage of skilled workers in West Germany can only escape from a lengthy spell of unemployment by accepting jobs in which their specialised skills are not required.

It may therefore come as a surprise to discover that, in the existing body of literature on overqualification, the job-search theory is hardly ever cited as a means of explaining the phenomenon. One implicit exception is Patrinos (1995), who explains the acceptance of overqualification as a response to abnormally heavy pressure to find work but generally focuses on the economic resources at the disposal of jobseekers.

With regard to the serviceability of the job-search theory in the context of overqualification, however, it should be noted that the theory can only explain the temporary, short-term occurrence of overqualification, since it explicitly relates to off-the-job searches only. The theory is therefore unable to explain why overqualified people, having taken undemanding jobs, are then unsuccessful in their on-the-job search for a better job, which in this context would mean a job that is commensurate with their qualifications (on this expectation, see Rosenfeld, 1992). Hence, since the theory can only explain mismatches caused by frictional loss, it is not capable of explaining the persistence of a high percentage of overqualified employees in the labour force.

3.3.2 Unorthodox approaches

Rumberger (1981, pp.29ff.) speaks of two unorthodox approaches to the explanation of persistent overqualification. One of these is the segmentation approach, and the other is a 'radical' approach; in American terminology in this field, 'radical' stands for 'Marxist'.

Segmentation approach

The segmentation approach rejects the homogeneous neoclassical model of the labour mar-

³² For a review of the most important refinements of this theory, see Lippman and McCall, 1976 a, b.

ket as unrealistic and postulates the existence of labour-market segments in which widely disparate working conditions obtain. The assignment of labour to these market segments is decided by employers on the basis of a 'discriminatory' weighting of individual screening indicators, such as formal qualification; it is asserted that opportunities to move from one segment to another are extremely limited.

In the original model presented by Doeringer and Piore (1971), the basic assumption was that the U.S. labour market is essentially a dual market. The primary market is chiefly reserved for the traditional core workforces, and jobs in that market are characterised by high wages, employment stability and good career prospects. In a secondary or peripheral labour market with unskilled, poorly remunerated and insecure jobs, employers recruit their fringe workforces in times of prosperity; when cyclical downturns come along these fringe workers can be fairly easily offloaded with minimal transaction costs, because they are loosely attached to the company, which has accordingly invested little in the development of their human capital³³.

This simple methodological concept has proved to be highly resilient. Individual refinements, such as attempts to take account of regional characteristics, have seldom gained general currency. In the West German labour market, for example, Lutz and Sengenberger (1974) claimed to have identified a separate segment of the 'specialised labour market' which was characterised by insecure conditions of employment for skilled workers with good formal qualifications. This regional distinction was intended to take account of the fact that the Federal Republic of Germany, unlike the United States, had an established system of alternating on-the-job and theoretical training.

This distinction, however, is open to criticism on the grounds that every job requires a certain degree of skill, however minimal. Why successful completion of an apprenticeship,

of all things, should be used as the decisive skill-categorisation criterion largely defies logic. The skill level required for a job is traditionally operationalised on the basis of the wage paid for that job, a variable that is hardly likely to be governed by 'natural' thresholds such as the difference between the wage of an unskilled or semi-skilled worker and that of a skilled worker. The infinite array of criteria that could be selected to distinguish between segments of the labour market and the resulting diversity of typological segmentation, which could hardly stand up to a validity test, have already come in for criticism from several sources, and rightly so (cf. Blien, 1986, p.147).

The segmentation approach does help to explain the persistence of overqualification in conjunction with the screening approach and the job-competition model. If all suitable jobs in the primary segment of the labour market are initially occupied, jobseekers who are less well equipped to withstand the screening devices (applicants with lower pass grades where formal qualification is the screening device, for example) have to settle for jobs in the peripheral segment. Since the boundary between the segments tends to be impervious, the result is a state-dependence effect, whereby the fact that a person works in the peripheral segment becomes a further negative screening device (see also Rumberger, 1981b, p.32).

Neubäumer, 1993 (see also Neubäumer, 1997, and forthcoming), adds a noteworthy dimension to conventional consideration of market segmentation in the present context by postulating the segmentation not only of the labour market but also the market in course places within the system of vocational training. In those occupations and industries where training and working conditions are poor (e.g. for hairdressers), training is provided in excess of requirements – not only because the cost-benefit ratio of training is especially favourable to employers in these areas of activity but also – and this is the nub of Neubäumer's argument – as a means of coping with the loss of the best trainees, who move upmarket when they have served their apprenticeship. Because even the training

³³ For an overview, see Cain, 1976.

market is segmented, the less gifted applicants for training places, even though they are aware of the aforementioned situation, are compelled to accept training places in the peripheral segment of the training market. In so doing, they are also running the risk, once they have completed their course, of neither finding an appropriate job in the occupation for which they have trained nor of moving into a better segment of the market (assuming they are prepared to switch to another occupation). In such circumstances, their only alternative is often to settle for a relatively menial job.

Because its underlying hypothesis possesses a certain plausibility, the popularity of the segmentation approach remains undiminished. In very specific areas of the labour market, it is certainly possible to observe structures that are consistent with the propositions of the segmentation approach (see for example Büchel, 1994a). Economics-based analyses of overqualification, however, rarely have recourse to the segmentation approach. One reason may be that the approach cannot be built on theoretically self-contained foundations. The propositions of the segmentation approach can be easily constructed in a partially analytical manner on the basis of hypotheses deriving from various microeconomic theories, such as the screening approach or the job-competition model³⁴ – but this also means that supposedly ‘segmented’ structures in the labour market can be explained in economic terms without recourse to the segmentation approach.

The Marxist dialectical approach

From a Marxist perspective, the incidence of overqualification on a large scale serves the interests of capital. The phenomenon therefore performs a similar structural function to mass unemployment, in that overqualified employees are regarded as a reserve army whose members could easily be reactivated (i.e. drafted into more demanding jobs) if the need arose. As this reserve of skills grows in

size, the labour force comes under increasing pressure to ‘toe the line’, while wages are subject to downward pressure (for more precise details, see Rumberger, 1981b, pp.32 ff.; for a brief outline, see Levin, 1995, pp. 14-15). The systematic overproduction of qualifications in the education system (which can be manipulated by the capitalists in a capitalist state monopoly) therefore serves the purpose of systematically weakening the working class in the never-ending class conflict (cf. Bowles and Gintis, 1976, quoted in Rumberger, 1981b, p.35).

This view, however, is invalidated by the fact that the systematic expansion of education provision and the associated desire for an end to elitist educational privilege for the upper classes were being consistently advocated in the sixties by supporters of the far Left too.

Even as recently as the mid-eighties, voices in West Germany were calling for the problem of the overqualification of highly qualified labour and the question of the whereabouts and professional situation of university and college graduates to be ‘addressed in terms of class theory’ (Krais, 1983, p.36).

Although there are unmistakable signs in some European countries that employers may indeed be deriving certain benefits from the current mass unemployment, such as the resultant erosion of trade-union power, this alone is scarcely able to explain satisfactorily why the phenomena of unemployment and overqualification are so persistent. A disinclination on the part of employers to take effective action to eliminate such inefficient deployment of human capital, even if such an assessment could be substantiated, would be easily explicable within the framework of an empirical analytical theory, because it is no more than economically rational behaviour. A connection between overqualification and class conflict seems to be even more spurious.

The Marxist dialectic approach to economics has, of course, lost much of its appeal over the last few years. The sole purpose of describing it here is to ensure that all the relevant theories are chronicled in this literature survey for the sake of completeness.

³⁴ See for example Hartog, 1985a, p.281.

3.4 Extraneous conditions

3.4.1 Institutional regulation

The methods based on partial analysis which are used to explain the persistence of overqualification and which were outlined in point 3.3.1 above are abstracted from the conditions imposed by the institutional framework. In addition to the indirect effect of these conditions, it is likely that their practical application will have a direct impact too. In the countries of Europe with their highly developed welfare systems and their traditionally high degree of corporatism, such conditions will probably have a far greater effect than, for example, in the United States, where most of the aforementioned approaches were developed. Remarkably, scarcely any of the relevant empirical works examine this aspect of overqualification.³⁵

One important factor in people's willingness to accept overqualification is likely to be the differential between the rate of unemployment benefit or, alternatively, social security and the rate of pay for underskilled (normally simple) work. This brings two regulatory arrangements into play – minimum wages secured by the trade unions and the rate of unemployment benefit and social security payments set by the government. In recent times, as the 'jobs miracle' has unfolded in the United States, more and more voices in a number of European countries have been criticising the excessively narrow gap between the minimum wage and welfare benefits. As the gap narrows, the volume of overqualification may be expected to fall, because – in the eyes of many jobseekers – the reward for economic activity is not the pay itself but only the amount by which the wage exceeds the rate of welfare benefit. It does not 'pay', in other words, to take a cheap job.

The employment authorities are trying to counteract these calculations by enforcing the statutory criteria by which a reasonable job

offer is defined. As these criteria become increasingly rigid, sometimes even compelling an unemployed individual to choose between underskilled work and loss of benefits, we may expect the percentage of overqualified employees to rise.

In Germany, for instance, these criteria have recently been considerably tightened in response to the sustained rise in unemployment. Staff directive 30/90 of the Federal Employment Services (*Bundesanstalt für Arbeit*), dated 19 March 1990, rescinded one of the provisions of staff directive 100/82 of 13 April 1982, which laid down that placement in employment at a lower skill level should only be effected if, despite adequate and appropriate efforts to fill the post in question over a period normally lasting three weeks, no jobseeker with the required lower skill level could be recruited.

On 1 April 1997, the new section 103b of the Promotion of Employment Act (*Arbeitsförderungsgesetz*) entered into force, drastically curtailing once more the right of unemployed people to reject job offers. In the first three months of unemployment, offers of jobs paying up to 20% less than the jobseeker's previous employment are classed as reasonable offers, and in the following three months this figure rises to 30%; from the start of the seventh month, a job offer is considered reasonable if the net wage (minus necessary employment-related expenditure) is at least equal to the rate of unemployment benefit (paragraph 3); in the case of full-time work, commuting times of up to three hours per day are considered reasonable (paragraph 4), as are temporary separation of spouses and '*Occupations [...] for which the employee is or is not trained or which he or she has or has not previously pursued*' (paragraph 5 (my italics); see Federal Law Gazette (*Bundesgesetzblatt*) 1997/I, No 20 of 27 March 1997, p.700). Although these rules seem highly restrictive at first sight, the German welfare system is still relatively generous by international standards; in the United States, for example, entitlement to unemployment benefit is subject to the strict proviso that any available job offer – normally at the minimum wage – must be accepted.

³⁵ Tsang and Levin (1985, p.101) and Rumberger (1981b, pp.124-125) are exceptions, although their propositions are couched in very general terms.

It is evident that curtailing the right to reject job offers will not of itself influence the percentage of jobs that are occupied by overqualified people. The impact of such a measure will very much depend on the way in which jobcentres apply the relevant legislation. In Germany, for example, there are some grounds for assuming that, even before the latest amendment of the Employment of Promotion Act, the criteria for the definition of reasonable work,³⁶ which were already rigorously formulated, were not applied very consistently.

Some evidence for this allegation may be derived from the fact that labour offices rarely order the suspension of benefits for rejection of a job offer under section 119(1)(2) to (1)(4) of the Promotion of Employment Act (see for example the official bulletin (ANBA) of the Federal Employment Services, issue No 7/1997, *Übersichten* II, 7/8, pp.1042-3). This finding may indicate that very few offers of underskilled work have been rejected in practice, which would point to the efficiency of the strict criteria for the definition of reasonable job offers. But if this is the case, at a time when it is difficult to place jobseekers, the rising level of unemployment should be accompanied by a parallel rise in the percentage of jobs occupied by overqualified employees; this, however, is not borne out by the available empirical data (see Büchel and Weißhuhn, 1997a and 1998).

The formulation of statutory provisions governing protection against dismissal may be cited as another institutionally imposed condition that influences the volume of overqualification. In this domain too, there are great differences between many European countries and the United States, for example. It is conceivable, for instance, that an overqualified

employee whose company wishes to offload him for productivity reasons has no prospect of finding a job commensurate with his level of training and that he therefore invokes his right to protection against dismissal. In the United States, he could expect dismissal and a place in the dole queue, but in countries with sophisticated systems of statutory protection against dismissal, such systems tend to increase the overqualified percentage of the active labour force.

Another institutional condition which probably has a considerable impact on the percentage of jobs occupied by overqualified employees is the funding structure of the various component parts of the education system. Higher education in Germany, for example, is largely state-funded, which is not the case in other countries. The external effects of this funding structure grossly distort the situation in the education market and are liable to produce a steady flow of overqualified graduates. While the acquisition of educational qualifications at prices 'below the market rate' amounts to rational behaviour in the eyes of the individual, since, given the current imbalance between supply and demand, highly qualified jobseekers are still in pole position in the labour market, in terms of the national economy it generates an excess demand for education.

Besides the conditions enumerated above, there are a host of other governmental or semi-governmental regulatory mechanisms which can directly affect the qualification structure of the labour force and hence, *ceteris paribus*, the percentage of overqualified employees. These mechanisms include the setting of quality standards in the education system, the formulation of rules governing scholarships and student grants and so forth.³⁷ A detailed discussion of every conceivable contributing factor would be an unnecessary digression in the present context; the sole purpose of this part of the study has been to draw attention to the potential impact of the basic conditions in which the employment structure operates.

³⁶ See section 1, and more especially section 2(3) of the administrative order issued by the Federal Employment Services (*Bundesanstalt für Arbeit*) in Nuremberg on 16 March 1982 concerning assessment of the reasonableness of a job offer (*Zumutbarkeits-Anordnung* – documented in the special issue of ANBA, dated 15 April 1982). The author wishes to thank Mr Reichel of the Federal Employment Services for putting together the relevant documentation.

³⁷ See for example Keller, 1997, and Marsden, 1997, on the effects of deregulation.

3.4.2 The production structure and conditions in the labour market

The changes that the production structure undergoes in the course of time – as a result of technological progress, for example – can have a direct effect on the overqualified percentage of the labour force. For example, the incidence of underskilled jobs may be expected to rise if qualifications which were once in demand in the labour market (and were therefore produced by the education system) have been devalued over a period of time as the conditions of production have changed. A classic example of this would be the training of blacksmiths. In addition, job descriptions and skill profiles for particular occupations may change so dramatically with the passage of time that even those employees whose qualifications originally matched their job requirements will eventually come to realise that they are no longer qualified to do their job by present-day standards. Such a development is observable in journalism, for example. While it is conceivable that further training could update employees' skill and qualification levels, horizontal effects, which are not the subject of the present study, are likely to prove more significant than vertical effects. Irrespective of their empirical significance, however, such structural effects are possible and should therefore be investigated as a means of explaining the occurrence of overqualification.

The findings contained in Büchel (1998b, Table 5.16, p.216), however, show that this is not the most common route to overqualification. These findings, which were controlled for a number of variables – several socio-economic characteristics of the employee sample and general economic conditions – reveal that overqualification is immediately preceded by unemployment, by full-time training and by voluntary economic inactivity far more frequently than by adequately skilled employment.³⁸

Besides the aforementioned structural changes that take place over a lengthy period, more rapid changes in conditions within the labour market might also conceivably influence the overall balance between the skill profiles of jobs and those of their incumbents. It may be expected, for example, that contractions and expansions of the labour market which result from cyclical or seasonal fluctuations will directly affect the probability of individuals being compelled to accept overqualification, not least on the basis of the hypothesis that overqualification is a direct alternative to unemployment in many cases. Büchel and Weißhuhn (1998) cite actual evidence of dependence – and inverse dependence – of the aggregate growth of unemployment on the level of overqualification.

3.4.3 Employees' utility preferences

The theoretical approaches discussed in point 3.3.1 above all assume behaviour patterns based on income maximisation. If this assumption is set aside and utility maximisation takes the place of income maximisation, new factors come to light – factors which are relevant in the context of overqualification.

In the typical dichotomy between unemployment and overqualification, leisure time³⁹ plays a key role as a preference in a conventional assessment of the utility of a job offer. A change in the importance attached to leisure time, for example as part of a general shift in social values or as a regionally (as opposed to nationally, for example) conditioned reassessment of leisure time in Europe will therefore directly affect the percentage of jobs occupied by overqualified employees. The linkage is likely to be even less elastic with unemployment as the alternative than with the conventional alternative of a form of economic inactivity other than unemployment, since the 'distorting' base effect of unemployment benefit has to be taken into account.

³⁸ The most common access route is from unemployment, followed by full-time training, with voluntary inactivity in third place.

³⁹ It may seem euphemistic to refer to a period of unemployment as 'leisure time' but is nevertheless based on specialised usage.

As for the alternative status of employment commensurate with qualification level, which has been largely neglected in the discussion of the phenomenon of overqualification (see subsection 3.2 above), the connections between utility preferences and the decision to be taken are presumably even more intricate. Individuals who are not out to maximise their income have to assess a complex set of job characteristics.⁴⁰ When people take more demanding jobs, they can expect heavier workloads, longer journeys to and from work, greater pressure to work overtime, less scope for negotiating reduced working hours and more besides. The 'purpose' of a job is also a factor. The need for a sense of purpose is surely universal, but it may take different forms from one social milieu to another. Schlegelmilch (1987), who reports findings from an analysis of job content among university graduates who have opted for an alternative lifestyle, records the following comments from a graduate working as a masseuse in a sauna: 'When I think of all that intellectual work, all that studying ... it makes me sick. You sit there at your desk, and maybe you write the odd article, and somebody says it's quite good; that happens maybe once or twice in a year.' (Schlegelmilch, 1987, pp.179-180). In an earlier work, Schlegelmilch also lists a number of irrational grounds (from an income-maximising point of view) for preferring underskilled to adequately skilled employment, irrespective of the demand situation in the market for adequately skilled jobs. These grounds include problems with a professional role, such as that of a teacher, anticipated problems with superiors (encountered in people of an anti-authoritarian disposition), the disillusionment of individuals with what they could achieve in their occupation in the prevailing conditions and so forth (Schlegelmilch, 1982, pp.418-419).

Individuals who rate the utility of non-monetary job characteristics higher than that of income are more likely to accept overqualification. A change in people's priorities as part

of a general shift in social values also has a direct effect on the percentage of the total labour force in underskilled jobs.

Many of the empirical findings in Büchel (1998b) show that people who subscribe to the statement 'A successful career is not so important to me' are more likely to be in overqualified for their present jobs. This correlation is particularly high in the case of West German women in the middle tier of the qualification hierarchy, i.e. holders of vocational diplomas (Büchel and Weißhuhn, 1997a, Table 4-WA, pp.68-69); as was mentioned above, however, this pattern was also demonstrated by Schlegelmilch's studies of disaffected graduates.

3.4.4 Employers' productivity considerations

The most common decision facing employers in the context of overqualification (see subsection 3.2 above) is whether to select an overqualified job applicant in preference to one whose formal qualifications are commensurate with the job requirements. Their decisions will be governed by productivity-based considerations. This aspect has already been taken into account in the discussion of certain approaches in point 3.3.1 above; the intention in the following paragraphs is to subject it to more thorough scrutiny.

While the production theory-related effects of overqualification in the literature of the English-speaking world have already been fairly widely discussed,⁴¹ scarcely any findings on this subject are available for the European continent (the few exceptions are referred to below).

On this point, the author of the standard textbook for German employment researchers,

⁴⁰ See for example Lucas, 1977, Sattinger, 1977, and Sattinger, 1980; the latter deals with this issue in detail on pp.72ff.

⁴¹ See for example Rumberger, 1981b, pp.101 ff., Tsang and Levin, 1985, Tsang, 1987, Tsang et al., 1991, and Hersch, 1991; earlier partial analyses of underemployment are also contained in Kornhauser (1965), Vroom (1964), Sheppard and Herrick (1972), Kasl (1974), House (1974), Coburn (1975), Mangione and Quinn (1975) and Quinn and Mandilovitch (1975).

Wolfgang Franz, writes, 'If a job has a fixed rate of pay [...], the company's aim will be to identify the most productive applicant for that job', adding in a footnote, 'This is not necessarily the candidate with the highest (formal) qualification. Companies are rightly hesitant to engage "overqualified" candidates, for example because any dissatisfaction on the part of such an employee may have an adverse effect on his or her productivity [...] and because the probability that he or she will not stay long with the company is liable to be high' (Franz, 1991, pp. 211-212). The very wording of these assertions sounds a distinct note of caution, which lends Franz's statement the character of a supposition rather than a validated scientific finding. This means that it cannot be cited as evidence of such behaviour.

The main dimensions of productivity losses that result from overqualification respectively overeducation are given in the relevant literature in the English language as a lesser degree of job satisfaction (Khan and Morrow, 1991, Johnson and Roy, 1995, and de Witte and Steijn, 1998), poorer health (Amick and Lavis, 1998, pp.26 ff.), a higher incidence of shirking and absenteeism, narcotics (alcohol) consumption at work and 'sabotage' (for a general discussion of this point, see Tsang and Levin, 1985; also Haugrund, 1990, p.233). Other factors with relevance to business management are an assumed propensity among overqualified employees to change firms more frequently, which would result in a loss of human capital developed specifically for the needs of the company as well as creating direct transaction costs and restricting participation in further training, thereby impeding the development of know-how within the company (Beneito et al., forthcoming).

If employers are aware of these risks to productivity that are inherent in overqualification, that knowledge may influence the wage rates they set. Unlike the United States, however, many European countries have special legislation granting an extensive right of protection against dismissal. If shirking by an individual worker is only discovered – assuming that it *is* discovered – after the end of the initial probationary period, those employers who have overqualified staff on their pay-

roll can only cover themselves financially by converting part of the basic wage into a productivity bonus – not just for the individual in question but by way of a 'collective insurance premium'.

Such a strategy, however, depends not only on possession of all the relevant information but also on the absence of trade-union 'obstruction' of the wage-fixing process. Both of these aspects create an incentive for the employer to deal with the equation of gross pay and productivity on a one-to-one basis, i.e. in relation to an individual employee.

An examination of these quite considerable productivity risks to an employer who recruits overqualified personnel (which are confirmed in most of the literature from English-speaking countries) raises the question whether employers have any interest at all in employing people in jobs for which they are overqualified. Haugrund (1990) sees one such incentive (in the technical sector) in the expectation of above-average performance from these employees, along with their 'natural' function as a 'centre of competence' within their respective teams (p.233).

The key to this question, however, is the fact that an employer's basis of assessment can be influenced by extraneous factors. A change in the information base, for example, may be such a factor. It is already patently difficult for employers to measure their employees' productivity at the best of times (see Bodenhöfer, 1984, pp.13ff., and Rippe, 1984, pp.76ff.). The productivity effects of overqualification, such as an increased incidence of shirking, must be even harder to measure. It is conceivable that administrative and technical progress might serve to enhance the supervisory mechanisms available to employers (cf. Tsang and Levin, 1985). Where overqualification is assumed to be having adverse effects on productivity which cannot be nullified by pay cuts, the consequence should be a reduction in the volume of overqualification.

The general difficulties involved in obtaining information (with which Rippe, 1994, deals in detail) might also induce employ-

ers, however, to base their decisions on subjective experience gathered over a lengthy period. If the information situation is extremely bad, they have to rely on 'prejudices'. It is conceivable that, with a general change in social values (in society's evaluation of the productive utility of job-sharing or part-time work, for example), the assessment basis on which employers take their decisions will alter.

Such a change may even be caused by a major shift in the market situation: 'The higher the percentage of new recruits who are university graduates, the more widely an increasing percentage of graduates in middle management will be accepted as the norm' (Teichler, quoted in *Der Spiegel*, 1985, p.47).

In the context of the sea change that the labour market is clearly undergoing, this acceptance of higher education as the norm is likely to take root not only among job applicants⁴² but also in the minds of employers. A similar effect has been observed in the inverse relationship between the strength of the stigma attached to unemployment and the length of the dole queue (cf. Omori, 1997). This type of shift in values could therefore result in a sharp rise in overqualification in the future.⁴³

The opposite effect could be achieved by the exertion of direct political influence on the production system. Tsang and Levin (1985, p.101) listed some of the levers that could be used for this purpose, such as tax breaks to encourage the employment of appropriately qualified staff, but these levers seem almost unworkable. Indeed, Rumberger (1981b, pp.124-125) had already delivered a pessimistic verdict on the power of governments to reduce the degree of overqualification in the private sector.

⁴² Tsang et al. (1991), for example, demonstrate that the adverse effect of overqualification on job satisfaction has been diminished over the years.

⁴³ For a similar hypothesis relating to the academic world, see Büchel, 1996a.

Be that as it may, government measures certainly can be an efficient means of reducing the level of overqualification in the labour market as a whole in the sense that the state, as a major employer, is able to define its own staff-selection criteria. The findings set out in Büchel and Weißhuhn, 1997a and 1998, show that the state actually does this very successfully; the percentage of overqualified staff in the civil service is minimal, at least in western Germany.⁴⁴ The only snag is that this strategy goes beyond the scope of the present part of our study, since the public sector is not subject to direct productivity criteria.

In the European context, apart from the classic income analyses performed by Duncan and Hoffmann (1981), productivity effects have only ever been analysed for Germany. Haugrund (1990) devoted a monograph to the subject. Despite its ambitious and highly detailed examination method, scarcely any general extrapolations can be made from the findings of the monograph, because it takes the form of a company study and focuses on a few technical trades. The author has also conducted three studies (Büchel, 1999b, which goes into greater detail, 1999c and 1999a). It emerges from these that productivity analyses only serve a useful purpose if the job-requirement level is kept constant. That is the only configuration which equates to the choice facing personnel managers who have to fill a vacant post.

The studies conducted in western Germany show that in unskilled jobs (in which the overwhelming majority of overqualified employees work) overqualified workers tend to keep better health, to change firms less frequently and to engage in more further-training activities than their less educated colleagues in similar jobs; there are no significant differences between the two groups in terms of the productivity indicators absenteeism and job satisfaction.

⁴⁴ See Büchel and Weißhuhn, 1997a and 1998, Tables 3-W-84, -91, -93 and -95; see also Keller and Klein, 1994.

This result is consistent with Thurow's job-competition theory, which predicts that people with more education will be at the front of the labour queue. On the other hand, it contradicts the traditional expectation that overqualified personnel will feel frustrated and therefore prove less productive than their adequately educated colleagues.

If overqualified workers are less productive than their adequately qualified counterparts, as is generally reported in the relevant literature, it is solely because these findings are obtained with enquiry methods in which the formal level of qualification is held constant rather than the skill level required for the job. It is obvious that such a strategy can bear little fruit, for it is hardly surprising that a taxi driver with a law degree is less productive than a law graduate working as a solicitor. The only relevant question in this context is whether the taxi driver with the legal qualification is less productive than his fellow cabbies whose only formal vocational qualification is their taxi driver's licence.

In general terms, the findings of the author's aforementioned studies can serve to break down prejudices about the productivity of overqualified employees and go at least some way to explaining the persistence of overqualification in the labour market by demonstrating that it makes economic sense for employers to hire overqualified staff, because they can be expected to be more productive in a given job than other, less qualified candidates.

4. Strategies for measuring the educational adequacy of a job

4.1 Existing measurement strategies

On the problems involved in measuring overqualification, the OECD notes in its Employment Outlook that 'invisible underemployment [the term used by the OECD to denote overqualification] refers to individuals who are working in jobs where their skills are not adequately utilised, and by its very nature is difficult to measure. *For this reason, it is not discussed.*' (OECD, 1995a, p.45, au-

thor's italics).⁴⁵ What the OECD is expressing here is that there is no consensus among employment researchers on a measurement strategy, which is why no internationally standardised tables of comparative national statistics can be compiled for overqualification as they are for other phenomena, such as unemployment. The following paragraphs provide information about the various measurement issues. The box presents a typology of different measurement approaches.

4.1.1 The 'objective' approach

In the early days of empirical analysis of overqualification in the United States, the so-called 'objective' DOT/GED approach was regarded as the standard process for measuring the discrepancy between an employee's level of educational attainment and the actual education level required for his or her job. The measurement process is considered to be 'objective', in so far as it does not rely on the employee's own subjective assessment of the required education level. The basic principle of the measurement strategy is that it measures the required education level for a job by reference to its occupational category; all important microeconomic details of this occupation are recorded. Each occupation listed in the *Dictionary of Occupational Titles* (DOT; see Fine, 1968) is allocated a level of 'general educational development' (GED) from a scale of GED values.⁴⁶ In the second stage of the process, this educational development level is translated into an equivalent number of years of schooling (see Eckhaus, 1964).

⁴⁵ This means that Rumberger's postulate in an earlier OECD publication that the model he was developing was an internationally comparable measure of overqualification (Rumberger, 1994, p.281) must have fallen on deaf ears – at least in the short term.

⁴⁶ Attempts were made to introduce an alternative scale ('specific vocational preparation' – SVP), but it failed to establish a foothold in the field of overeducation research (cf. Fine, 1968, Scoville, 1966, and, for an explicit appraisal, Kalleberg and Sørensen, 1973, p.221).

Once the formal qualification level in the form of the highest reported educational certificate has also been converted into an equivalent in years of schooling (unless, as usually happens in the United States, the information has already been collected in the form of a number of completed years of schooling), the number of surplus or deficit years of education can easily be established by subtracting one amount from the other; thus, overeducation (in years) equals years of schooling completed minus GED levels (in years) (see for example Rumberger, 1981b, p.58).

The measurement scale for the variables that are calculated in this way is recognisably based on the requirements of the human-capital approach. Accordingly, income effects of surplus and deficit components of human capital can be analysed in the framework of the traditional evaluation procedures, and the returns to these components can be compared with the returns to the 'required' components of human capital (see for Duncan and Hoffmann, 1981; Kiker et al., 1997, and Daly et al. (forthcoming)).

Teresa Sullivan (1978), Clogg (1979), Clogg and Sullivan (1983) and Clogg and Shockey (1984) increased the reliability of this measurement by excluding from the definition of overqualified workers all persons with a surplus of zero years of schooling; in their place they proposed the insertion of a 'safety margin' comprising a standard deviation in excess of the mean duration of education used for a particular occupation ('analog for deficit years'); this approach was subsequently adopted by other researchers (see for example Verdugo and Turner Verdugo, 1989, and Groot, 1993a). At this point, one should add the methodological remark that Hartog (1997, p. 2) and Hartog and Jonker (1998, p. 102) classify this type of measurement as an own, third category apart of the so-called objective and subjective approach (see section 4.1.2 below). The present author, however, follows the argumentation of Groot (1996) who takes it as a variant of the DOT/GED approach.

An enquiry strategy derived from the DOT/GED approach can be found in Plicht et al., 1994, who analysed the structure of over-

qualification among academics in the western part of Germany on the basis of the national microcensus. Since a standardised GED scale is not available for Germany, the authors themselves had assessed each individual job type to establish whether it was adequately skilled for an incumbent with academic training. This strategy, however, produces an unavoidable 'grey area' (Hecker, 1992, p.4) of occupations to which it is impossible to assign an unequivocal education level. Plicht, Schober and Schreyer call this the 'mixed category' of occupations.

A variant combining the approaches described in the last two paragraphs is described in Groot (1996). Although the occupations of the employees he studies are listed in the British Household Panel Survey (BHPS), on the basis of which he conducts his examination, no GED rating is available for the various occupations, just as in the case of the German microcensus. Groot compensates by calculating the mean number of years' schooling of the employees in each occupational category; those whose schooling exceeds the average for their group by more than a standard deviation are classed as overqualified.

The validity of the DOT/GED methodology has been criticised on several occasions, and with good reason. The first problem lies in the wide diversity of skill levels required for different jobs within a single occupational category, which the GED system does not take into account: '[...] estimates of the mean years of required schooling in an occupation are constructed by aggregating jobs, thereby ignoring variation in the mean years of required schooling across jobs within an occupation' (Halaby, 1994, p.48).

Moreover, the use of a one-digit code to evaluate the level of education required for a job clearly cannot reflect the complexity of training-requirement profiles: 'The GED scores are simply not detailed enough to produce sensitive measures and have validity problems of their own' (Clogg and Shockey, 1984, p.254). Besides, the conversion of GED into required years of schooling is not standardised. Rumberger (1987) rightly expresses the following criticism: 'Another problem with the DOT

Box: Typology of overqualification measurement approaches

Short description of approach	Developers of approach and early studies	Advantages of approach	Disadvantages of approach	Selected follow-up empirical studies based on approach
<p>Ia: 'Objective' approach</p> <p>For each occupation listed in the <i>Dictionary of occupational titles</i> (DOT), information about the level of educational requirements is available in an ordered scale (<i>General educational development</i>, (GED)).</p> <p>The GED scale has to be made compatible to the scale on which individuals report their acquired schooling (e.g. transformation into requested years of schooling).</p> <p>The information about the requested schooling to perform a specific occupation (SR) is compared with the acquired schooling (SA) of job-holders.</p> <p>Overqualification of an individual is stated, if $SA > SR$.</p>	<p>(Preliminary work: Eckaus 1964, Fine 1968)</p> <p>Scoville (1966), Berg (1970), Kalleberg and Sørensen (1973)</p>	<p>No negative influences in the measurement process which are caused by subjective assessments of job-holders.</p>	<p>Heterogeneity of jobs within an occupation is neglected</p> <p>New occupations, such as e.g. in the IT industry, cannot be considered (until a new DOT is realised).</p> <p>Change in job requirements is neglected (until a new GED scale is realised).</p> <p>Defining required skill levels (construction of GED scale) is methodologically problematic.</p> <p>Making the GED scale compatible to the scale of acquired schooling is methodologically problematic.</p> <p>Usually high numbers of missing values in occupational information (caused by coding problems).</p>	<p>Hartog (1980), Burtis (1983(c)), Rumberger (1987), Patrinos (1997), Batenburg and de Witte (1998)</p>

Box: continued

Short description of approach	Developers of approach and early studies	Advantages of approach	Disadvantages of approach	Selected follow-up empirical studies based on approach
<p>Ib: Variant of 'objective' approach: 'realised match approach'</p> <p>Within each occupation (disaggregated as low as possible, usually on a 3-digit-level), the mean, median, or mode (M) and the standard deviation (SD) of acquired schooling of job-holders is calculated.</p> <p>Information about M and SD of a specific occupation is compared with the acquired schooling (SA) of job-holders.</p> <p>Overqualification of an individual is stated, if $SA > (M + SD)$.</p>	<p>Sullivan (1978), Clogg (1979), Clogg and Shockey (1984)</p>	<p>Higher validity when categorising overqualification.</p>	<p>Genuine problem of neglecting heterogeneity of jobs within an occupation remains.</p> <p>Methodological problems in measuring means medians, or modes, and especially measuring standard deviations, in occupations with few employed.</p> <p>Problems with causal relations: the higher the share of 'effectively' overqualified workers within a specific occupation, the lower the measured share 'detected' overqualified workers (and vice versa).</p>	<p>Shockey (1989), Verdugo and Turner Verdugo (1989), Groot (1993(a), 1996), Kiker et al. (1997), Alpin et al. (1998), Cohn and Ng (1999), Cohn et al. (1999), Mendes de Oliveira et al. (forthcoming)</p>

Box: continued

Short description of approach	Developers of approach and early studies	Advantages of approach	Disadvantages of approach	Selected follow-up empirical studies based on approach
<p>Ila: 'Subjective' approach Each worker is asked about the educational requirements of his specific job (e.g. 'What kind of education is usually required to perform (get) a job like your's?' (required education, (RE))). The scale of the RE variable has to be made compatible with the scale of the respondents information of acquired schooling (ideally already by the designers of the questionnaire, e. g. by asking for years of schooling required). Overqualification of an individual is stated, if SA > RE.</p>	<p>Quinn and Mandilovitch (1975), Quinn and Staines (1979(a), (b)), Duncan and Hoffmann (1978, 1981)</p>	<p>Severe disadvantages of 'objective' approach become obsolete. Individuals know the specific requirements of their specific job best (specifically: better than labour market experts generating the GED scale).</p>	<p>Subjective influence in measurement approach: e.g. risk of getting answers influenced by a cognitive dissonance behaviour; answers may be biased towards pomposness or exaggerated modesty.</p>	<p>Sicherman (1991), Tsang et al. (1991) [with an extension using Approach Ia], Hersch (1991), Alba-Ramirez 1993, Hersch (1995), Johnson and Johnson (1995), Robst (1995(b)), McGoldrick and Robst (1996), Sloane et al. (1996), Borghans and Smits (1997), Battu et al. (1998(b)), Borghans et al. (1998), Battu et al. (1999), van der Velden and van Smoorenburg (1999), Beneito et al. (forthcoming), Dolton and Vignoles (forthcoming), Vahey (forthcoming)</p>

Box: continued

Short description of approach	Developers of approach and early studies	Advantages of approach	Disadvantages of approach	Selected follow-up empirical studies based on approach
<p>IIb: Variant of 'subjective' approach: three variables approach Measuring overqualification in a first step as described in IIa. Using a 3 third variable (occupational status) for validation. Validation check is done using a standardised categorisation system. This produces the output categories 'clearly plausible combination of the three variables', 'clearly implausible combination' (in German GSOEP: about 1% of cases), and 'doubtful plausibility of combination' (in German GSOEP: about 5% of cases). Overqualification of an individual in the case of SA > RE is stated only, if the validity check leads to a clearly plausible result (otherwise: generating a missing value).</p>	<p>Büchel and Weißhuhn (1997(a)).</p>	<p>Tests showed a much higher validity when categorising overqualification, compared to the standard subjective two-variable approach.</p>	<p>Approach produces a so-called 'mixed' or 'grey' area of work with doubtful plausibility of combination of required schooling, acquired schooling and occupational status. In general, individuals working in such a situation have to be excluded from overqualification analyses. This leads to information loss in general and reduced number of cases in special. Number of missing values in the produced overqualification variable is slightly higher than in the standard subjective two-variable approach, because three source variables are involved.</p>	<p>Most of overqualification studies authored or coauthored by Büchel.</p>

is that categories of training requirements must be translated into equivalent years of schooling. Although such translations have been done in the past, there is no consensus on the appropriate conversion' (p.30). Of the many different measurement methods, each of which has a perceptible direct influence on the empirical results, three are presented by Rumberger (1980, p.105), Kalleberg and Sørensen (1973, p.221) and Burris (1983c, p.457) respectively. Furthermore, the DOT/GED system takes no account of the situation within a particular occupational category:⁴⁷ 'The DOT measure of required schooling can classify someone as overeducated when the person has a very good job within an occupation' (McGoldrick and Robst, 1996, p.281).

The final criticism is that the GED system, which dates from the sixties, does not respond to changes in the requirements for specific occupations, such as those resulting from technological progress (cf. Clogg et al., 1986, p.382; for a complete summary of the validity and reliability problems of the DOT/GED approach, see Rumberger, 1981b, pp.59 *et seq.*).

Given the objections enumerated above, some of which have serious implications, it is not surprising that this approach is hardly ever adopted any more in new studies on overqualification, which are largely based on the so-called 'subjective' strategy described in the next point.

4.1.2 The 'subjective' approach

The reservations about the DOT/GED approach which were expressed in the previous

⁴⁷ What is meant here is a highly generic indication of the combination of status group and job-requirement level, along the lines of the indicator *berufliche Stellung* ('occupational status') which is often available in Germany, for example in the following form: 'employment as: unskilled worker, skilled worker, foreman/master craftsman, white-collar worker in an unskilled job, white-collar worker in a skilled job, white-collar worker in a highly skilled job, sole trader, self-employed person with employees, assisting family member, trainee/internee, clerical-grade civil servant, executive-grade civil servant and administrative-grade civil servant'.

point relate to both of the steps that need to be taken to establish the education requirement for the practice of a particular occupation, i.e. the assignment of GED scores to the occupations in the DOT list and the calculation of the GED equivalent in years of schooling. This criticism is not levelled, however, at the idea of equating the required number of years' schooling with the actual duration of an employee's schooling. It follows from this that any improvement, especially if it relates to the reliability of the mismatch indicator, should focus exclusively on the process of determining of the education level required for the job

One effective way of tackling the problem is to ask employees themselves for a subjective assessment of the qualification level required for their respective jobs. Respondents may be asked to choose from a scale of requirement categories or to assess the qualification level in terms of a number of years of training. The questions are sometimes varied. Respondents may be asked for the qualification that is normally required for the work they perform (this is the case in the German Socio-Economic Panel (GSOEP) study and in other surveys such as the employment survey conducted by the Federal Institute for Vocational Training (BIBB) and the Institute for Employment Research (IAB) in 1991-92). Another common question asks for the qualification required to obtain the relevant job; this is the approach adopted in the Panel Study of Income Dynamics (PSID), although McGoldrick and Robst (1996, p.281) rate the PSID question inferior to that of the GSOEP. The nature of the question does not alter the process of equating the required qualification with the employee's actual qualification level in order to obtain the mismatch indicator.

The first such survey of job-requirement levels was conducted in the PSID of 1976, and others took place in 1978 and 1985. The same approach was adopted by the GSOEP.

Although there are no reports in the relevant literature of reliability problems stemming from incomprehension (cf. Hersch, 1991, p.141), the subjective nature of the question undoubtedly poses its own reliability problem.

It is conceivable, for instance, that reported requirement levels will tend to relate to conditions of recruitment at a particular time rather than present job descriptions; moreover, it is not impossible that cognitive dissonance might cause overqualified employees to imagine a higher requirement level than that which actually obtains (Hartog and Oosterbeek, 1988, p.186-187; on this aspect of data collection, see also Kalleberg and Sørensen, 1973, p.236).

Nevertheless, it may be expected that differences in required skill levels for people with equivalent qualifications will be sufficiently identifiable: 'Although this measure may contain much noise, due to differences in standards the individuals employ, it will certainly bring out differences among equally educated individuals in the demands that their jobs put on them (Hartog, 1985a, p.282; for a similar line of argument, see Witte and Kalleberg, 1995, p.301). For all its recognised flaws, the subjective approach is generally held to be more effective than the DOT/GED system: 'This [i.e. the subjective approach] has the advantage of obtaining information from the source closest to the actual job situation, taking account of all specific circumstances' (Hartog and Oosterbeek, 1988, p.186). A general reliability check on this strategy, involving a comparison of employees' and employers' responses, for example, has yet to be developed.

4.1.3 Unorthodox measurement strategies

Studies devoted to the examination of mismatches between job and qualification are characterised by an almost unbounded diversity of measurement strategies. The purpose of the following paragraphs is to show just how diverse these strategies can be by means of some examples from German literature.

Apart from the studies by Rippe (1988), Schwarze (1993), Plicht et al. (1994), Brinkmann and Wiedemann (1995) and the author, German employment research gives the impression of having been insensitive until quite recently to the methodological debate outlined above, which was conducted with great gusto

in the pages of the U.S. journals. The diversity of methods not only raises questions about the reliability and validity of the measurement strategies but also complicates the quest for comparability of empirical data.

One classic measurement strategy in the field of German qualification research seeks to identify the extent to which knowledge and skills acquired in vocational training are usable in an individual's current job;⁴⁸ similar approaches are also to be found in earlier literature from the English-speaking world (e.g. Staines and Quinn, 1979, p.9). The problem with this strategy is that there are basically no jobs in which employees can draw upon all the knowledge and skills they had to assimilate in the course of their vocational training (cf. Suda, 1979, p.153). The assessment of the degree of applicability is likely to be very highly subjective. A validity test by Halaby (1994) on this type of measure produced disappointing results; Rippe (1988, pp.179-180) could only pour scorn on this measurement strategy.

Kaiser et al. (1980) used a system of seven job indicators designed to assess the job/qualification match – indicators such as the degree of variety in the job, cooperation with superiors, etc. The validity problems of this approach seem obvious (p.102).

Krämer (1982) establishes the degree of job/qualification match for executives of small companies by comparing their formal qualifications with a job grading that he assigns on the basis of their decision-making powers. On the basis of Krämer's findings, it is doubtful whether his measurement strategy can be considered a success. For example, he reports that 'It can actually be seen from the tables that all university graduates [in executive posts] are overqualified for the work assigned to them' [!] (p.105).

⁴⁸ See for example Stooss (1979), Chaberny et al. (1982), Minks and Filaretow (1993), Jansen (1993), Teichler (1994), Lewin et al. (1994a and b), Hofmann and Vogeler (1995) and Pfeiffer and Blechinger (1995).

Another approach tries to find a means of identifying overqualification on the sole basis of occupational status and formal qualification (see for example Henniges, 1991; Minks, 1992; Tessaring, 1994a; iwd, 1994a; Minks, 1996, and Velling and Pfeiffer, 1997). This strategy is clearly too basic to obtain valid results. The range of job requirements within various status groups is too wide to allow unequivocal categorisation. This is illustrated, for example, by the question whether or not a desk-officer post in an administrative body should be categorised as appropriate employment for a graduate of a higher technical college.⁴⁹

As an alternative to occupational status, use is also made of the employee's position within a company, a category that is available from surveys such as the German microcensus (see for example Tessaring, 1994a, and Velling and Pfeiffer, 1997). A combination of the two status categories is used by Handl (1996), who uses information on both occupational status and company position to establish the level of an individual's employment. This, however, is unlikely to solve the aforementioned validity problems.

Earlier works sometimes had recourse to the employee's pay level as a suitable criterion of adequate employment (see for example Tessaring, 1984). The findings produced by Rumberger (1980), however, testify to the problems arising from income analyses in connection with the acquisition of data on overqualification: during the period covered by his study, the income position of college graduates in relation to high-school graduates had not deteriorated, but the relative adequacy of their education had. Schlegelmilch (1982) applied a more refined strategy, combining reported data on occupational status and income level, on the basis of which she

classified as underskilled any job done by a graduate for which no university degree was required and for which the incumbent received less than the minimum rate of pay for graduates in the German public service, i.e. point IIa on the statutory salary scale for federal employees (see p.407, footnote 31).

An original approach is used by Szydlik, at least in his studies in German (Szydlik, 1996a, 1996b and 1997a). He extends the subjective approach by combining the obtained variables relating to the job/qualification match with the question whether the employees work in the occupation for which they have been trained. The question is what additional information this disaggregation yields. In a vertical sense (and this refers not only to the basic principle underlying the strategy for measuring overeducation but also the line of argument used by Szydlik in the interpretation of his findings), the information that a person is not working in the occupation for which he or she has been trained cannot be regarded *per se* as proof of a mismatch; in some cases, job descriptions in different occupations are far too similar to permit such an assertion (cf. section 2 of the present study).

A highly unconventional categorisation of mismatches can be found in Wonneberger (1994, pp.144-145), where a mismatch is deemed to exist if a person is trained for an occupation (for which an academic degree is not required) in which career prospects are poor.

The diversity of measurement strategies illustrated in the foregoing paragraphs underlines the soundness of Rumberger's postulation of the need for standardised measurement of overqualification (Rumberger, 1994, p.281). Teichler (1994, p.28) reports that various studies have put the percentage of graduates in overqualification at levels ranging from 40% to under 5%, depending on the criteria applied. Elsewhere, Teichler (1998, p.98) tells of an approach that involved assigning the 'overqualified' label to all university graduates who admitted to knowing non-graduates with similar professional duties to their own (!). In such a case, the size of each respondent's circle of acquaintances would

⁴⁹ See for example Minks and Filaretow (1993, p.43), Gleiser (1996) and even Plicht et al. (1994); on the discussion of this question, see also Velling and Pfeiffer (1997, p.14, footnote 17); on the differentiation between graduates of technical colleges and universities, see Gleiser (1996, pp.36-37).

have a direct bearing on the findings of the study. It is patently obvious that such measurement strategies can yield little useful information.

4.2 An innovative approach

As a refinement of the familiar measurement strategies presented in subsection 4.1 above, the empirical part of this study (section 6) will introduce a new process for identifying overqualification. It is based on the conventional subjective approach. The innovative element is the inclusion of a third indicator to validate the overqualification variables which were initially obtained from the information on employees' formal qualifications and job-requirement levels. It has to be said that the disadvantages of this strategy are a slightly higher rate of missing values and a category entitled 'implausible combination of the three basic variables'. In addition, there is also an optional 'mixed' category to cover cases in which the information conveyed by the three basic variables does not permit a clear distinction to be drawn between a job/training mismatch and a case of overqualification. The crucial advantage of this triple-variable strategy is that it draws a far sharper line between adequate work and overqualification than the conventional double-variable approach (for details see point 6.1.2 below).

5. Overqualification: a literature survey

The educational policymakers' fear of producing surplus qualifications for which there is no demand in the marketplace is presumably as old as institutionalised education itself.

Tessaring (1980, pp.374-375) corroborates this, quoting from almost 300 years of German educational history. For example, in 1890 Bismarck pronounced these words of warning: 'One of the principal ills of our higher school system lies in the surfeit of academic schools and in the artful seduction to attend the same which our establishments practise, so that we breed learned young men far beyond our needs and beyond any possibility of

their procuring suitable positions. Our higher schools are attended by too many young persons who are destined neither by talent nor by parental provenance for a learned profession [...]. The consequence is the excessive study of all academic disciplines and the education of a *proletariat of scholars constituting a danger to the state.*' [author's italics].

Similar quotations from other countries have also been recorded. The debate on the career prospects of qualified individuals leaving the education system was given a new lease of life in the sixties and seventies, when a rapid expansion of higher education took place almost simultaneously in the United States and some European countries, driven by demographic developments and political decisions. Education and employment researchers in the United States were the first to undertake systematic study of the consequences of a glut of higher qualifications and thereby set their seal on the scientific examination of the phenomenon of overeducation.

5.1 Origins of the discussion

5.1.1 *The U.S. discussion from the sixties to the eighties*

Treatment of the overqualification problem by American employment researchers may be considered to have begun with Berg's monograph of 1970. Under the catchy title *The Great Training Robbery*, Berg tried to demonstrate that the labour market was no longer able to absorb the output of university and college graduates comfortably following the sharp rise in their numbers in the wake of the baby boom and changes in educational preferences.⁵⁰ The repercussions would be keenly felt in the form of unemployment and overqualification, accompanied by falling returns to education. As the Bureau of Labor Statistics later established, the number of university and college graduates in under-skilled jobs multiplied from about a million to 3.6 million in the short period from 1969 to 1980 (Hecker, 1992, p.5).

⁵⁰ See also his subsequent works on this subject, such as Berg (1989).

Methodological innovation made a very early appearance in the study by Kalleberg and Sørensen (1973), which presented a simple measurement strategy for the collection of empirical data on overqualification. This approach was based on the DOT/GED system (for details see subsection 4.1 above) and followed on from the work of Eckaus (1964) and Scoville (1966), who took the measurements provided by the authorities for assessing the required skill level for jobs in the various occupational categories and adapted them for use by employment researchers. These multivariate data analyses did not yet control, however, for significant factors such as age.

In 1975, following thematically related preliminary studies (Freeman, 1971, and Freeman and Breneman, 1974) one of the two main protagonists in the U.S. overeducation debate, Richard Freeman, entered the scene. His question *Overinvestment in college training?* (Freeman, 1975b) is intended to be rhetorical. Freeman was firmly convinced that the college system in the United States had been producing a large surplus of qualifications since the sixties, which was not entirely due to the demographic effect of the baby boom. He tried to underpin this assertion in subsequent works, including a monograph devoted to the issue (Freeman, 1976b)⁵¹ and a contribution to the *Review of Economics and Statistics* (Freeman, 1977); this period also saw the appearance of his special studies devoted to specific occupational groups (Freeman, 1975a, 1975c and 1976a).

The ‘discovery’ of the growing imbalance between the supply of and the demand for higher qualifications in the U.S. labour market had already been made at that point (see for example Carnegie Commission on Higher Education, 1973), but it had not yet been sufficiently ‘marketed’. The pithy titles of his studies on the subject of overqualification, suggesting that the hypothesis underlying his research is an incontrovertible truth, and his sometimes drastic speculations on the consequences of the growing qualification surplus

(e.g. ‘destabilizing political consequences’ – Freeman, 1976b, p.189) achieved their aim and made Freeman the most-quoted author in American literature on the subject of overqualification, even though numerous papers in a similar vein appeared at that time (see for example Jenkins, 1974; Rawlins and Ulman, 1974; Dore, 1976; Jaffe and Froomkin, 1978; Brinkmann, 1978; Suda, 1979; Denison, 1979, and a later work relating to Canada, namely Dooley, 1986).

Freeman’s presentation, which is quite one-sided at times, could not fail to provoke criticism (see for example Smith and Welch, 1978). Several replies were published in issue No1 of the *Journal of Human Resources* for 1980. Witmer (1980) and Schwartz and Thornton (1980) criticised Freeman’s methodological approach.

Russell Rumberger, who was to emerge as the second main protagonist in this discussion alongside Freeman, did not find any empirical evidence to suggest that the relative position of university and college graduates in the labour market was deteriorating, but did identify a rise in overeducation (Rumberger, 1980). Freeman, however, was unmoved by this welter of criticism, describing the claims of Schwartz and Thornton, for example, as ‘pure nonsense’ (Freeman, 1980, p.141). In a concluding review of the debate in the *Journal of Human Resources*, however, Kaufman (1984) advances arguments in support of Schwartz and Thornton. After the publication of another two shorter papers (Freeman, 1981a and b), Richard Freeman withdrew from this field of research.

Staines and Quinn (1979) adopted an innovative approach, analysing individual data on job characteristics in a partial time series. Survey data for the years 1969, 1973 and 1977 are examined. One category in the collected data is the respondents’ subjective assessment of their job/education match (p.9). Staines and Quinn also arrive at the conclusion that the overall degree of mismatch has tended to increase.

In subsequent studies, Rumberger (1981a, 1981c and 1984) concentrated on presenting

⁵¹ For a review of the monograph, see Levin, 1977.

evidence in support of his thesis that the development of the job structure in the United States is marked by a slower rise in skill requirements than would be necessary to ensure that enough appropriately skilled jobs were available for the masses of new university and college graduates entering the labour market. He even asks the question whether technical progress, contrary to common belief (see for example Cappelli, 1993, who examines the production system), actually leads to a reduction in the skill level required for the average job (Rumberger, 1981a, p.588; see also Rumberger, 1981b, p.67).

Rumberger's studies are innovative in relation to Freeman's in that Rumberger shifts the concept of overeducation from the macroeconomic level to that of the individual; all of his measurements are based on the DOT-GED approach.⁵² His monograph on overeducation in the U.S. labour market (Rumberger, 1981b) – the most important on the subject of overqualification along with Freeman's *The Overeducated American* and perhaps also T.A. Sullivan's *Marginal Workers, Marginal Jobs* (Sullivan, 1978) – goes far beyond any previous literature in its comprehensive and thematically broad portrayal of the researched aspects of overeducation.

Another major innovation in the study of overeducation is to be found in Duncan and Hoffmann, 1981 (see also the Duncan and Hoffmann study of 1978, which was the forerunner of this work). These two authors examined at an individual level the financial returns to necessary, surplus and deficit components of education, thereby establishing a direct link to the human-capital approach. In place of the DOT/GED system, they used subjective data obtained directly from employees about the skill level required for their respective jobs; this information had originally been collected from the 1976 survey batch of the Panel Study of Income Dynamics (PSID). A similar approach underlies studies by Rumberger (1987) and Shockey (1989).

New dimensions were added by Burris (1983a), whose study was the first to explore the sociological and political aspects of overqualification. Until then, studies had only analysed individual sociological or political aspects, such as the effects of overqualification on health (see for example Kasl, 1974; House, 1974; Coburn, 1975, and Caplan et al., 1980).

The studies by Jaffe and Froomkin (1978), Clogg (1979), Clogg and Sullivan (1983), Clogg and Shockey (1984 and 1985), Clogg et al. (1986) and Lichter (1988) – although Lichter's definition of overqualification poses some problems – proved that the rise in overeducation in the United States was caused to a great extent by changes in the demographic structure of the potential labour force.⁵³ The study by Burris (1983b) can be considered as part of this cluster, too.

The 1985 study by Tsang and Levin seeks to present the first integral economic theory to explain the persistence of overqualification; the study focuses primarily on productivity issues (for a critical appraisal, see deGrip, 1989; for a reply to this criticism, see Tsang and Levin, 1989).

By 1986, the postulate that overeducation was gradually developing into a critical problem within the U.S. labour market had come to be regarded as an established fact, but it was subjected to critical examination for the first time by Smith (1986); however, this methodologically based study, which was sharply critical of the measurement strategies used in support of the said postulate, had a limited impact.

5.1.2 The early discussion outside the United States: the case of Germany

Outside the United States too, the sometimes dramatic expansion of educational provision was the subject of controversy in various countries (for a general review, see Teichler, 1996,

⁵² For a detailed description of the DOT/GED system, see point 4.1.1 above.

⁵³ Dooley (1986), however, arrives at the opposite conclusion for Canada.

pp.25 ff.). It must be said, however, that the academic quality of the debates lagged far behind those in which the U.S. researchers were engaged, at least until the late seventies. The case of Germany may be cited as an example.

The study *Akademisches Proletariat?* (Schlaffke, 1972) caused quite a stir among German educational researchers. The study (in fact, the term 'essay' is more apt) strikes a perceptibly and no doubt deliberately polemical tone. The line of argument is inherently negative and fuels conservative prejudices; moreover, the author generally fails to provide his readers with sources in which they might find empirical figures to substantiate his hypotheses. The following quote exemplifies this approach: 'How can a political scientist whose special papers at university were in the theory of the class struggle and strategies for overthrowing the system possibly explain the workings of our economic system to his pupils in a modern-studies class?' (p.47). If strict academic standards of empiricism and analysis are applied, this key contribution to the early German literature on overqualification is clearly not in any respect in the same league as its American contemporaries.

The only field of research which seemed to interest German empiricists was that of educational forecasting. As in the early discussion in the United States, it was not a matter of studying aggregated individual discrepancies between job requirements and formal qualifications but rather of alleged or expected imbalances between the aggregate supply of labour with particular qualifications and the aggregate demand for such labour. Besides the interest in quantitative forecasting, the main methodological bone of contention was whether the demand-centred manpower requirement approach or the supply-centred social demand approach should be adopted (for a detailed review of the host of conflicting predictions, see Tessaring, 1980, pp. 376). The huge discrepancies between the findings of such studies, however, presumably sowed more confusion than reassurance in the minds of educational planners (cf. Schlaffke, 1972, pp.10 *et seq.*).

Not until the end of the seventies did empirical research in Germany diversify into several different subject areas. Tessaring (1978) tried to trace the careers of graduates but had to rely on highly aggregated statistical material (see also Tessaring, 1981 and 1984, for similar approaches). A breakthrough was undoubtedly made in the empirical study of graduate employment when the micro-economic Infratest surveys were conducted in the autumn of 1978 and the spring of 1979 (see Stooss, 1979). Similarly designed analyses by the Institute for Employment Research (IAB) around that time laid the foundations for a new research tradition (see for example Kaiser et al., 1980).

The competition that emerged in the late seventies and early eighties between micro-economic empirical research, which strove to establish certain methodological standards, and the 'essayist' approach to the overqualification problem is exemplified by the papers published in an anthology of contributions to the Conference on University Expansion and the Labour Market – Problems and Research Perspectives (*Tagung «Hochschulexpansion und Arbeitsmarkt – Problemstellungen und Forschungsperspektiven»*), held in Berlin in November 1981. While some sound empirical papers were presented (Tessaring, 1983, and Schlegelmilch, 1983a, for example) there was certainly no shortage of representatives of the 'old school'. Busch and Hommerich (1983), for instance, saw the cause of the escalating employment problem in changing 'power constellations' (p.71), while Kraiss (1983) proposed that the issue of graduate employment and career prospects be examined 'in the light of class theory' (p.36), and Nuthmann (1983) expressed the following view on the graduate overqualification: 'Some of these activities, work forms and lifestyles may be directly connected with labour-market problems of the people concerned. In other cases, they are probably a reaction to growing economism and industrialisation, bureaucratisation and the increase in the statutory regulation and control of all aspects of life' (p.11). In the years that followed, however, such approaches were almost entirely supplanted by empirical analytical research (see point 5.2.2 below).

It only remains to describe how the German Federal Government assessed the threat of an increase in sub-standard forms of employment for graduates as a result of the reform and expansion of higher education. The Federal Ministry of Education and Science seemed to be rather wary of vastly overoptimistic predictions of labour demand. The purpose of a course of study, namely to qualify the student for professional activity of a suitable standard, certainly remained intact ('Aim of the course of study: The purpose of instruction and study shall be to prepare the student for a field of professional activity [...] so that he or she is capable of performing academic [...] work' – section 7 of the Higher Education Framework Act (*Hochschulrahmengesetz*), quoted in Neusel, 1983, p.236). Expectations regarding the ability of the labour market to play its part in the achievement of this aim, however, were muted. As part of the process of developing 'points of reference' for the Permanent Commission on Higher Education Reform, the Federal Ministry of Education and Science called on employers to 'create jobs [for graduates] below the top level', and expressed confidence that even "underskilled" occupations' could 'be a means of job satisfaction' (quoted in Neusel, 1983, p.240).

5.2 Present state of research

5.2.1 Recent studies relating to the United States and Canada

Recent studies from the United States on the subject of overeducation/overqualification have been characterised by the fact that, unlike the studies referred to in subsection 5.1 above, they rarely focus on the consequences of a glut of university and college graduates in the labour market. By the end of the eighties, the concept of 'overeducation' – relating to individuals – had become established as a separate category in the field of employment research, and subsequent studies became more widely diversified.

For the first time, the implications of overqualification for business management came under scrutiny. The question was whether overqualified employees were less

productive in the same level of job than their adequately educated colleagues (Tsang, 1987, and Tsang et al., 1991). The relevant studies were based on in-house data of the U.S. Bell Companies. More recent studies examine the correlation between overqualification and health (Amick and Lavis, 1998) and between overqualification and job satisfaction (Hersch, 1991, Johnson and Johnson, 1992, 1996 and 1997, and Johnson and Roy, 1994 and 1995).

A latecomer to the debate described in subsection 5.1 above was the article by Verdugo and Turner Verdugo (1989), which followed on from a shorter study (Verdugo and Turner Verdugo, 1988). Adopting a similar approach to Duncan and Hoffmann (1981), but without explicitly referring to that approach, the authors believed they could disprove the Duncan and Hoffmann findings, because they calculated negative returns to components of schooling that employees did not require in the performance of their jobs. Their study aroused vehement opposition (Cohn, 1992, Gill and Solberg, 1992, then Cohn and Khan, 1995); the reply by Verdugo and Turner Verdugo (1992) to the criticism of their line of enquiry and of the way they interpreted their findings was rather unconvincing.

Sicherman (1991) studied overqualification in the framework of the career mobility theory (Sicherman and Galor, 1990). He used the phenomenon of overqualification as a practical example of the empirical relevance of the theory he had helped to develop. He dismissed the possibility that other theories could do much, if anything at all, to explain the phenomenon. An extensive review (and endorsement) of the career-mobility approach is contained in Hersch (1995).

The observation that the imbalance in the labour market for graduates which had begun to appear in the sixties had continued throughout the eighties (and that no improvement was in sight – cf. Shelley, 1992 and 1994) was the subject of another series of 'conventional' articles (Hecker, 1992, Tyler et al., 1995a, b and c) who criticised Hecker, and the latter's reply to this criticism (Hecker, 1995a); see also Amirault, 1992, Cappelli, 1993, Hecker, 1995b, and Zemsky, 1998.

An article by Halaby (1994) levelled methodological criticism at the DOT/GED approach and at questions on the occupational utility of knowledge acquired through formal education, to which the article ascribes little validity.

The study by Bishop (1995) gives a short introduction to the topic of overeducation and the respective state of research in form of a contribution to an encyclopedia of economics of education. In the same volume, the article by Levin (1995) presents a broader overlook to the environmental setting, in which this special field of research is done.

The connection between the quality of a university or college education and the probability of overqualification is examined by Robst (1995b). As expected, Robst establishes a negative correlation between the quality of the university or college a person attends and the probability of subsequent overqualification.

Lastly, an original study is presented by McGoldrick and Robst (1996), who test the theory of 'differential overqualification' developed by Frank (1978b); the originality of their approach lies in the fact that, instead of basing their test on income factors (see for example Ofek and Merrill, 1997), they use an employee-centred measure of overqualification. They reject the hypothesis that married women run a higher risk of overqualification in smaller local labour markets.

Madamba and De Jong (1997) reopen the discussion on the influence of demographic changes on the degree of overqualification. They find that, in the United States, male immigrants from India, China and Korea are more frequently overqualified, those from Vietnam are more rarely unemployed, while immigrants from the Philippines and Japan do not differ significantly in this respect from the longer-established Anglo-Saxon population. Zhou (1993), on the other hand, reported higher mismatch rates for Japanese (and Cuban) workers. To what extent the qualifications of those immigrants who were educated in their native countries can be made comparable is an exceedingly moot question,

given the extreme variations in the quality of the school systems in their countries of origin and is a fundamental problem in studies designed to examine overqualification among immigrants.

On the basis of Canadian data, Vahey (forthcoming) certainly confirms in principle, at least as far as men are concerned, the findings of Duncan and Hoffmann (1981) and their epigones, according to which positive and negative returns to human capital may be expected for surplus and deficit years of schooling respectively; he demonstrates, however, that the returns vary in accordance with the skill level required for each job. For women, on the other hand, he finds insignificant effects at all job levels.

5.2.2 Recent studies relating to the countries of the European Union

The main distinct traditions of research into overqualification outside the United States exist in the Netherlands and Germany. In the United Kingdom the subject was not 'discovered' until the mid-nineties, although the subsequent volume of research on overqualification in the UK has been considerable. There are only isolated analyses for other countries.

The Netherlands

There are several analyses of job/qualification matches in the Netherlands. If we focus exclusively on the studies devoted to overqualification, it emerges that Dutch employment researchers, compared with their colleagues in other EU countries, have been the most prolific contributors on this subject in English, at least in the widely accessible English-language publications.

The first studies were undertaken by Hartog (1985a and 1986). His approach is very similar to that of Duncan and Hoffmann (1981), although he does not cite the latter work. Like Duncan and Hoffmann, he rejects unilateral determination of pay rates for the Dutch context too, either by the supply side through formal qualification (the human-capital theory) or by the demand side through job

requirements (the job-competition model). In the good old Tinbergenian tradition, he provides evidence of the explanatory capacity of the assignment theory. Extending this approach, Hartog and Oosterbeek (1988) identify a gradual rise in overqualification in the Netherlands over a period of time. Groot (1993a) refines the approach presented in Duncan and Hoffmann (1981), devoting special attention to the link between training activities and mismatches. Overqualification, Groot says, not only has an adverse effect on total income from employment but also has the same sort of impact on returns to in-service training.

In more recent papers on the subject, Hartog (1997 and 1999b) passes critical judgement on the body of research into overqualification. As far as future research perspectives are concerned, the author puts the case for longitudinal analyses, more theoretical input, more ambitious evaluation procedures and – in the old-established tradition of Dutch research in this field, which bears the unmistakable imprint of Tinbergen – for analytical approaches in which supply and demand effects are considered in combination. In the study by Hartog and Jonker (1998), the authors have access to the Brabant-survey which includes IQ measures. Having the opportunity to control for individual ability opens the door to new aspects. The authors, however, find that the impact of this variable on the risk to work overeducated is relatively low. In other studies (Hartog, 1999c, d and a), Hartog once again warns against investing overqualification with unduly pejorative connotations, referring to the positive, albeit limited, returns to surplus years of education which were previously identified by Duncan and Hoffmann (1981).

Borghans and Smits (1997) show that an increasing percentage of overqualified labour can also impair the earning potential of adequately educated employees. DeWitte and Steijn (1998) examine the effects of increasing automation on the incidence of overqualification. They discover a direct link as well as frustration effects in overqualified employees. Batenburg and Witte (1998) identify a rise in the mismatch rate within the Dutch labour market over the period from 1977 to

1995. Groot and Maassen van den Brink (1999) demonstrate the sensitivity of the measurement strategies used to identify jobs which are incommensurate with their incumbents' qualifications. Groot and Maassen van den Brink (forthcoming) present a survey of empirical findings from various countries. Among other things, this survey reveals a positive correlation between growth rates and overqualification rates. Van Eijs and Heijke (forthcoming) demonstrate that the current allocation of qualifications to job requirements is inefficient; this finding contrasts with Hartog's latest estimates. The study by Borghans and de Grip (1999) examines determinants of overqualification, categorising them by whether or not they are compatible with the allocation theory. A clear result, however, does not emerge. Van der Velden and van Smoorenburg (1999) compare results gained from the so-called objective and subjective measurement approach. Their major finding is that overqualification measured with an objective approach is clearly overestimated. On the other hand, they do not find hints for an underestimation of overqualification when applying the subjective approach.

Two Dutch authors are about to present a new anthology on overqualification (Borghans and de Grip, forthcoming(b)). In their editorial article (forthcoming(a)), Borghans and de Grip discuss the current issues in this field. The paper by Muysken and terWeel (forthcoming) seeks to integrate human-capital theory, job-search theory, the job-competition model and screening into a discrete theoretical approach. Borghans et al. (forthcoming) examine the connection between aggregated and individual overqualification on the one hand and low pay on the other and conclude that the impact of overqualification is greater than that of low pay. Finally, the study by Gautier (forthcoming) examines cyclical effects on the level of demand for various qualifications. One of his findings is that, during recessions, employees in unskilled jobs are paid off without regard to their qualification levels.

Besides the aforementioned works, there are several relevant essays in Dutch, such as Hartog, 1985b, Oosterbeek, 1986, Groot, 1993b, Groot and Maassen van den Brink,

1996, Oosterbeek and Webbink, 1996, and Groeneveld, 1997, which testify, as in the case of Germany, to a wealth of research on the subject of overqualification that the international scientific community is unable to appreciate. The author's lack of knowledge of the Dutch language prohibits an evaluation of the content of these papers at the present juncture.

Germany

The only comprehensive monograph on overqualification in Germany is a study by the present author (Büchel, 1998b). One of the main innovative methodological elements of this study is that it is the first to adapt the existing instruments of dynamic unemployment research systematically for use in the analysis of overqualification. In this way, on the basis of panel data, it is possible to analyse the probability of individuals being recruited and of their staying with or leaving their firm, to determine longer-term income effects and more besides. Important preliminary work, especially with regard to the categorisation of overqualification, was performed in the studies by Büchel and Weißhuhn (1997a and 1998). Schlegelmilch (1987) presented a monograph analysing data on overqualified graduates; another monograph, in the form of a company study, on the effects of overqualification among technicians and engineers (Haugrund, 1990) was designed more as a business-management resource.

Two individual papers dealing with the subject under examination were produced by Szydlík (1996a and 1997a). To generate the mismatch variables, Szydlík includes a question about the occupation for which the employee has trained (for a critique of this approach, see section 2 above) but does not use occupational status to validate the mismatch (Szydlík, 1996b, p.300, footnote 10) as Büchel and Weißhuhn do (see also subsection 6.1 below). This produces distinctly higher percentages of overqualification than would result from an operationalisation based on the Büchel/Weißhuhn approach. Velling and Pfeiffer (1997) also examine overqualification (as part of a wider-ranging study) for all qualification levels, though for western Germany

only. Despite the use of a different database and a sharply divergent means of assessing the degree of job/qualification match, the study arrives at very similar findings to those of Büchel and Weißhuhn (1997a and 1998). Lastly, Zwick (2000 and forthcoming) adopts an ambitious theoretical approach to examine the links between overqualification, wage levels and attitudes to education.

In continuation of the research tradition outlined in point 5.1.2 above, the main focus of German overqualification research has remained on university graduates, right down to the present day.

Straddling the border between 'old' and 'new' research is the work of Rippe (1988), who was the first researcher in Germany to conduct a broad investigation of the methodological side of job-match assessment and thus to reflect at least some signs of affinity with the body of U.S. research on that subject; until that point, Germans had been virtually oblivious to the discussion of these issues in the United States. Proceeding from the DOT/GED approach and the criticism levelled at it and at its application to the microcensus by IAB researchers, Rippe identified 'a lack of validated methods for assessing job matches by comparing existing and required qualifications'.

Plicht et al. (1994) presented the first broad-based study of the suitability of jobs held by university graduates in Germany. Their approach may not correspond exactly to the DOT/GED strategy, but it is related to the latter in so far as it does not have recourse to subjective assessment of job-requirement levels by the respondents themselves. Although it is designed as a cohort study without longitudinal examination of individuals, the authoresses postulate that the high percentage of young graduates in jobs for which they are overqualified is primarily due to the fact that overqualification is a natural phenomenon at this stage in a graduate's career. This interpretation was put into perspective in Büchel (1996a): although the risk of involuntary overqualification is higher at the start of a career than after a period of occupational experience, it has been proved that structural and cohort effects have played a dominant role

during the nineties. In other words, the percentage of graduates who tend to run a higher risk of overqualification on account of their membership of particular status groups (e.g. women and graduates of technical colleges) is rising steadily, and membership of these groups is largely unalterable in the course of a career.

The situation of academically trained career starters is examined by Büchel and Matiaske (1996) on the basis of longitudinal data from the German Socio-Economic Panel (GSOEP). It emerges from this study that a high risk of overqualification at the start of a career attaches to certain 'soft' academic disciplines which are mainly chosen by female students. An interaction analysis shows that the gender effect is governed by the student's choice of subject.

Most of the other literature relating to the more recent discussion of the phenomenon of graduate overqualification in Germany may be divided into two categories: the first comprises highly specific surveys of graduates, differentiated by subject specialisation (most of these have been conducted by the University and College Information System (HIS) in Hanover) or even by specific departments of individual universities (this type of survey is conducted by 'interested parties', i.e. students in one of the departments in question, often as one of their degree papers); the other category comprises papers presented at conferences on the subject of graduate career prospects and subsequently published in the report of proceedings.

The HIS studies are reports on graduates in specific federal states or subjects, based on the system's own surveys (see for example Minks, 1992 and 1996; Minks and Filaretow, 1993; Lewin et al., 1994a and b). One of the central problems with these studies, however, lies in the database, which only covers the first years of a graduate's career.

This problem, of course, also arises for university- and subject-related studies of graduate employment. The utility of this type of study is undisputed, because it can give prospective students important information

about future career prospects. Nevertheless, the scientific quality of the studies is generally below average, since they are compiled as a rule by people with no research background.⁵⁴

The important thing about the latest developments in this field is that the discussion about the future of graduate employment in Germany now focuses on overqualification and unemployment as closely related phenomena (see for example Schreyer, 1999, and Wissenschaftsrat, 1999). This represents a major step away from the narrow perspectives which had long prevailed, in which unemployment was only seen as an employment risk.

Studies on the overqualification of people with vocational diplomas are considerably less common than studies on graduate job matches. The most plausible explanation of this phenomenon may be that higher education is expanding more rapidly than vocational education. Accordingly, graduates may be regarded as more likely victims of labour-market imbalances.

Hofbauer and Nagel (1987) conducted a wide-ranging study of the risk facing skilled workers of occupational demotion to semi-skilled or unskilled status, examining the specific level of risk in various different trades, for example. The study by Neubäumer (1993), to which reference has already been made in section 3 above, is based on an unconventional approach. The authoress proceeds on the assumption that segmentation applies not only to the labour market but also to the market for training places in the dual system of classroom and on-the-job training. The study demonstrates that in those occupations where working conditions are poor, training is provided in excess of requirements as a means of coping with the loss of the better trainees, who move upmarket when they have served their apprenticeship. Those who complete their training in occupations with poor working conditions but do not find a job, either in the occupation for which they have trained or in

⁵⁴ For a collection of graduate studies from various European countries, see Teichler (1988).

a market segment with better career prospects (assuming they are prepared to switch to another occupation) are generally compelled to settle for overqualification. Neubäumer's findings show that this phenomenon is undoubtedly empirically significant in Germany (see also Neubäumer (1997) and Neubäumer (forthcoming)).

A study by the present author (Büchel, 1994b) examines overqualification at the start of non-graduates' careers. What seemed astonishing at first sight was the higher incomes earned by the overqualified workers. This finding, which was also obtained by Hofbauer and Nagel (1987, pp.54-55), shows that monetary considerations are an important factor in the acceptance of an underskilled job, at least in this phase of a person's career (for a similar finding, see Neubäumer, 1993). Pay differentials to compensate for monotonous work and other disagreeable working conditions, such as the presence of noxious substances, could also play a part (cf. Lucas, 1997, p.557). This factor may be particularly significant in the case of trained craftsmen who subsequently take up semi-skilled jobs in manufacturing industry or do piecework. Even after a short time, however, those who started out with a good fit would be better placed, because their income would have risen more sharply. A similar approach is found in partial analyses such as Büchel and Weißhuhn (1995), Weißhuhn and Büchel (1998), or Büchel and Pannenberg (1997).

Pfeiffer and Blechinger (1995) and Blechinger and Pfeiffer (1999) examine the realisable value of vocational training in the labour market and observe diminishing returns in the course of people's careers.

The only general study relating to Germany that is exclusively devoted to the fit between vocational training and jobs was conducted, ironically enough, by two researchers from the United States (Witte and Kalleberg, 1995). The way in which they assess job/training matches, however, is somewhat questionable, for they assert (p.311) that only about 50% of men and 60% of women who have successfully completed their vocational training are in jobs that match their training [!].

An innovative study was compiled by von Henniges (1996), who investigated the persistent contention that technical progress, the globalisation of labour markets and other factors would lead to the gradual disappearance of unskilled jobs. In so doing, he addressed the methodological problem whereby, because of the restricted availability of data, most studies do not focus on the requirement levels for specific jobs but on the formal qualifications of the people in those jobs. As a result of the expansion of educational provision, there are indeed fewer and fewer workers with no formal qualifications; however, the fact that unskilled work is being performed by semi-skilled or skilled workers means that the rate at which unskilled jobs are being shed is being systematically overstated (p.78).⁵⁵

Lastly, the topic of overeducation was chosen as an example how to work efficiently with robust stochastic earnings frontiers (Jensen, 1999). This paper, however, has a stronger econometric focus than a substantial one.

Only a short time after the dissolution of the German Democratic Republic, special studies on eastern Germany began to appear. Von Henniges (1991) shows that, contrary to the ideological claims made by the regime, overqualification had already assumed epidemic proportions during the Communist era (see also Schwarze, 1993, Büchel, 1995, and Brinkmann and Wiedemann, 1995, p.330). Schwarze (1993) presents a comparison of the situation in eastern Germany before and after the demise of the East German state (1989 and 1991) and identifies income effects of overqualification.

The labour-market monitor for the new federal states proved to be an effective source of data for the investigation of overqualification. In thematically wide-ranging IAB studies on the development of the employment situation in eastern Germany, the phenomenon of

⁵⁵ At this point, however, it should be mentioned that, irrespective of data restrictions, macro-economic surveys of the jobs that people do are far more difficult to conduct from a methodological point of view than surveys of employees' qualifications or occupational categories.

overqualification is given special treatment (Bielenski et al., 1994 and 1995, and Brinkmann and Wiedemann, 1995 and 1997). The very structure of the 1995 study by Brinkmann and Wiedemann (p.323) testifies to the high priority that is attached to the phenomenon of overqualification in the empirical research of the IAB, at least in relation to eastern Germany, where the percentages of overqualified employees are very high; this emerges especially clearly from the special study on this subject by Brinkmann and Wiedemann (1997).

These, then, are the studies that focus specifically on eastern Germany.⁵⁶

The extent to which foreigners in Germany are affected by overqualification is investigated in a study by Szydlik (1996a). However, the fact that the source data (from the GSOEP) only yield rudimentary information on foreigners' qualification levels (at least for those who were educated in their native country) must pose problems when it comes to assessing whether their jobs are commensurate with their training. Szydlik observes, for example, that more than half of the Turks working in Germany are overqualified for their jobs. If we bear in mind, however, that even today Turkey requires only five years' compulsory schooling of its young citizens and that there is effectively no institutional system of vocational training in the country, the validity of this finding appears dubious. Heinelt and Lohmann (1992) also elicit high overqualification rates for ethnic Germans who have moved to the Federal Republic from Eastern Europe; here too, there are problems with the validity of the measurement strategy.

The job/training fit for working women is examined in detail in one of the studies by Büchel and Weißhuhn (1997c). Extending the basic

approach adopted in Büchel and Weißhuhn (1997a and 1998), the authors attach special importance to an examination of the socioeconomic background of the women who are affected by overqualification. This relates not only to the women's family circumstances (e.g. the number of children in the household and the arrangements made for their care) but also to their partner's employment status, his income situation, etc. The study establishes a strong link between the financial circumstances of the household and the need to accept underskilled work, although marked differences were observed between women with different qualification levels. The household structure and the number of children seem to be less significant factors, with the qualification that women who are lone parents exhibit a far higher risk of having to accept a second-best solution in the labour market.

Other countries of the European Union

In the United Kingdom, Sloane et al. (forthcoming – see also Sloane et al., 1996) were the first to devote a study to the subject of overqualification. Their work is based on the research approach adopted by Duncan and Hoffmann (1981) and delivers similarly structured findings.

The Dutch researcher Groot (1996) found that few British employees were overqualified for their jobs. His assessment of the job/education match, however, was based on what appears to be a somewhat arbitrary modification of the DOT system. An extension of this approach, based on the same assessment strategy, is found in Groot and Maassen van den Brink (1995).

Battu et al. (1998a and b) test the theory of differential overqualification (Frank, 1978b) and arrive at a negative result. In a longitudinal study, Battu et al. (1999) show that overqualification has adverse effects on job satisfaction and income. They produce the noteworthy finding that social background does not affect the probability of a mismatch.⁵⁷

⁵⁶ There are, however, other studies on the empirical situation in eastern Germany, such as those by Büchel and Weißhuhn (1997a, 1997c and 1998) and by Szydlik (1997a, b and c). One remarkable point is the finding presented by Szydlik alone that underemployment is less widespread in eastern than in western Germany (see Szydlik, 1997b, Table 1, p.43, or the redundant findings in Szydlik, 1997c, Table 2, p.13).

⁵⁷ Cf. Patrinos (1995 and 1997), who arrives at the opposite result for Greece.

Alpin et al. (1998) examine over- and underqualification in a wide-ranging study. Their ambitious quest to establish whether the overqualification of individuals is only a temporary phenomenon meets with little success, however, because they only have access to right-censored data on job duration. This question cannot be answered on the basis of such data. Finally, Battu and Sloane (forthcoming) find that displacement effects caused by overqualification do occur in the upper echelons of the labour market, but that unskilled workers in the United Kingdom are not being ousted to any great extent by overqualified recruits.

One of the more unusual longitudinal studies in the domain of overqualification research was presented by Dolton and Vignoles (1997). They observe that most employees who start their career in a job for which they are overqualified do not manage to make the transition to appropriate employment in the first six years. Dolton and Vignoles (forthcoming) arrive at similar findings to Sloane et al. (1996 and forthcoming) with regard to the returns to surplus years of schooling.

Alongside these microeconomic studies on overqualification there are also conventional studies which examine the aggregate effect produced by the expansion of the education system, such as the study by Mason (1996).

For France there are studies by Forgeot and Gautié (1997a and b), in which the percentages of over- and underqualified employees in the younger age brackets are assessed by qualification level and job duration for the years 1986 and 1995, as well as a study by Vincens (1995), which treats the problem of overqualification in a rather general fashion (pp. 149-150).

With regard to Spain, there are relevant studies by Alba-Ramírez (1993) and Beneito et al. (forthcoming). Alba-Ramírez finds evidence for the job-matching and career mobility theories. Beneito et al. examine the question whether surplus years of schooling should be regarded as complementary components of human capital or substitutes; their test shows that the latter is the more accurate assessment.

The Portuguese situation has been the subject of studies by Kiker et al. (1997) and by Mendes de Oliveira et al. (forthcoming). Kiker et al. adopt a similar approach to Duncan and Hoffmann (1981) and find that it confirms the allocation theory. Mendes de Oliveira et al. refine the same Duncan and Hoffmann approach and demonstrate that the returns to surplus and deficit years of schooling are heavily dependent on job duration.

In Greece, studies on overqualification have been produced by Patrinos (1995 and 1997). He arrives at similar overqualification rates for Greek graduates to those recorded in western Germany, for example. As might be expected, Patrinos finds evidence of wide divergences between academic disciplines. One especially noteworthy finding is that overqualification is disproportionately high among graduates from humbler backgrounds.⁵⁸ Other studies are based on the idea of overeducation as an imbalance between the supply of higher qualifications and the demand for them, an idea that was widespread in the early days of the discussion (see subsection 5.1 above); these include works by Tsoucalas (1981), Psacharopoulos (1988), Glytsos (1990) and Lambropoulos and Psacharopoulos (1992).

For Austria there is a study on access to blue-collar occupations for apprentices when they complete their training (Ofner, 1994). Ofner finds that, two years after obtaining their certificate of apprenticeship, about one-third of the former apprentices who have jobs are overqualified.

This review of nationally focused literature on the subject of overqualification shows that this major problem has yet to arouse the interest of employment researchers in many countries of the European Union. We can but speculate on the reasons for this. The restricted availability of key data may be a sig-

⁵⁸ This finding is consistent with that of the author (Büchel, 1997), who identifies a positive correlation between income prospects and the education level of the parental household, thereby challenging the oft-expressed view that a university degree is a social leveller.

nificant factor, for a mismatch variable cannot be generated without an adequate range of relevant reliable data. Efforts must be made to ensure that data-gathering institutions show greater willingness than in the past to elicit the information that researchers need, such as the skill level required for individual jobs. This problem has already been recognised (ILO, 1998, p.90); a fair degree of patience is likely to be needed, however, before this aim is achieved.

5.2.3 *International comparative studies*

There are studies in which findings from various countries are put together and some in which the researchers' own empirical comparisons are drawn.

Examples of the first group are the publications by Suda (1979),⁵⁹ Teichler (1988), Hofmann (1995) and more specifically those of Hartog (1997), Büchel and Weißhuhn (1997c), Borghans and de Grip (1999), Tessaring (1998), Büchel (1998b), and Groot and Maassen van den Brink (forthcoming). These studies provide quite general information on various research findings in an international context.

Studies in which direct international comparisons are drawn in the domain of overqualification have so far been limited to comparisons between the country in which the researchers are interested and the United States, which serves as the reference country. Almost all such studies compare Germany with the United States.

Büchtemann et al. (1993) presented a comparative study on career starts in Germany and the United States. Their study analyses data from the PSID and GSOEP. Matches and mismatches are only one aspect of this wider-ranging study. The study by Daly et al. (1997, revised in Daly et al. (forthcoming)) uses the same databases to examine the income effects

of deficit and surplus components of human capital along with the returns to qualifications which are actually needed for a person's job. In so doing, it follows the approach established by Duncan and Hoffmann (1981). The authors are interested in ascertaining whether structural changes in the U.S. labour market have a greater impact on results than structural differences between the countries under examination. Astonishingly close analogies emerge in the findings for Germany and the United States; the key finding of the study is that similarities between the nations are more pronounced than the similarities between the U.S. findings for different points in the time series.

Büchel and Witte (1997) analyse the effects of overqualification in the initial phase of employees' careers. They use the longitudinal structure of the 'High-School & Beyond' data sets and the GSOEP. Here too, the two countries under scrutiny are remarkably similar in structural terms. The studies by Szydlík (1997b and c and, to a certain extent, a), are also based on information from the PSID and GSOEP. While the aforementioned studies arrive at similar overqualification rates in the United States, the identified percentages of underqualified workers are strikingly lower than those calculated by Daly et al. (1997, Table 1, p.27).

Szydlík (1998) examines the overqualification of immigrants in Germany and the United States. But this once again begs the question how, given the extremely wide divergence between national training systems in terms of quality, anyone can hope to achieve comparability between the formal vocational qualifications that immigrants have obtained in their own countries. Witte (1999) examines the development of overqualification among young people in Germany and the United States; unlike Büchel and Witte (1997), this study bases its analysis of the U.S. situation on PSID data. The study by Büchel and Weißhuhn (1997b) provides a summary in German of the main elements contained in the previous studies by Daly et al. (1997) and Büchel and Witte (1997).

Cohn and Ng (1999) as well as the more fully elaborated version of this study by Cohn et

⁵⁹ The Suda study is listed here with certain reservations: while the theoretical part of this first study deals explicitly with overqualification, the findings presented in the empirical part are strangely unrelated to the theoretical part.

al. (1999) examine overqualification in a comparison between the United States and Hong Kong. What seems at first sight to be a rather exotic research project actually produces remarkable results. In fact, the standard pattern that is familiar to us from Western research literature also applies to Hong Kong: as a rule, overqualification is more frequently observed than underqualification, older employees are more often underqualified for their jobs, while younger employees are more likely to be overqualified, and the Duncan and Hoffmann findings on the returns to surplus and deficit years of schooling, which were first published in 1981 and have since been confirmed in numerous studies, are likewise found to hold true for Hong Kong.

The presentation of this literature survey has also shown up major research gaps. An important research perspective for the future relates to the need to achieve mutually compatible national data sets on mismatches and to analyse them on the basis of a standardised examination model. Only in this way can institutional and regional effects be satisfactorily isolated; a comparison between individual studies for various countries cannot achieve this because of the widely divergent measurement methods.

6. Overqualification and unemployment: The case of Germany

The purpose of this empirical section is to present some examples, with the aid of a few indicators, of links that exist between overqualified and unemployed status.

In subsection 1.2 above, a methodological affinity was highlighted between overqualified and unemployed status within the labour market. The essence of this affinity is that people in both situations are unable to capitalise fully on their certified vocational qualifications in the labour market. The 'skill spill' in the case of overqualified workers amounts to $x\%$, where x is only indirectly determinable – by means of an income analysis, for example – but is substantially higher than zero.

In the case of jobseekers, the spillage factor is 100%. If we assume, for the sake of simplicity, that the skill spill in the case of an adequately employed person is 0%, the 'middle' ground of overqualification which lies between adequate employment and unemployment must be observable within those social categories that unemployment literature identifies as clearly disadvantaged.

6.1 Research approach

6.1.1 Database

The measurement strategy introduced in the following paragraphs is based on data from the German Socio-Economic Panel (GSOEP) administered by the German Institute for Economic Research (*Deutsches Institut für Wirtschaftsforschung – DIW*) in Berlin. This set of data, collected from representative samples of the population resident in the Federal Republic of Germany, contains a wealth of longitudinal information on households and individuals. The initial sample in 1984 comprised almost 6000 households. The head of each household was given a questionnaire covering the whole household. All members of the household aged 16 or over (more than 12000 individuals) were also given a separate personal questionnaire seeking factual information and opinions on many aspects of their lives, especially education and employment.

The households and individuals in this sample are surveyed at yearly intervals. The database is constantly being widened as household members leave to start new households, as new members move into panel households and as younger members of the household reach the survey year in which their 17th birthday falls.⁶⁰

Information on the education and training of foreigners

The vast majority of the foreign nationals who are GSOEP respondents are first-generation foreigners, in other words the 'guest workers'

⁶⁰ For more extensive information, see Projektgruppe Panel, 1995.

who were encouraged to come and work in Germany. In the present context, these people form a special group in the sense that they underwent schooling and vocational training in their native countries. There is only rudimentary information available on their educational and training qualifications. This information is not comparable with the very precise details elicited by the questions that are addressed to German respondents about their education level. Moreover, the education systems of the various countries of origin are so highly disparate that identical response patterns can rarely be taken to mean equivalent levels of qualification

The conclusion we must therefore draw from this situation is that it is impossible to measure the degree of mismatch for foreign workers if they have been trained in their native countries. The aforementioned heterogeneity of training courses in their countries of origin is not the only reason; another factor is that the GSOEP question equates the various levels of job requirement with German educational certificates. No very convincing attempts have yet been made to solve this compatibility and validity problem adequately (Szydlik 1996a),⁶¹ Szydlik's exorbitant assessment that around 60% of all 'qualified' foreigners are overqualified will certainly raise eyebrows at the very least (Szydlik, 1996a, p.667; see also Szydlik, 1997a, p.17).

In the light of these considerations, the categorisation of job/education matches in the following paragraphs will only apply to those foreigners who have undergone at least their vocational training in Germany. The problems outlined above with regard to information on immigrants' education levels also apply to other databases, but overqualification researchers have yet to respond to them with the necessary sensitivity (see the criticism in

point 5.2.1 above of the methodology applied to immigrant studies).

General case selection

All members of the sample who were in the labour force at the time of observation are categorised. People in full-time employment, regular part-time employment, minimal employment, and involuntary unemployment (including the hidden labour reserve) are examined, except in cases where the employees are still in full-time education, since there will be no 'definitive' information on vocational qualification in such cases. For the same reason, internees, voluntary workers and people in similar occupational situations are excluded from the analysis, as are those of retirement age (65 and over). Since people who have no vocational qualifications at all cannot by definition be overqualified, they too are excluded from the categorisation (cf. Witte and Kalleberg, 1995, p. 308, for an analogous approach). With respect to the latter selection, an exception is made for the step of analysis resulting in Table 1.

The considerations described above form the basis of the condition that only people who have received vocational training and/or higher education in Germany are taken into account. Migrants who moved between East Germany and the Federal Republic are also excluded from the analysis.⁶² Because of the categorisation rules governing the assessment of overqualification (see point 6.1.2 below), it is also necessary to exclude those few people for whom no information on vocational qualification, job-requirement level or occupational status is available.

6.1.2 Categorisation of overqualification

Because of the superiority of the subjective approach to the 'objective' DOT/GED system, as discussed in point 4.1.2 above, the strategy presented below for the measurement of overqualification is based on the former. The

⁶¹ Szydlik writes, 'Admittedly, knowledge and skills acquired abroad cannot be unequivocally evaluated' (p.664); however, the continuation of his study, which compares the job/training matches of Germans and foreigners, is evidence of such an evaluation being undertaken in spite of this acknowledged obstacle; indeed, the evaluation is at the very heart of this particular study.

⁶² For the rationale behind this exclusion, see Büchel, 1998b.

strategy takes account of the objections that have been raised about the subjectivity of the collected information on job-requirement levels by validating reported information on occupational status.

This generation of the mismatch variables from three, rather than the usual two, initial indicators is what gives this categorisation system its innovative quality. It does, admittedly, create two additional categories: implausible combinations (of job-requirement level, formal qualification and occupational status) as well as a 'grey area' (Hecker) or 'mixed category' (Plicht et al., 1994), in which the three indicators referred to above cannot clearly signal a match or mismatch, even though there is nothing recognisably inconsistent in the data reported by the respondent.⁶³

One problem with the measurement strategy is therefore that the scope of this new mixed category scarcely lends itself to evaluation in the framework of overqualification research. This disadvantage is more than offset, however, by a sharper distinction between adequate employment and overqualification.⁶⁴

The GSOEP does not ask directly whether a respondent's job is commensurate with his or her training but merely asks about the requirements of the person's job. The question 'What type of training is normally required for the job you do?' is accompanied by the following graded response categories: 'No special training required', 'Only a short induction on the job', 'A lengthy period of coaching

⁶³ To define the mixed category, we must first conduct pre-tests (which are not documented here), using group-specific occupational and income information.

⁶⁴ A further residual category, created by the presence of a missing value in one of the three indicators required to generate the mismatch variables, is no different in methodological terms to an equivalent category based on a conventional two-variable approach but is made somewhat larger by the addition of the third variable. The information on occupational status is not regarded as sensitive data and is seldom posted as a missing value in the GSOEP.

at my place of work', 'Attendance at special theoretical or practical courses', 'A certificate of vocational training' and 'A university or college degree'. It is permissible to choose more than one response. Pre-tests, however, have shown that multiple responses, which are in any case quite rare, almost invariably involve a combination of 'A certificate of vocational training' and 'A lengthy period of coaching at my place of work' or else the requirement category 'Attendance at special theoretical or practical courses' in conjunction with any of the other options. This means that we can record the most demanding reported requirement without sacrificing any very significant information.⁶⁵

By means of a comparison with the acquired formal vocational-training qualification,⁶⁶ the degree of congruence between job and education can be directly determined; the disparity between the employee's formal qualification and the job requirements – at least for people with the same category of formal qualification – can then be graded, i.e. assigned to one of a number of bands in a 'skill spill' scale. Since the pre-tests that were conducted as part of the data-verification process high-

⁶⁵ In conjunction with the income distribution for each category and the structure of the job classifications in each category (on the basis of the three-digit ISCO codes), summaries were produced in advance for each of the requirement levels. These pre-tests revealed, for example, that the occupational and income structure for the two requirement levels 'A certificate of vocational training' and 'Attendance at special theoretical or practical training courses' are similar, in the same way as the structures for 'No special training required' and 'Only a short induction on the job' resemble each other. For that reason, each of these response pairs is bracketed together.

⁶⁶ Following similarly structured pre-tests, the levels of formal qualification are aggregated. The certificate of vocational training, which is the general category for those workers whose qualifications are non-academic, covers those who are qualified master craftsmen, as is common practice; graduates of universities and colleges of higher technical education (*Fachhochschulen*) are also bracketed together in the customary manner, which reflects the fact that no distinction is made between these two levels of qualification on the job-requirement side.

lighted individual borderline cases straddling two categories as well as a number of inconsistencies, other particularly detailed information on the respondents' occupational status from the GSOEP survey is included in order to determine the mismatch variables.

The following categories are thus created: '(definitely) overqualified', 'degree of mismatch not clearly determinable' (a mixed category which is wisely excluded as a rule from evaluations of job content), '(definite) congruence between job and education', 'implausible combination of the three generating variables' and 'at least one missing value among the three generating variables' (an indeterminate degree of mismatch is also classed as a missing value).⁶⁷

The use of separate classification models for western and eastern Germany takes account of the different educational certificates in the former East and West Germany.⁶⁸ The classification model for western Germany with the combinations of job requirement, formal qualification and occupational status is documented in Table 0 of the annex; for the classification models for eastern Germany, see Büchel, 1998b, Tables 4.2 and 4.3, pp.189 ff.

Identifying underqualification

Occasionally, when analysing the job/qualification fit, besides examining the category of adequate employment and that of overqualification, researchers also study a second misfit category, namely that of underqualification (see for example Daly et al. (forthcoming)). Such a situation occurs when a respondent does a job for which he or she does not possess adequate formal qualifications. This mismatch phenomenon occurs in a few exceptional 'rags-to-riches' careers, such as that of

a dishwasher who works his way up to become a millionaire, but it has to be discussed on the basis of completely different premises to those that underlie the discussion of overqualification (cf. Alpin et al., 1998, pp.19-20). The theory of career mobility, for example, can explain overqualification but not overemployment; Sicherman (1991, p.109) explicitly addresses this point.⁶⁹ If researchers wish to examine mismatches in general, they must accordingly analyse and discuss the categories 'overqualification' and 'underqualification' in strict segregation. If, on the other hand, the emphasis is on the phenomenon of overqualification, as it is here, underqualification and adequate qualification can be lumped together fairly easily (for a similar approach, see for example Groot, 1993a, p.302, and Groot, 1996). In the following paragraphs, therefore, underqualified workers are assigned to the 'adequate employment' category; their common quality that interests us in the present context is the fact that they are identified as not being overqualified.

The degree of overqualification

The aforementioned grading scale for data (recoded into categories) on formal vocational qualification and job requirement can also be used to interpret and grade the newly created information on the discrepancy between these job and training levels. However, when the categorisation is subjected to further differentiation in this way, since the original variables were already highly aggregated, the resultant lack of sharp divisions between the categories demands a certain amount of caution from anyone who develops such a classification model or who subsequently interprets the findings it produces.

⁶⁷ For a treatment of the relatively small percentages that fall into this category and into those of 'implausible combinations' and 'missing values', see Büchel and Weißhuhn, 1997a, Tables A2-W/O-84, -91 and -93, as well as Büchel and Weißhuhn, 1998, Table A2-W/O-95.

⁶⁸ For the rationale behind this division, see Büchel, 1998b.

⁶⁹ Moreover, in European countries such as Germany, where certified vocational qualifications are major determinants of career prospects – in contrast to the United States, for example – underqualification is of minimal empirical significance. The 7% or so of German employees (1984 figure) whose educational certificates would not normally qualify them to pursue their current occupation have an average shortfall of only 0.7 years of schooling; the average qualification surplus for overqualified workers in 1984, on the other hand, exceeded two years (see Daly et al., 1997, Table 1, p.27).

While the division into appropriate employment and overqualification on the basis of the described categorisation system has certainly passed the validity test (cf. point 6.1.2 above), this cannot be said unreservedly of the degree of overqualification. Although there is no doubting the validity of the graded structure, the volume of the various skill spills cannot be determined with sufficient accuracy. For that reason the graded structure has only been used to obtain information on the volume of skill spillage in particular descriptive evaluations where incidence figures have been high (see for example Büchel, 1998b, Tables 5.1 to 5.3, pp.192 ff.).

For more ambitious research designs, such as the one illustrated in the present section, it therefore seems advisable to accept some loss of information for the sake of a more valid categorisation system; this, indeed, is done in most empirical studies on overqualification. Thus, if the sample is classified into valid categories, the result will be a dummy variable – overqualified: yes/no – for all workers with a formal vocational qualification or a university degree acquired in Germany.

Validity checking

The overqualification variable obtained on the basis of the categorisation principle described in the preceding paragraphs must be externally and internally validated before being used empirically.

The external validation is based on the comparability of the volume of underqualification revealed by one's own findings with the figures produced by other studies with different underlying research strategies.

The most comprehensive empirical study of the incidence of overqualification in Germany which is not based on the categorisation strategy described above is that of Plicht et al. (1994), although it only examines university graduates. The study involves a mixed category, which results in wide margins of error; within this framework it identifies graduate overqualification ranging from 8% to 17% (western Germany, 1991). The author of the present study, eliminating the mixed category,

arrived at a value of about 14% (see Büchel, 1998b, Table 5.2, p.193), which is of the same order as Plicht, Schober and Schreyer, even though they not only use a different database but also pursue an entirely different approach, based on occupational categories.

In studies on overqualification among university graduates, which is the main focus of attention in the German discussion, percentages of under 10% to 15% (Tessaring, 1994a, p.49, Buttler and Tessaring, 1993, p.470, and Szydlik, 1996b, p.304) are identified, although no details are given on any part of the operations used to arrive at these percentages. The figure of 25% advanced by the Donors' Association for the Promotion of Science and the Humanities in Germany (Stifterverband für die Deutsche Wissenschaft, 1993, p.4) is surely overestimated and must be seen in the light of the general pessimistic tone of that publication. So if we exclude this last outlier, the external validation seems to have been generally successful.

For the purpose of internal validation, the validity of the construct used to distinguish between the characteristics of jobs done by appropriately qualified workers and those whose incumbents are overqualified is tested. If the categories really are sharply defined, considerable differences should emerge in terms of quality.

Irrespective of its theoretical derivation, the expectation that overqualified workers would be considerably worse off than adequately employed workers with similar formal qualifications is observably fulfilled in a highly refined examination of some 50 items in virtually all dimensions (Table 1 in the annex). The pattern of these findings leaves no room for doubt about the validity of the categorisation model.

6.1.3 The evaluation process

The empirical evaluations are based on the German Socio-Economic Panel (GSOEP – see point 6.1.1 above). West and East Germany are examined separately. The cross-section evaluations are based on the year 1995, while the longitudinal analyses use the period from

1984 to 1995. Specific details of the analytical methodology are contained in the various paragraphs on the interpretation of findings. The findings that are presented are largely derived from the multivariate analyses. For further descriptive information on the various stages in the evaluation process, the reader is referred to Büchel, 1998b. Overqualification is identified on the basis of the strategy described here in subsection 6.1.2.

Subsection 6.2 examines four subjective indicators that produce inferior values for jobless people compared with employees in the field of unemployment research, refining this strategy by applying a division into three categories – ‘unemployment/hidden reserves’,⁷⁰ ‘overqualification’ and ‘adequate employment’. Subsections 6.3 and 6.4 go on to analyse transition patterns into and out of overqualification. Finally, section 6.5 examines the dynamics of income loss resulting from overqualification; the second part of this evaluation focuses on a comparison between losses resulting from periods of unemployment and periods of overqualification.

6.2 Subjective indicators: differences between adequate employment, overqualification and unemployment

6.2.1 Problem-solving capacity

In order to measure possible deprivation in people’s everyday lives, the questionnaire asks respondents to what extent they agree with a number of statements, one of which is ‘Things have become so complicated that I can barely cope’. Although this question has a recognisable dynamic component, which relates to external (social) development, the response can also apply to transitions from a socially secure status, such as training or adequate employment, to overqualification or unemployment and therefore seems to be a very

⁷⁰ Hidden reserves of labour are those non-working members of the active population people who are not registered as unemployed but who report immediate readiness to take up employment. For the sake of linguistic simplicity, the ‘unemployed or hidden reserves’ category is abbreviated to ‘unemployed’ in the remainder of this section.

suitable means of shedding light on the issue under examination here. The responses ‘fully agree’ and ‘tend to agree’ with the aforementioned statement are interpreted as indicative of limited problem-solving capacity. A probit model is used to identify the determinants of this limited capacity, special attention being focused on the three relevant categories of employment status.⁷¹

The findings set out in Table 2 of the annex show that the overqualified respondents’ assessment of their own problem-solving capacity, controlled for important socioeconomic variables, including the level of formal education, actually places their expected ‘middle’ position far closer to that of jobseekers than to adequately employed workers. Although their problem-solving capacity is higher, on average, than that of jobseekers, the difference is not significant. By contrast, there are significant differentials between matched and mismatched employees. This finding is observable for both West and East Germany.

6.2.2 Morale

A person’s awareness of a shortage or absence of demand in the labour market for his or her acquired vocational skills and qualifications will probably have an adverse effect on that person’s morale, since the vast majority of people, or at least of those who wish to be economically active, place employment high on their list of priorities. For the purposes of the study, the sample is divided into those whose morale is high and others. In accordance with a strategy commonly used by the GSOEP to evaluate morale, based on an empirical distribution of responses on an eleven-point scale (0-10), people who rate themselves at points 8, 9 and 10 on the scale are defined as having high morale.⁷²

⁷¹ The same type of econometric model is adopted in points 6.2.2 to 6.2.4 below.

⁷² American researchers occasionally display less sensitivity in their choice of evaluation model. Hersch (1991), for example, evaluates her satisfaction scale, which is graded in the same way as the GSOEP model, on the basis of a regression equation.

The following may be deduced from the findings set out in Table 3 of the annex: both in West and East Germany, overqualified workers report not only significantly higher morale than jobseekers but also significantly lower morale than those workers whose jobs match their qualification levels. Whereas the overqualified workers are roughly equidistant from the other two categories on the satisfaction scale for East Germany, the morale of overqualified workers in West Germany is far closer to that of adequately employed workers than to that of jobseekers.

6.2.3 People's concern about their own economic prospects

In order to measure the respondents' assessment of their own prospects for the future, the questionnaire asks whether they are worried about a number of things, one of which is their own economic situation. The responses 'very worried' and 'rather worried' are interpreted as pessimistic assessments of the respondents' own economic prospects.

The findings are set out in Table 4 of the annex. Both in West and East Germany, overqualified workers are significantly more optimistic about their expected economic development than jobseekers but significantly more pessimistic than workers with well-matched jobs. One interesting point is that the same pattern emerges as was observed for morale, with equal spacing between the middle category and each of the other two for East Germany, whereas overqualified workers in West Germany are distinctly closer to adequately employed workers than to jobseekers in their assessment of their own economic prospects.

6.2.4 Political involvement

An important observation in the domain of political science is that unemployed persons are liable to turn their backs on the world of politics because they feel betrayed (the 'political apathy' hypothesis; see Büchel and Falter, 1994). This is liable to lead to impaired functioning of the democratic system. Besides voting in elections, allegiance to a political party is regarded as an effective in-

dicator of the extent of a person's political involvement. The purpose of these paragraphs is to extend the conventional examination of the connection between employment status and party allegiance to the category of unemployed workers.

The findings documented in Table 5 of the annex show that, controlling for major socio-economic characteristics, the identification of jobseekers with the party system does not differ significantly from that of overqualified workers. The latter, however, demonstrate significantly less party allegiance than workers with good job/qualification matches.

All in all, the findings of section 6.2 confirm the hypothesis that the redundancy of an individual's marketable skills does not only have an adverse effect on his or her social well-being in the case of total redundancy (i.e. unemployment). Even partial redundancy of a person's skills, as happens in the event of overqualification, results in a diminished – and sometimes drastically diminished – quality of life compared with that enjoyed by employees whose jobs are commensurate with their qualifications. While overqualified workers are significantly better placed than jobseekers and significantly worse off than their adequately employed counterparts in terms of morale and perception of their own economic prospects, once the relevant data has been controlled for important socioeconomic characteristics, when it comes to their ability to cope with everyday life (at least for the time being) and their allegiance to political parties, however, overqualified workers demonstrate attitudes that are not far removed from those displayed by jobseekers, whereas people whose jobs fit their qualifications tend to be significantly closer to the 'social norm' in these respects.

6.3 Transition to inadequate employment

6.3.1 Preliminary remarks on the dynamics of individual overqualification

Following the presentation of the static perspective in the previous subsection (for a wider range of analyses see Büchel, 1998b),

the following paragraphs deal with the dynamics of changes of employment status at an individual level. Although in the medium term the percentage of overqualified employees in the German labour force has remained fairly stable (see Büchel and Weißhuhn, 1997a and 1998), we cannot rule out the possibility that, as with the phenomenon of unemployment, this overall picture of stability conceals a great deal of movement in and out of overqualification in the course of individual careers (cf. Groot and Maassen van den Brink, 1995, p.14).

Accordingly, the approaches adopted here are based on the longitudinal analyses that characterise modern unemployment research. This means that interest focuses on the phenomena of movements into and out of overqualification, which have seldom been dealt with in research literature, as well as on income effects of overqualification. The main points of interest are transfers in both directions between overqualification and the other main categories of employment status, namely work commensurate with qualifications, unemployment, other economic inactivity and full-time training. The main transition patterns are examined below.⁷³ When choosing suitable evaluation procedures, we have to remember that the information on job/training congruence is only available for one point in the year, in other words the time of the survey. Since some of the observation periods are very short (1991 to 1995 for the area of the former East Germany, as against 1984 to 1995 for western Germany), the use of hazard-rate models, which is actually the best way to proceed when dealing with this sort of question, would be ill-advised, even for discrete modelling. The use of the panel approach to process the relevant data is also out of the question at almost every stage of the evaluation, since the observed changes of employment status will normally occur only once, if at all, for each person during the examination period. Accordingly, models that control for unobserved heterogeneity would exclude most transitions from the examination, since

observations with only one occurrence do not serve any explanatory purpose in this type of model. For that reason, the research designs of the various stages in the evaluation process must be conceived in such a way that the analysis can be performed with conventional probit or regression models.

Our first step is to examine the process whereby individuals become overqualified. This transition is identified when a respondent reports overqualification in a questionnaire after having reported a different employment status the previous year. These situations from which individuals enter into overqualification are the focal point of the present subsection.

6.3.2 Descriptive findings

Table 6 in the annex shows the types of employment status previously held by overqualified workers, broken down into percentage columns by regional labour market, qualification level and sex.

An examination of the totals column shows that the most common previous status of overqualified workers in both East and West Germany is that of adequate employment (just over 40% in each case). Outdated expertise and declining productive capacity may be mooted as reasons for this.⁷⁴ This transition pattern is far more characteristic of men than women, reaching a peak for highly qualified male workers in the former East Germany; this reflects a systematic downgrading process as part of the hierarchical 'cleansing' operation in the period following reunification. Nevertheless, this seems to refute the oft-repeated hypothesis that overqualification is chiefly a problem for married women who interrupt their careers for family reasons, with the result that their skills become rusty through lack of practice, leaving them no op-

⁷³ For more findings see Büchel, 1998b.

⁷⁴ See the analyses, broken down by age group, in Büchel and Weißhuhn, 1997a and 1998, which demonstrate a considerably higher percentage of overqualified employees in the oldest age bracket, especially among non-graduates in western Germany.

tion but to re-enter working life at a level for which they are overqualified; while this explains some overqualification, it is clearly not the only explanation.

In western Germany, almost a quarter of those who take up underskilled work are unemployed jobseekers. In the East, this percentage is considerably higher, with some 40% of overqualified recruits having been unemployed the year before. This demonstrates the nature of overqualification as an alternative to unemployed status; even though private placement services for unemployed people are gradually gaining in importance, this sizeable movement of labour from unemployment into overqualification is due not least to the restriction by the national employment authority of the jobseeker's right to refuse job offers. The findings also testify to an abundance of flexibility on the part of jobseekers. They also reveal striking differences between regions and between levels of formal qualification; for example, underskilled jobs are a very important source of employment for East German workers with mid-range qualifications, whereas for West German graduates, especially males, overqualification has far less empirical significance.

'Spontaneous' transitions from economic inactivity to overqualification by people who are not actively seeking work (i.e. who are not registered as unemployed) are only made to any great extent by West German women with mid-range qualifications. West German women graduates lag far behind in second place. Among West German men and East Germans in general, this form of transition has only marginal significance.

Approximately one in eight people take up an underskilled job on completion of a training course. This is the case in both western and eastern Germany. This type of transition has become disturbingly common among West German graduates, both male and female. More than one in four West German graduates working overqualified took up his underskilled job immediately after obtaining their degrees; this situation is somewhat less common in eastern Germany and applies primarily to highly qualified women.

6.3.3 *Multivariate findings*

The reference category for our multivariate analysis was the length of time spent in one of the other types of employment status besides overqualification. The multivariate analysis of the descriptively acquired findings (Table 7 in the annex) produces a surprising picture in terms of the previous employment status of overqualified workers. Our first task, however, is to discuss the findings in relation to the control variables.

Clearly different behaviour patterns emerge for transitions to overqualification in eastern and western Germany.

In western Germany, first of all, more women than men take jobs for which they are overqualified. Reasons for this may be less employment-centred training courses, lower priority attached to careers, periods of economic inactivity for family reasons with the accompanying depreciation of human capital, etc. (see below). Older employees are seldom observed to make such a switch. It may be expected that, on losing jobs commensurate with their qualifications, for example, older employees may be more inclined to take advantage of early-retirement packages than to 'struggle through' to retirement in an underskilled job.

Transitions to overqualification are more frequently observed among individuals with poor school records than among those with better school qualifications. Training in a technical college (*Fachschule*), which has traditionally been employment-based, affords protection against overqualification, as does civil-service training, which is normally followed by appointment to an appropriate post in one of the public authorities. Individuals who have successfully completed an apprenticeship are also less liable to become overqualified than those who have undergone other forms of vocational training.

A surprising result emerges for graduates of higher technical colleges (*Fachhochschulen*), who are observed to be more prone to overqualification than holders of apprenticeship certificates. Respondents who attach low

priority to a successful career are also over-represented among the newly overqualified; the undemanding nature of their jobs corresponds to their own level of demand for professional success.

As the regional unemployment rate rises, the probability of a transition to overqualification is reduced. There are two conceivable ways of explaining this: either unskilled and semi-skilled jobs are disproportionately rare in a tight job market or else individuals who cannot obtain an appropriate job are more inclined simply to register as unemployed, the social stigma of unemployment being diminished as the local jobless rate increases.

In the territory of the former East Germany, the control variables exert an influence in several different ways. Besides older employees, those in the youngest age bracket also move into overqualification less frequently, which means that transitions into overqualification are typically made by workers in the middle age groups. While there are no gender-specific differences of the sort that exist in western Germany, people who only have the certificate awarded on the successful completion of eight years' schooling are also more likely to be overqualified. Another conspicuous feature is the over-representation of highly qualified employees, who were the victims of large-scale systematic downgrading. The reason given for this measure by employers is the discrepancy between the high level of employees' formal qualifications, which often depended on a certain degree of identification with the former Communist system, and the actual market value of these qualifications in a competitive economy. In eastern Germany too, transitions to overqualification tend to occur more frequently in areas with relatively low rates of unemployment. Moreover, such transitions are more common in rural than in urban areas, in contrast to the older federal states.

As for the previous employment status of overqualified workers, once the quite heterogeneous descriptive findings have been controlled for important socioeconomic characteristics, surprisingly similar structures emerge for eastern and western Germany. Compared

with a transition from appropriate employment – the reference category – a switch from unemployment or the hidden labour reserve is a far more frequent occurrence. Direct transitions from training are also significantly more common than those from appropriate employment, albeit by a somewhat narrower margin. In the west of Germany, moreover, even transitions from other forms of economic inactivity happen more often than transitions from a matched to a mismatched job; in the eastern part of the country, however, other forms of economic inactivity play an insignificant role as a source of overqualified labour.

This shows that the descriptively identified 'typical' switch from a well-matched job to a mismatch correlates highly with major socioeconomic characteristics. Controlling for these, we see that this form of transition is actually rather untypical. Hence, overqualification in Germany does not primarily take the form of worker dequalification, for example in the wake of rapid technological change, with the accompanying devaluation of knowledge and skills; on the contrary, underskilled jobs tend to be accepted by those who are economically inactive in whatever form. The motives, which are surely many and varied, for taking such jobs are still uncertain at this stage of the analysis, but more precise information on these will emerge on further examination.

6.4 Selected transitions from overqualification

Our second step involved an examination of the process whereby individuals cease to be overqualified. Here too, the various forms of employment status that were discussed in connection with transitions to overqualification were the main focus of attention. Particular importance attached to the question whether overqualified workers manage to step up into jobs that are commensurate with their training or whether they are more likely to slip down into unemployment.

Descriptive findings

The findings presented in Table 8 of the annex reveal considerable differences between eastern and western Germany.

The most commonly used exit door from overqualification in western Germany leads to appropriate employment. A conspicuously high number of male graduates make that transition. While this can be used as an indicator of the capacity of the career mobility theory to explain overqualification, it is not evidence in itself, since we are only looking here at those who move away from under-skilled jobs, not at those who remain in them. A very similar pattern emerges, albeit at a lower level, in eastern Germany, but this time the main exit route leads to involuntary economic inactivity, i.e. unemployment or a place in the hidden reserve of labour. This type of transition mainly affects people with mid-range qualifications as well as women with higher levels of qualification. In the west of Germany this downward transition is mainly observable among men with vocational diplomas; it hardly ever affects male graduates and seldom happens to female graduates.

There is also a wide East/West disparity in the case of transitions into voluntary economic inactivity. In western Germany, this transition is typically made by women who give up overqualified work. Irrespective of their level of qualification, some 40% of women who give up underskilled jobs move into voluntary economic inactivity. In eastern Germany, however, this type of transition is not very significant. Percentages vary little among the compared groups, reaching a peak of 10%.

A switch to full-time training is not a characteristic move for those who give up inadequate employment. Neither in the East nor in the West of Germany does this figure reach 10%. Whereas in eastern Germany women are more likely to make such a move, whereas in the West German labour market this transition is chiefly made by men, with holders of academic degrees more frequently being given the opportunity for full-time training (presumably in the form of a second degree course or professional training) than holders of vocational diplomas.

The following paragraphs will take a closer look at transitions from overqualification to the two types of status that are of most interest to us in the context of this study, namely

unemployment and adequate employment. For more detailed analyses, see Büchel, 1998b.

6.4.1 Transition to unemployment

At this juncture a two-step evaluation was undertaken with a view to answering the following questions:

- a) Do people in underskilled jobs run a greater risk of unemployment than those in appropriate jobs?
- b) Does the acceptance of an underskilled job protect people who have lost an appropriate job from subsequent unemployment? Or, to put it another way, does overqualification offer such people a genuine alternative to unemployment in the longer term?

Transition to unemployment from inadequate or adequate employment

The aim here was to examine whether adequate employment affords better protection than overqualification against the risk of unemployment. In the model that was used, the alternative to a transition to unemployment was continued overqualification.

The findings set out in Table 9 of the annex reveal considerable differences between western and eastern Germany in terms of the risk of losing a job and becoming unemployed. They do concur, however, on one key point, namely that this risk is significantly higher for employees in underskilled jobs than for those whose jobs match their qualifications. The respective risk levels for these two groups diverge more widely in the East than in the West of Germany.

Transition from adequate employment to unemployment – directly or via overqualification

We wished to test whether the acceptance of an underskilled post by a person who had lost a job commensurate with his or her skills and qualifications was likely to protect that person against subsequent unemployment. To

paraphrase the question, we want to know whether overqualification is a genuine alternative to unemployment or whether it is liable only to postpone a descent into unemployment. Those people who remained in adequate employment over the observation period served as the reference category.

What the findings in Table 10 of the annex demonstrate is that people who take an underskilled job on losing an adequate job considerably reduce the risk of subsequent unemployment, particularly in western Germany. This may be deemed to indicate that acceptance of an underskilled job is a deliberate choice on the part of many people as an alternative to unemployment.

6.4.2 Transition to adequate employment

At this point a two-step evaluation was undertaken with a view to answering the following questions:

- a) Are individuals more likely to obtain a job commensurate with their qualifications if they are overqualified or if they are unemployed?
- b) Does an interim phase of overqualification make it easier for jobseekers to find a post that matches their qualifications?

Transition to adequate employment from overqualification or unemployment

The purpose of this stage in the evaluation process was to establish whether the fact that overqualified people already have one foot in the labour market gives them an advantage over their unemployed counterparts in the quest for adequate employment, assuming they are in competition for the same jobs. People who are economically inactive but not registered as unemployed or in the hidden reserve, or who have just completed a course of training were excluded from this evaluation. For unemployed jobseekers and overqualified workers together, we examined the probability of transition to adequate employment. The reference category comprised those who retained one status – unemployment or overqualification – throughout the observation pe-

riod. Our primary interest was to discover whether and how a person's original status influenced his or her chances of making the transition to adequate employment. The findings are presented in Table 11 of the annex.

Overqualified workers find adequate jobs less frequently than unemployed jobseekers. The same pattern applies in both parts of Germany. It does not seem easy to interpret these findings. It is conceivable that people in underskilled jobs are under less pressure to find appropriate jobs than those with no job at all, since the job they have, inadequate though it may be, probably provides them with an income above that of unemployed jobseekers. Moreover, as has been shown, the category of overqualified workers includes some people who attach low priority to a successful career; it is conceivable that such people may not be looking for a job that is more commensurate with their qualifications or at least that their efforts to find a better job may be less than wholehearted.

To put it simplistically,⁷⁵ it may be said of unemployed jobseekers that their status tends to 'testify' to a disinclination to accept any old job – including, of course, underskilled jobs; it is therefore safe to assume a high degree of probability that their job search will be confined to educationally adequate employment, at least in the initial stages. What certainly emerges is that, when employers have job vacancies, they do not seem to let their choice of candidate be governed to any great extent by the stigmatisation effect of unemployment or by the positive signal of willingness to work 'at all costs' that is transmitted by applicants who are overqualified for their current jobs.

Transition from unemployment to adequate employment – directly or via overqualification

The next step was to undertake a more specific examination of the findings described in the previous paragraphs. To this end, jobseekers were studied with a view to ascertain-

⁷⁵ 'Simplistically' in the sense that we are assuming the availability of unskilled jobs at minimal wage rates.

ing whether they managed to find educationally adequate employment within a particular period – five years for western Germany and three years for the territory of the former East Germany. This means that transition patterns could be compared between the two parts of Germany but not the frequency of transitions. The question at the forefront of this examination was whether a transitional phase of overqualification is liable to serve as a ‘bridgehead’, in other words whether it helps jobseekers to gain a foothold in the labour market from where it is easier for them to move upmarket into the sort of job for which they are qualified (for a more general treatment of this question, see Büchel, 1994a).

The findings set out in Table 12 of the annex suggest that, if adequate employment is assumed to be the ultimate aim of a job search, a temporary ‘makeshift’ transition to overqualification tends, in both the East and the West of Germany, to be a ‘dead end’. The dimensions of the estimated parameters indicate that a high volume of state dependence ensues from this situation.

6.5 Income effects of overqualification

There is already sufficient statistical evidence that overqualified workers earn lower incomes than workers with equivalent qualifications whose jobs match those qualifications (see section 4 above), and this point need not be analysed any further here. What this subsection examines is the extent to which income growth differs between overqualified and appropriately employed workers.

6.5.1 Income growth among people who are initially overqualified

The first step was to compare the respondents’ first reported income in the observation period (broken down by degree of job/training match) with their last reported income; in the case of the latter figure, the match/mismatch question was no longer relevant, because the analysis took account of any upward mobility from underskilled jobs.

In the evaluation, the initial amount of income was taken into consideration so that we

could control for the fact that the lowest earners automatically stand a better chance of improving their income levels. The ratio of the last to the first reported income was selected as the dependent variable; these values were plotted on a logarithmic scale to adapt them to the model. Given the nature of the dependent variables, extraneous control for the length of the observation period was also required. In the vast majority of cases, the duration of this period equalled the number of years spent in employment. To control for untypical career histories, intervening periods of unemployment and other forms of economic inactivity were taken into account as additional covariates,⁷⁶ as were any years missing from the panel records.

The findings set forth in Table 13 of the annex present a very similar picture for eastern and western Germany in terms of the effect of adequate employment at the start of the observation period. Controlling for the initial income level, we see that the income curve for overqualified workers rises less steeply than for workers whose jobs match their training levels. So the former not only have to endure an income shortfall at any given time in respect of their unused skills and qualifications (see the literature cited in section 4 above or, for Germany, Büchel, 1998b, Table 5.30, p.238, for example); in addition, the gap between their earning power and that of their adequately employed colleagues widens with length of service.

6.5.2 Erosion of human capital through overqualification

The second step involved examining whether a period of overqualification has the same sort of effect in terms of depreciation of human capital as a phase of voluntary or involuntary economic inactivity. This hypothesised affinity is based on the fact that 100% of a person’s acquired human capital lies dormant during a phase of economic inactivity, while $x\%$ of it lies dormant during a phase of

⁷⁶In this context, ‘number of years’ means the number of annual surveys in which a particular employment status was reported.

overqualification, x being situated somewhere between 0 and 100. Accordingly, the rate of skill depreciation resulting from overqualification must lie somewhere between the depreciation rate for an economically inactive person and the rate for a person in adequate employment.

Clearly, this hypothesis can only be tested if figures for initial and final income from adequate employment are available and if a phase of overqualification is identifiable at some time between the beginning and end of the observation period. In order to permit a direct comparison with the standard reference value, i.e. a period of unemployment, people with a history of adequate employment followed by a period of unemployment or a period in the hidden labour reserve then another period of adequate employment were included in the analysis. As in the previous step, the reported data were controlled for intervening years of voluntary economic inactivity and for any years that were missing from the panel records.

The findings presented in Table 14 of the annex confirm the aforementioned hypothesis, at least for western Germany.⁷⁷ In both parts of Germany, periods of overqualification sandwiched between periods of adequate employment adversely affect income growth. In the West, as expected, the depreciation rate is lower than that for voluntary inactivity (100% absence of training in occupational skills), which in turn is lower than the depreciation rate for unemployed jobseekers (100% non-use of skills plus additional downward pressure on wage demands). This accords with the expectations of the human-capital theory and may also be regarded as tending to confirm the typological affinity between overqualification and unemployment that was postulated in the introduction to the present study.

⁷⁷ The unexpected findings for eastern Germany have to be interpreted in the light of the particular situation that still obtains in the labour market there.

7. Conclusions

7.1 Methodological consequences for employment researchers

Conventional employment research, with its fixation on unemployment, underestimates the volume of skills and qualifications which education systems produce but for which there is no demand in the labour market. By including the hidden reserve of labour in analyses of this type,⁷⁸ employment researchers have already taken one major step towards more effective assessment of the efficiency of education systems and of the coordination problem between education systems and labour markets. The purpose of the present study has been to highlight the apparent indispensability of another step, namely consideration of overqualification as an additional category in its own right.

While the category of the hidden reserve has now found its way into official and semi-official statistics and has secured a permanent place alongside registered unemployment (see for example OECD, 1995b, pp.45 ff.), either the overqualified percentage of the labour force is tacitly omitted (as in the official German employment statistics) or its omission is ascribed to unresolved measurement problems: 'Invisible underemployment [i.e. the percentage of the labour force who are overqualified for their jobs] ... by its very nature is difficult to measure. For this reason, it is not discussed' (OECD, 1995b, p.45).

A first attempt to close this unsatisfactory information gap was made by the German Ministry of Education, Science, Research and Technology, which began to commission biennial standardised reports on the extent and structure of overqualification in Germany (see Büchel and Weißhuhn, 1997a and 1998).

⁷⁸ In this context, however, employment researchers usually disregard the phenomenon of 'visible underemployment', i.e. the fact that numerous employees would like to work longer hours (see OECD, 1995a, p.45). This is another situation in which people are prevented from capitalising fully on their skills and qualifications.

The measurement strategy used in these reports, however, relates closely to the specific characteristics of the German education system and cannot answer Rumberger's call for the development of an internationally comparable indicator (Rumberger, 1994, p.281). Given the wide diversity of national education systems, more could surely be achieved with measurement strategies (less precise though they would necessarily be) which were based on training duration and could therefore be integrated into an extended human-capital approach of the type described in Duncan and Hoffmann (1981).

The extensive omission of the phenomenon of overqualification from European employment research creates problems, some of which are critical, with regard to the validity of the applied examination method. This is especially conspicuous in research into the demand for skills and qualifications.

The problem lies in the almost universal practice of implicitly equating the level of skill required for a job with the formal qualification of the incumbent. A typical statement appears, for example, in iwd (1997): '*Low-skilled workers* are the great losers of structural change. Many *unskilled and semi-skilled jobs* in industry have already gone' (p.6). This assimilation would only be valid if overqualification did not exist in the labour market. As long as it does exist – as it does in every industrialised nation of the Western world – and as long as the incidence of overqualification exceeds that of underqualification, there will be more unskilled jobs than unskilled workers. Disregarding this fact can lead to various miscalculations, for instance to overestimation of the dynamics of structural change and the accompanying loss of unskilled jobs. Likewise, the job prospects for unskilled and semi-skilled workers will be systematically presented in an excessively gloomy light. It must be remembered that, alongside unskilled and semi-skilled workers, there are also overqualified workers in semi-skilled and unskilled jobs; the total number of all these workers represents the actual number of unskilled and semi-skilled jobs in the labour market (and the economic demand for such jobs). At the same time, the demand for higher

qualifications is systematically overestimated. Certainly the demand for overqualified workers proves that employers expect an overqualified worker to outperform an adequately qualified worker in an equivalent job. The fulfilment of this expectation can be demonstrated empirically (Büchel, 1999a). Nevertheless, it remains undisputed that, where two workers have the same qualifications, the one whose job matches those qualifications will normally be more productive than the one who is formally overqualified for his job.

Although it may be the case that technological progress and the accompanying structural change are raising the average skill level required for jobs in the European market, if the level of demand is deduced on the basis of employees' formal qualifications, the education boom and the subsequent rise in the average educational attainment level of the labour force will inevitably be the source of misinterpretations unless due account is taken of overqualification. Many different sources of error affecting the accuracy of the predicted demand for labour were quickly recognised and discussed (see for example Tessaring, 1982, or, for a more general treatment, Mertens, 1982, pp.145ff. and pp.563 ff.). However, the serious prediction problems arising from the implicit assimilation of formal qualification and job requirement, problems with consequences for educational planning that must not be underestimated, especially in the domain of higher education, are still only being explicitly discussed in isolated studies (see Adamy and Bosch, 1990, p.118, von Henniges, 1996, p.78, and Weißhuhn 1996, p.86).

Conventional forecasts of educational requirements, i.e. predictions based on the *ex post* development of the labour force's formal qualification structure and extrapolating future needs on that basis (see Tessaring, 1994b, Weißhuhn, 1996, and Weißhuhn *et al*, 1994) plainly cannot do enough to satisfy the need of prospective students and trainees for information on their future employment prospects. One alternative is the production of studies on the fate of graduates in each institution, broken down by disciplines. At least in the academic

field, the authors of these studies are gradually moving away from the practice of assessing educational success on the sole basis of the 'employed'/unemployed' dichotomy and are giving increasing consideration to the quality of the jobs that employees do.

The body of literature on this subject, however, is still far from providing reliable and comprehensive information for prospective students and trainees, even though researchers did not take long to start thinking about strategies for the provision of such information (see Chaberny and Schober, 1982). There is no comprehensive reporting system on all possible training courses at every educational institution in Europe, nor are there any studies on the fate of graduates in the longer term or standardised measurement systems, without which the opportunities and risks of different training courses cannot be compared, while there is also a fairly general lack of academic quality among the few studies that are available at the present time (cf. point 5.2.2 above).

Moreover, even with the present research design, as in the case of conventional educational needs forecasts, it is only possible to draw reliable conclusions for the future from the past if the basic conditions remain constant in the medium term. The prospects of finding a job with a particular qualification are certainly a good example of the sort of information that cannot normally be provided because of changes in these basic conditions. Prospective students and trainees would generally be well advised to choose their courses on the basis of their intrinsic interests than to be guided by predicted labour requirements or the findings of studies on the employment status of previous graduates. Be that as it may, it is still a fact that demand predictions which do not address the problem of overqualification are plagued with an even greater degree of uncertainty than those which are adjusted for overqualification.

On the basis of a few classic questions from the field of unemployment research, the present study has shown that the phenomenon of overqualification, because of its typological affinity with unemployment, can be analysed effectively with the instruments of

unemployment research. However, the quantitative evaluation of the representative data sets that are currently available in the field of employment research reaches its limits when it comes to examining precisely what induces employees and employers to consent to overqualification; the present study could only provide some initial leads. A qualitative approach emerged here as an effective means of evaluating the motivation of employees.

The findings of the only studies in which this type of approach was adopted (Schlegelmilch, 1982, 1983a, 1983b and 1987) cannot be generalised because they are restricted to one level of qualification and because their sample is unrepresentative and too small. None the less, the approach displays an interesting analytical thrust, which is able to offer insights that cannot be gleaned from the findings of conventional analyses; this makes it a suitable medium for imparting fresh momentum to quantitative research based on representative data by broadening the scope of surveys to include aspects such as the intrinsic motivation of people to do jobs for which they are overqualified. A first movement in this direction is made in Büchel, 1998b.

With regard to closer investigation of employers' motivation to recruit overqualified job applicants, Haugrund (1990) has been the only author so far to highlight this specific research angle. However, the fact that his survey was limited to a few firms in a single industry and only examines technical staff with fairly high skill levels means that his findings are not amenable to generalisation either. More comprehensive future studies with a broader database, designed to follow up this preliminary work, could deliver important new information.

7.2 Implications for education and employment policies

7.2.1 Implications for education policy

The findings of this study give rise to different postulates for the domains of vocational education and higher education, because these two parts of the education system normally have widely different funding struc-

tures. The German *Duales System* of alternating practical and theoretical vocational training of apprentices is discussed in somewhat greater detail here, because it is often presented as a model system by numerous public policymakers in the field of vocational training in other European countries.

Dual vocational training

In relation to the German dual system, Neubäumer (1993) found that those industries which experience difficulties in recruiting skilled workers tend to train in excess of their needs. These are generally industries with largely unattractive and undemanding jobs. Many of the trainees who are surplus to requirements have no option but to move to underskilled jobs.

The findings of a study by the present author (Büchel, 1998b) confirm this effect, whereby individuals who have completed the basic level of secondary education and possess a certificate of apprenticeship run a disproportionately high risk of overqualification. This shows that the quality of training in the German dual system is far from being as uniform as the advocates of this very characteristically German system of vocational training frequently assert and as might be suggested by the annual discussion that takes place in late summer regarding the situation in the apprenticeship market, a discussion which tends to focus exclusively on the number of training places available and the demand for those places.

The same findings prove, as did those previously obtained by Hofbauer and Nagel (1987), for example, that the volume of skills and qualifications which the system produces but which the labour market does not use has assumed menacing proportions, whether this means that the jobs to which those skills and qualifications relate are insufficiently attractive or that there are simply no suitable jobs available. There is a need to identify the reasons for this inefficiency of the dual system and to seek ways of improving it.

First of all, the perennial criticism of excessive specialisation in the vocational-training

system, reflected in a huge number of distinct trades, remains valid today. This specialisation makes it more difficult for individuals to use their acquired skills if they subsequently have to work outside the trade they have learned. It would make better sense if emphasis were placed on imparting selected key skills, which should certainly be relevant to groups of specific occupations; specialisation should be delayed until trainees have begun their careers, when the knowledge and skills required for the performance of specific tasks should be imparted through on-the-job training, as is done in the United States. This point has now been taken on board by education policymakers and initial moves have been made in the postulated direction.

In addition, training courses which are out of date and for which there is consequently little or no market demand should be discontinued, and at the same time courses should be developed in new marketable fields of activity. This process currently takes too long, not least because of the strictly regulated procedures and the large number of interest groups involved in decision-making. These problems are now the subject of critical discussion in Germany, and some very promising proposals have already emerged.

Another strategy focuses on the improvement of the existing information system regarding the marketability of the various training courses. The information provided by careers advice centres is all too frequently confined to a description of training curricula with no details of career prospects. The latter information should be provided *before* prospective trainees choose their courses. Hofbauer and Nagel (1987) recommend that advice should be available from the employment authorities in the final year of technical college (p.45), but this is clearly the wrong time. By then the fatal chain of events depicted by Neubäumer (1993) has already been set in motion; apprentices training for problem occupations realise too late that they have made the wrong choice.

If the information situation were improved, not only in terms of training curricula but also in terms of subsequent career opportunities,

in accordance with the strategy presented by Chaberny and Schober (1982), this would alter the training decisions of school-leavers, thereby influencing the content and quality of employers' training programmes and of the trainees' subsequent jobs. It must be borne in mind, however, that the effectiveness of such a strategy will diminish as the process of change on the demand side of the labour market gathers momentum.

The emphasis in the present study is on overqualification among non-graduates. However, the implications for this level of qualification cannot be identified in isolation, not least because the general public and the academic world closely associate mismatches in the labour market with overqualified university graduates. For this reason, the following paragraphs deal briefly with the implications of the overqualification problem for higher-education policy.

Higher education

In the domain of higher education, as in the dual system of vocational education and training, the risk of overqualification is observably dependent on the profession for which the student is training or the discipline he or she is studying (see for example Büchel and Matiaske, 1996, and Alpin et al., 1998). Although in Germany university graduates in general run a somewhat lower risk of overqualification than holders of vocational diplomas, for example, once the data have been controlled for the main personal characteristics the differences become insignificant. Indeed, graduates of higher technical colleges (*Fachhochschulen*) – again after controlling for personal characteristics – are significantly more prone to overqualification than holders of vocational diplomas (Büchel 1998b, Table 5.8, p.204). There is also evidence to suggest that the problem of overqualification will become more acute for German graduates – especially women graduates – in the future (see Büchel and Weißhuhn, 1997a and 1998, as well as Büchel, 1996a).

The overqualification situation described in this study gives rise to certain postulates with regard to education policy, but these cannot

be formulated without reference to the specific discussion on graduate overqualification. The problems reflected in the findings that have been obtained are subject to widely varying interpretations, depending on the observer's perspective. Nevertheless, the question arises, at least in economic terms, as to whether the skills demanded by the labour market could not be provided by the education system with less effort and at less expense. This question sheds light on three of the main reasons for the present glut of academic qualifications.

First of all, the fact that higher education in the vast majority of European countries is largely funded from the public purse creates profound external effects. The excessive cheapness of university study by market standards systematically produces a surplus of qualifications; the introduction of tuition fees, which are of mere symbolic value when compared with the actual cost of university education, will do little to change this.

Secondly, an academic degree may be regarded as the most valuable formal qualification. According to the postulates underlying the job-competition model, it places graduates quite near the front of the labour queue. This sort of position remains sought after, even when the returns to education and employment prospects in general decline, for example because of a glut of academic qualifications or a drop in the standard of university education. The desire to secure the highest possible educational qualification in a discipline selected on the basis of personal preference therefore remains rational from an individual point of view, even in a climate of deteriorating career prospects (for a detailed treatment of this aspect, see Zwick (forthcoming)); the fact that the aggregate macro-economic effect of such a strategy may be to reduce the general level of well-being is unlikely to have any bearing on the educational decisions that individuals make.⁷⁹

⁷⁹ On the competing aims of the manpower-requirement approach and the social-demand approach, see Kühlewind and Tessaring, 1975.

Thirdly, the positive signal that is emitted by the highest vocational qualification is also very desirable in terms of a person's social profile, irrespective of employment status, and this also stimulates demand.

Demand for the top educational qualifications may therefore be expected to keep on rising as long as the educational attainment seems to be 'cheap' in terms of the required personal effort and financial outlay. This raises the question as to how education policy can be used to combat the resultant excess demand for academic qualifications which is gradually leading more and more university graduates into overqualification.

A restrictive policy could begin with the introduction of tuition fees at market rates. These fees, however, would have to be based on the actual cost of training, unlike the models that are most often discussed at the present time. In terms of market economics, there is no logical reason why the same fee should be payable for a (cheap) law course as for a course in medicine, for example. In addition, the intended effect of reducing the level of demand for education can only be achieved in conjunction with an absolute repayment obligation which must apply irrespective of subsequent career success, although provision would certainly have to be made for a mechanism designed to avoid social hardship. The overall effect of such linkage between the demand for education and self-financing would be to reduce the size of the group of overqualified employees who report that a successful career 'is not so important'.

This, however, raises the problem of the social acceptability of tuition fees at market rates, which, as the current public discussion has shown, is a tough nut to crack. A more realistic means of restricting the demand for education would seem to be a reform of the university course and examination regulations based on the modular acquisition of certificates (for a discussion of this option in the German context, see Büchel and Helberger, 1995).

As in the domain of non-graduate employment, the proposed academic reforms would have to be accompanied by a further improve-

ment of the system whereby prospective students can obtain information on career prospects for graduates of specific departments and institutions in each federal state; a new certification system would also entail the provision of information on the various types of certificate offered by each department and institution.⁸⁰ This might prevent prospective students from choosing courses in 'high-risk' subjects, depending on the level of risk they were prepared to contemplate and on whether the 'low-risk' option was overridden by their flair for a particular subject, which would still have to be recognised as a legitimate selection criterion. The studies on graduates in employment that exist at the present time (see subsection 5.2 above) could serve as useful methodological guides, but the cumulative data they contain are still far from constituting the desired comprehensive information mechanism.

7.2.2 Implications for employment policy

Compared with the range of political mechanisms that are available in the educational field, the armoury of employment policies is less well equipped to improve the general match between training levels and job requirements. The forms of direct intervention proposed by Tsang and Levin (1985, p.101), such as tax breaks for employers of appropriately qualified workers, hardly seem to be practicable. A cautionary example of this type of hapless external intervention in the labour market is the levy imposed on German companies which do not employ their statutory quota of disabled workers. This measure has failed to achieve its intended aim of encouraging the recruitment of disabled persons. It seems likely that the introduction of a similar levy on training places, which was under serious discussion in Germany until very recently, would have posed similar problems.

Measures designed to broaden the skills and qualifications of overqualified workers are

⁸⁰ For a summary of the official system in Germany as it now stands, see Dostal et al., 1999, pp.57 ff.

likely to prove more effective.⁸¹ These measures are generally targeted at unemployed jobseekers at the present time. As part of the process of reducing the specialised component of curricula in the field of non-academic vocational training, consideration should be given to the possibility of extending such measures to overqualified workers and to devising some means of dividing the cost between employers and the government. Emphasis should be placed on training in a marketable job, in other words within the framework of a proper employment contract. While the current widespread implementation of job-creation schemes in Germany fulfils an important social function at the present time, when there is no suitable alternative, it does distort the market and means, for example, that the findings of conventional market studies, which are based on employees' qualification levels and do not differentiate between workers on job-creation schemes and those in regular employment, send erroneous signals to the education system about the utility of the certificates it awards.

Limited regional mobility has proved to be an obstacle, at least in Germany, to people's prospects of obtaining a job commensurate with their qualifications (Büchel, 1998b, pp.143 ff.). The relevant findings show that greater efficiency could be achieved not only if individuals were willing to move house but even if they were prepared to commute. All measures designed to overcome this reluctance to move to places where work is available, a reluctance that has traditionally been far greater in Europe than in the United States, for example, will help to ensure a better return on investments in skills and qualifications and to enhance the efficiency of the labour market. There are many conceivable strategies that transcend the conventional mechanisms of employment policy, from structural measures such as improvement of the roads and transport infrastructure, including the development of local public transport services, to fis-

cal measures such as tax concessions to offset work-related removal costs.

Here too, however, within the narrower confines of employment policy, an information deficit has to be highlighted. A long-distance move in search of work presupposes knowledge of the employment opportunities at the new location. Adequate information has hitherto been reserved for the more highly qualified. The jobs that might interest them are normally advertised nationally. By contrast, there is a severe shortage of information on a national, let alone European, scale for jobseekers with no managerial qualifications. Employers traditionally recruit these employees locally. Given the identified benefits of regional mobility, the establishment of a European recruitment service on the Internet would certainly be a huge step forward.

The employment strategies described above are primarily designed to adjust the ratio of matches to mismatches. It is evident that employment policies also exert a strong influence on the ratio of overqualified workers to jobseekers. An employment policy can be used to motivate skilled jobseekers to accept jobs for which they are overqualified by cutting their unemployment benefit or by tightening the rules governing the definition of a reasonable job offer and by ensuring that the rules are enforced.

There are several grounds for suggesting that this sort of induced increase in overqualification at the expense of the unemployment rate would be economically sound. In some European countries, the percentage of low-paid jobs is judged by the OECD to be disproportionately small when compared with countries such as the United States. This is probably due to the fact that, depending on the type and composition of the household, state benefit from the European welfare systems, which are often corporatist in nature, may sometimes offer a higher income than an unskilled or semi-skilled job.

On the other hand, trade unions are gradually coming to realise that there is too much standardisation of wage rates at the lower end of the scale, which results in excessively high

⁸¹ The role of further education as a means of reducing the risk inherent in underemployment is discussed in Büchel, 1998b.

pay for unskilled and semi-skilled work. While greater differentiation of wage rates at the lower end of the pay scale, accompanied by a reduction in transfer payments, would certainly increase the number of jobs – especially in the service sector, with its high job-creation potential – we could also expect an increase in the numbers of the ‘working poor’, as has happened in the United States.

This strategy, however, can only operate within certain limits, which are set by social policy or by society itself. For example, most of the European population would surely feel rather uncomfortable with the idea that, as often happens in the United States, every store checkout would have an auxiliary – who might be overqualified for the job – standing by to pack customers’ shopping into bags and carry it to their cars, even though there might be a market for this service at a suitably low rate of pay. The introduction of a combined wage, made up of income from employment and transfer payments, which is currently under discussion, could be an effective means of creating more jobs.

The present study has shown that significant links exist between overqualification and unemployment. So the question whether the percentage of overqualification in a national economy is ‘too high’ or ‘too low’ must always be answered by reference to the unemployment rate. The ideal ratio between the overqualified and unemployed percentages of the labour force cannot be determined by a scientific study but needs to be established normatively in the light of society’s collective values. The same applies to the percentage of overqualified workers when considered in isolation. Overqualification must not be seen as an entirely bad thing; it also has positive effects, for example in the form of spillover effects in connection with the skill upgrading of certain occupations.⁸² It is conceivable that,

⁸² On this point, see the study by Planas et al. in the present volume. However, the question whether the skill upgrading referred to here or a competitive ‘bumping down’ is the dominant process is essentially determined by the elasticity of market demand for higher qualifications (for more details, see Borghans and de Grip, 1999).

like the rate of ‘natural’ unemployment, an optimum level of overqualification could be identified on the basis of structural models, although this too would surely spark off a discussion on the considerations that should determine whether the labour market is functioning at maximum efficiency.

Summary

Section 1 begins by setting out the purpose of the study, which is to investigate the reasons for the occurrence of overqualification and to address the problem of finding a valid means of identifying cases of overqualification. At the same time, the author takes the innovative step of trying to establish a typological affinity between overqualification and unemployment (including the hidden labour reserve). This affinity derives on the one hand from the fact that both situations involve a mismatch between qualifications and job requirements. It may be assumed that both phenomena impose a heavy financial burden on national economies, since economies do not operate at full capacity when part of their stock of human capital lies dormant. This implies that overqualification is a problem that needs to be addressed in the same way as unemployment, although there can be no disputing that unemployment is the more serious problem. In terms of the human capital theory, the analogy may be seen as follows: in the case of unemployment, 100% of a person’s acquired formal vocational qualifications remain unused; in the case of overqualification, $x\%$ of those qualifications are unused, x being a significant quantity which can certainly be measured empirically, for instance by means of income analyses.

Another common feature of the two situations is that they are potentially temporary in nature and that the vast majority of people in them are not there out of choice. It may also be assumed that people in either situation will tend to aspire to a move into employment commensurate with their level of qualification. This means that it is possible in principle to analyse the phenomenon of overqualification with the same dynamic research strategy that was developed in the seventies to study un-

employment. This standpoint, however, is still very rarely encountered in the field of employment research.

Section 2 deals with terminological matters. Even at this stage, overqualification research is complicated by an unwieldy mass of concepts.

Section 3 briefly presents the various theories with which researchers have tried to explain the persistence of overqualification in the labour market. Some unorthodox approaches are also outlined. Most of the theories can only claim to explain part of the phenomenon. This section also discusses sets of influential factors that have scarcely ever been treated in the existing body of literature: institutional conditions such as the rules governing the system of unemployment benefit, basic economic conditions such as the trade cycle or the situation in the regional labour market, the personal preferences of those who offer their labour, in terms of the utility they ascribe to career success, etc., and the productivity calculations of employers, who need to know whether overqualified workers are liable to outperform their less-qualified colleagues.

In section 4, the problem of identifying instances of overqualification is systematically discussed. The discussion starts with an explanation of the two main measurement strategies – the ‘objective’ and the ‘subjective’ approach – and their diverse variants; the presentation includes unorthodox measurement processes.

The so-called ‘objective’ approach identifies overqualification by comparing the employees’ formal qualification levels with the reported information concerning their occupations. This approach depends on precise knowledge of the training that exists for particular occupations. Changes in the level of occupational requirements in the course of time, a high degree of variation between job requirements within the same occupational category and the typically high number of missing data on occupations that results from the conversion into ISCO codes of occupations that respondents are normally asked to re-

port in words all pose considerable problems when this approach is adopted.

The so-called ‘subjective’ approach, on the other hand, compares the employees’ formal qualification levels with their own subjective assessments of the qualifications required for their respective jobs. The disadvantage here is undoubtedly the greater element of uncertainty that always accompanies subjective assessments. A major advantage of this approach, however, lies in the assumption that the employees themselves are the best people to ask about the real requirements of their jobs. The methodological discussion that was largely conducted in U.S. research journals during the eighties essentially came to the conclusion that the subjective approach possessed greater validity than the objective approach. Accordingly, research designs based on the objective approach are hardly ever encountered in contemporary studies.

Once these strategies have been explained, the author’s own refinement of the conventional subjective measurement strategy is described. This is principally based on the introduction of a third variable – occupational status – into the categorisation process. This variable serves to validate the standard comparison between the formal qualification and the employee’s subjectively reported job-requirement level. The overqualification variable created by this measurement process, which still takes the dichotomous form ‘overqualified? yes/no’, turns out to be considerably more selective than the variable generated by the conventional two-variable process.

The validity of the construct was tested with the aid of job characteristics (about 50 items) of overqualified and adequately employed workers; differences – usually substantial – between these two categories were observed for almost every item. The only disadvantage is the emergence of two additional categories. The first of these covers cases that cannot be definitively assigned to either of the original categories, because the combination of the three input variables does not permit a clear classification as overqualification or adequate employment, while the second category cov-

ers cases where the combination of the three variable characteristics is implausible. These two categories are generally excluded from the empirical evaluation. The reduction in the total number of cases, however, is fairly small.

Section 5 provides a comprehensive review of the literature that deals with the subject of overqualification. Special emphasis is placed on the origins of this discussion in the wake of the expansion of education systems in the seventies and eighties. The beginnings of the academic investigation of the problem of overqualification are retraced for the United States first of all. This is the country from which the main contributions to this field of research have come, contributions which, above all else, set the methodological standard.

The early development of overqualification research outside the United States is described, the German situation being used as an example. Thereafter, more recent works from the United States and Europe – including international comparative studies – are presented. It emerges that European overqualification researchers have only begun in recent times to draw upon the methodological groundwork that was produced in the United States. It is also noticeable that, apart from the Dutch, British and German research, the work that has been done on overqualification in Europe is still at a very rudimentary stage.

In section 6, on the basis of German longitudinal data, some selected examples of issues in the field of overqualification research are examined empirically in the light of the postulated affinity between unemployment and overqualification.

It emerges first of all from cross-section analyses that, once the data have been controlled for the main social characteristics, overqualified workers do not differ significantly from jobseekers in their problem-solving capacity and level of political involvement but that both lag far behind workers whose jobs match their qualifications. In terms of morale and concerns about the future, the overqualified group is positioned halfway between the unemployed and adequately employed groups.

The second stage of the examination involves the use of the instruments of dynamic unemployment research to analyse overqualification. Firstly, transitions into overqualification from various other types of employment status are examined. The multivariate analyses show that, when the data are controlled for the respondents' socioeconomic background, unemployment is the status from which individuals most frequently move into overqualification. This is evidence of important exchange processes between these two types of employment status. Transitions from overqualification to unemployment (downward mobility) and to educationally adequate employment (upward mobility) are then analysed.

These analyses demonstrate that transitions into unemployment occur more frequently than transitions to adequate employment. This finding, which is consistent with the postulates of the segmentation approach, can be seen as further proof of exchange process between overqualification and unemployment. In an additional analysis, the study examines whether a phase of overqualification following a period of adequate employment is likely to afford protection against unemployment or whether it tends to be one step in a downward process. The former is the case, which indicates that employees with a strong desire to work who see their educationally adequate job at risk or who have already been made redundant will protect themselves against unemployment if they take a flexible approach and accept a second-best option in the form of overqualification.

A transition into adequate employment, however, is a more frequently observable occurrence among unemployed than overqualified individuals. An additional analysis also demonstrates that acceptance of an underskilled job does not bring jobseekers any closer to adequate employment. On the one hand, this may mean that many underskilled jobs can be regarded as dead-end jobs. On the other hand, this finding could indicate that a significant number of unemployed people are pursuing an inflexible job-search strategy and will only accept jobs commensurate with their qualifications. This possibility touches on the

question of the institutional rules governing unemployment benefit.

Lastly, longer-term income effects of overqualification are examined. It emerges that the incomes of overqualified workers grow more slowly than those of their adequately employed counterparts. This remains the case even after the basic income level has been controlled for numerous socioeconomic characteristics. A final additional analysis is then conducted to establish whether – as would be expected – a period spent in overqualification creates income effects that lie somewhere between those of adequate employment and those of unemployment. The expectations of the human capital theory are indeed fulfilled: if periods of overqualification or unemployment intervene in the course of a career spent mainly in adequate employment, while the phases of overqualification generate significant income losses by comparison with unbroken adequate employment, these losses are lower than those that result from a period of unemployment.

The study is rounded off in section 7 with methodological conclusions addressed to employment researchers and substantive implications for education and employment policies. The first postulate addressed to employment researchers is that the typological affinity between overqualification and unemployment should be recognised; this would result in far greater diversity of research strategies for the analysis of overqualification, particularly longitudinal analysis, than has hitherto been observable in the relevant lit-

erature. The second postulate is that predictions of future demand for labour should no longer be based, as has hitherto been customary, on a prolongation of the development of an employee's level of qualification but rather on the development of the skill level required for his or her job. Neglecting the aspect of mismatch by disregarding the problem of overqualification could lead to glaring errors in the assessment of future labour requirements. The likelihood of such miscalculation will be greater if overqualification rates rise over a period of time.

A host of suggestions are made to policymakers in the fields of education and employment as to how the percentage of overqualified workers in the labour force can be reduced. These are largely extracted by means of partial analysis from the empirical findings set out in the available literature. For details of these suggestions, the reader is referred to the short subsection 7.2 of the study. Here too, the crux of the matter is that the problem of overqualification should be considered relevant in macroeconomic terms and that political pressure should be applied with a view to solving it; such pressure should be structured in the same way as the mechanisms used to combat unemployment, although lower priority will naturally be given to overqualification. Both overqualification and unemployment are signs of inadequate coordination within the labour market, in which the inefficiencies of the education system play a significant role. Accordingly, both problems lend themselves to treatment with similar sets of mechanisms.

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Annex

Classification model of overqualification (West Germany, qualification level by job-requirement level by occupational status)

Job-requirement level	Occupational status	Classification with regard to the degree of congruence between job and education	
		Qualification level gained Vocational degree ¹⁾	University or post-secondary technical college degree ²⁾
No special training required/ Only a short induction on the job	Unskilled/semi-skilled worker	ov	ov
	Skilled worker/foreman/master craftsman	+	-
	White-collar worker in an unskilled job	ov	ov
	White-collar worker in a skilled job	+	+
	White-collar worker in a highly skilled job	-	-
	Self-employed person	ov	ov
	Civil servant	-	-
A lengthy period of coaching at my place of work	Unskilled/semi-skilled worker	ov	ov
	Skilled worker/foreman/master craftsman	+	-
	White-collar worker in an unskilled job	ov	ov
	White-collar worker in a skilled job	+	+
	White-collar worker in a highly skilled job	+	+
	Self-employed person	ov	ov
	Civil servant	+	-
Attendance at special theoretical or practical courses/A certificate of vocational training	Unskilled/semi-skilled worker	+	ov
	Skilled worker/foreman/master craftsman	ad	ov
	White-collar worker in an unskilled job	ad	ov
	White-collar worker in a skilled job	ad	ov
	White-collar worker in a highly skilled job	ad	ad
	Self-employed person	ad	ov
	Civil servant	ad	ad
A university or post-sec. technical college degree	Unskilled/semi-skilled worker	-	-
	Skilled worker/foreman/master craftsman	-	-
	White-collar worker in an unskilled job	-	-
	White-collar worker in a skilled job	-	+
	White-collar worker in a highly skilled job	ad	ad
	Self-employed person	ad	ad
	Civil servant	-	ad

ad: Adequate employment = congruence between job and education (including underqualification).A12

ov: Overqualification = underemployment.

+: Degree of mismatch not clearly determinable.

-: Implausible combination.

1) including: Apprenticeship degree (Lehre); in former GDR: including Berufsausbildung/Facharbeiterabschluss.
Master craftsmen degree [former GDR] (Meister DDR)
Full-time vocational school degree (Berufsfachschule)
School of public health degree (Schule des Gesundheitswesens)
Technical college degree [FRG] (Fachschule)
School for civil servants (Beamtenausbildung)
Other vocational degree (sonstiger berufsbildender Abschluss)

2) including.

Technical college degree [former GDR] (Ingenieur-/ Fachschule DDR)
Post-sec. technical college degree (Fachhochschule)
University degree (Hochschule/Universität)

Other qualification levels used in Tables 1 to 14:

Lower general schooling (Hauptschulabschluss / 8. Klasse)
Intermediate general schooling (Realschulabschluss / 10. Klasse; including Fachabitur)

Higher general schooling (Abitur)

For East German Classification see Büchel/Weißhuhn (1997a).

Source: Büchel/Weißhuhn (1997a).

Table 1: Workers broken down by formal vocational skills, the degree of congruence between job and education, and various job characteristics and group-related averages from these characteristic groups (West Germany and East Germany, 1995).

Job characteristics	West Germany			East Germany		
	(Without any vocational degree)	With vocational degree	With univ. or post-secondary technical college degree	(Without any vocational degree)	With vocational degree	With university or [former GDR] technical college degree
Pay characteristics:						
- potential gross monthly salary (average, in DM) ¹	3,397	3,235	4,806	2,412	2,413	3,101
- actual net monthly salary (average, in DM)	1,956	1,917	2,084	1,419	1,509	2,026
- net hourly pay (average in DM) ²	13.0	12.3	14.8	9.3	9.6	11.1
- pay social security contributions ³	84%	84%	72%	84%	96%	99%
- no agreed wage structure; freely agreed wages	27%	31%	69%	32%	30%	39%
- pay determined by length of service ⁴	36%	26%	26%	28%	27%	47%
- have entitlement to company pension ⁵	26%	20%	21%	4%	2%	6%
Occupational status:						
- Blue-collar worker	60%	55%	19%	61%	73%	19%
- White-collar worker	30%	25%	47%	34%	21%	65%
- Civil servant	2%	0%	0%	2%	0%	0%
- Self-employed ⁶	9%	20%	34%	2%	6%	17%
Employment status:						
- full-time employment	71%	70%	61%	70%	79%	80%
- part-time employment	18%	21%	18%	18%	17%	19%
- minimal/irregular employment	11%	9%	21%	12%	4%	1%
Working time:						
- agreed weekly working time (average, in hours)	33.1	33.4	36.4	34.1	36.4	36.5
- no firmly agreed working time	15%	26%	44%	20%	10%	14%
- actual weekly working time (average, in hours)	35.3	36.2	39.2	37.4	39.7	41.5
- overtime worked during the last month (average, in hours)	5.3	6.8	4.0	5.5	6.6	12.1
- number of agreed working days per week (average, in days)	4.9	5.1	4.9	5.0	5.1	5.1
- variable/no fixed number of working days per week	9%	12%	33%	7%	5%	12%
- number of working hours per day, if fixed (average, in hours)	7.3	7.3	8.0	7.8	7.7	8.4
- changeable/no fixed number of hours per day	8%	16%	26%	11%	7%	10%
- Work in the evening or at night (after 19.00)	17%	24%	13%	24%	20%	18%
- Weekend working (Saturday or Sunday)	26%	27%	22%	35%	27%	31%
- desired reduction in working time (average, in hours) ⁷	3.3	3.4	0.8	4.2	5.3	6.0
- Compatibility between working time and family life is a problem ⁸	16%	20%	26%	12%	19%	38%

Table 1 (continued)	West Germany				East Germany				
	(Without any vocational degree)	over-qualified	ade-quate	With vocational degree	(Without any vocational degree)	over-qualified	ade-quate	With vocational degree	With university or [former GDR] technical college degree
Payment of overtime:³									
- paid	31%	41%	20%	12%	5%	27%	21%	15%	5%
- time off in lieu	21%	20%	39%	17%	27%	20%	38%	51%	30%
- partly paid/partly given time off in lieu	10%	10%	17%	5%	10%	12%	19%	11%	15%
- no compensation given	6%	4%	11%	18%	46%	5%	8%	18%	40%
- do not work overtime	32%	25%	13%	49%	11%	35%	14%	7%	10%
Sectors:									
- agriculture/fisheries/mining/energy	3%	4%	4%	2%	2%	2%	7%	5%	6%
- chemical industry	5%	2%	3%	5%	4%	1%	2%	1%	2%
- construction, quarrying, minerals	8%	5%	7%	2%	3%	12%	18%	8%	8%
- commerce, banking, insurance	15%	19%	19%	20%	4%	15%	14%	23%	6%
- metalworking, electrical engineering, automobile industry	14%	12%	16%	4%	14%	8%	10%	6%	7%
- public service, transport, tourism	23%	19%	27%	38%	53%	30%	25%	31%	54%
- other	32%	39%	25%	28%	20%	31%	24%	26%	18%
Size of enterprise:									
- small enterprise (less than 20 employees)	31%	28%	27%	40%	13%	38%	32%	39%	19%
- medium-sized enterprise (between 20 and 200 employees)	28%	28%	25%	34%	25%	37%	33%	22%	37%
- medium-sized enterprise (between 200 and 2 000 employees)	22%	28%	22%	10%	22%	15%	18%	24%	21%
- large enterprise (2 000 employees or more)	18%	16%	27%	16%	41%	10%	17%	15%	23%
Length of service:									
- average (in years)	10.2	8.0	11.8	6.1	11.5	4.2	4.2	7.9	10.1
Duration of employment:									
- temporary employment ⁹	6%	7%	3%	23%	9%	24%	26%	7%	11%
Job setup:									
- job-sharing	9%	8%	6%	2%	1%	1%	12%	5%	2%
Journey from home to work:									
- long journey to work (average, in km) ¹⁰	11.0	8.7	14.3	11.6	18.5	35.2	9.0	12.2	9.7
- length of journey (average, in minutes) ¹⁰	22	24	23	21	27	40	24	31	26
- current job not in vicinity of home	41%	41%	50%	46%	49%	37%	37%	40%	28%
- variable place of employment	8%	12%	7%	12%	7%	12%	8%	12%	10%
- journey to work is a great hardship: in financial terms	12%	5%	10%	3%	11%	14%	13%	11%	10%
- journey to work is a great hardship: in terms of time	11%	8%	10%	11%	15%	9%	8%	11%	13%
- journey to work is a great hardship: in physical/mental terms	8%	2%	7%	7%	10%	6%	2%	6%	7%

Job characteristics	West Germany			East Germany		
	(Without any vocational degree)	With vocational degree	With univ. or post-secondary technical college degree	(Without any vocational degree)	With vocational degree	With university or technical college degree
Work requirements: (in each case: „fully applies“)						
- variety in the job	45%	39%	57%	52%	47%	64%
- heavy physical work	19%	23%	3%	37%	38%	15%
- self-determined structure of the working day	31%	35%	52%	13%	30%	37%
- working time depends on the amount of work	24%	33%	37%	32%	31%	32%
- strict monitoring of work performance	13%	10%	1%	16%	21%	20%
- rotating work shifts	14%	17%	2%	22%	15%	16%
- often get angry/have conflicts with hierarchical superior ¹¹	20%	14%	18%	24%	21%	21%
- good relationship with work colleagues	75%	66%	69%	65%	76%	76%
- pay codetermination/promotion of the workforce	6%	6%	11%	3%	3%	8%
- can always undertake training to advance occupational skills	19%	13%	38%	35%	20%	40%
- exposed to noxious substances in the environment	25%	26%	3%	35%	39%	15%
- high mental effort	24%	21%	39%	16%	15%	39%
- increased risk of accidents at work ¹¹	39%	43%	23%	63%	59%	33%
Subjective estimations:						
- satisfaction with work ¹²	6.8	6.7	7.1	6.6	6.3	6.6
- willingness to take on extra, unpaid work ¹³	43%	43%	47%	39%	41%	53%
- great concern over safety in the workplace	9%	12%	2%	23%	37%	17%
- easy to find a similar job ¹⁴	26%	24%	45%	26%	8%	12%
Number of respondents (N = maximum, unweighted)	1,080	540	77	62	265	137
Total			4112		1699	

All percentages: column percentages (100% divergence rounded up to the next figure). All results weighted.

- 1) Potential gross monthly salary. In the case of part-time and minimum-time employees, the monthly equivalent, calculated over an agreed working period. Excluding minimum-time employees working less than five hours per week and the self-employed.
- 2) Excluding minimum-time employees working less than five hours per week and the self-employed. A106
- 3) Dependent employees = 100 percent.
- 4) Pay determined by length of service (as well as performance) "on a regular basis" or "sometimes".
- 5) Excluding the "don't know"s = 100 percent.
- 6) Including self-employed farmers and members of their family working on the farm.
- 7) The question was: "If you could choose the number of hours you worked, taking into account that your salary would be commensurate to the number of hours worked, how many hours a week would you prefer to work?" (Compare their answers with their actual working times.)
- 8) The question was: "It is not always so easy for workers to reconcile working time with family responsibilities and household tasks. Do you find that to be a problem?". The respondents answered: "yes".

9) Dependent employees = 100 percent.

10) Employees with a fixed workplace = 100 percent.

11) The respondents answered: "fully applies" or "partly applies".

12) On a scale from 0 ("totally unsatisfied") to 10 ("totally satisfied").

13) The question was: "Would you put in extra hours to finish off a task you had already begun, even if it meant working for another hour and would not be paid as overtime?". The respondents answered: "yes, of course".

14) The question was: "If you were to lose your current job, would it be easy, difficult or practically impossible for you to find at least one other job that was equivalent?". The respondents answered: "easy".

Only employees below the age of 65. Excluding internees, persons receiving training or further training, and migrants between East and West Germany since 1989. West Germany.

Source: own evaluation carried out by the German Socio-Economic Panel (GSOEP).

Table 2: Determinants of the probability of possessing subjectively limited problem-solving capacity, depending on employment status and other personal characteristics (West Germany and East Germany, 1995, probit model)

Covariates	West Germany			East Germany		
	Coefficient	(Std.dev.)	Average	Coefficient	(Std.dev.)	Average
Constant	0.031	(0.330)	–	0.830+	(0.458)	–
Male	0.074	(0.048)	0.60	0.009	(0.059)	0.51
Age (in years)	–0.011	(0.016)	39.03	–0.035	(0.023)	40.70
Age ² /100	0.015	(0.020)	16.45	0.054+	(0.028)	17.66
Foreigner	0.102	(0.078)	0.15	.	(.)	.
Married ¹	–0.147**	(0.052)	0.65	0.043	(0.075)	0.74
Restricted on account of health reasons ²	0.518**	(0.053)	0.24	0.249**	(0.064)	0.33
<i>Hauptschulabschluss</i> /8. Klasse	0.121*	(0.054)	0.43	0.247**	(0.085)	0.25
(<i>Realschulabschluss</i> /10. Klasse) ³	.	(.)	.	.	(.)	.
<i>Abitur</i> ⁴	–0.072	(0.123)	0.04	0.207	(0.175)	0.03
(<i>Lehre</i>) ⁵	.	(.)	.	.	(.)	.
<i>Meister (GDR)</i>				–0.754*	(0.316)	0.01
<i>Berufsfachschule</i>	0.027	(0.084)	0.08			
<i>Schule des Gesundheitswesens</i>	0.070	(0.132)	0.03			
<i>Fachschule (FRG)</i>	0.133	(0.085)	0.08			
<i>Beamtenausbildung</i>	0.036	(0.119)	0.04			
<i>Sonstiger berufsbildender Abschluß</i>	0.112	(0.106)	0.08			
<i>Ingenieur-/Fachschule (GDR)</i>				–0.290*	(0.118)	0.14
<i>Fachhochschule</i>	–0.244*	(0.122)	0.05			
<i>Hochschule/Universität</i> ⁶	–0.411**	(0.105)	0.10	–0.336**	(0.123)	0.11
Unemployed/in the hidden labour reserve ⁷	0.134	(0.100)	0.08	0.018	(0.112)	0.17
(Underemployed)	.	(.)	.	.	(.)	.
Adequately employed	–0.222**	(0.065)	0.61	–0.223*	(0.093)	0.45
Number of respondents (unweighted): n =		3,285			1,992	
Log-Likelihood		–2149.8			–1265.4	
Likelihood-Ratio-Statistic		222.1**			118.4**	
Dependent variables average (weighted)		0.430			0.631	

Dependent variable: subjectively limited problem-solving capacity (1 = yes; 0 = no). For the exact research strategies, see text. Significance level: ** = $p < 0.01$, * = $p < 0.05$, + = $p < 0.10$.

- 1) Including persons living as a married couple.
- 2) "Slightly"/"greatly" restricted on account of health reasons in carrying out daily tasks.
- 3) Including *Fachabitur*.
- 4) Only in combination with nonacademic vocational qualification.
- 5) East Germany: *Berufsausbildung/Facharbeiterabschluss*; including nonacademic vocational qualifications from 1991.
- 6) East Germany: including *Fachhochschulabschlüsse* from 1991.
- 7) Hidden labour reserve: persons not having registered as unemployed, but wanting to take up a job "as soon as possible".

Legend for German expressions: see table 0.

Covariates in brackets = reference category. Unweighted averages as model documentation.

Only persons with a vocational qualification from Germany below the age of 65. Excluding internees, persons receiving training or further training, and migrants between East and West Germany since 1989. West Germany: excluding immigrants included in the "D" sample of the German Socio-Economic Panel (GSOEP).

Source: own evaluation carried out by the German Socio-Economic Panel (GSOEP).

Table 3: Determinants of the probability of possessing high morale, depending on employment status and other personal characteristics (West Germany and East Germany, 1995, probit model)

Covariates	West Germany			East Germany		
	Coefficient (Std.dev.)	Average	Coefficient (Std.dev.)	Average		
Constant	1.188** (0.333)	–	0.628 (0.470)	–		
Male	–0.059 (0.048)	0.60	–0.061 (0.062)	0.51		
Age (in years)	–0.061** (0.017)	39.03	–0.060* (0.023)	40.70		
Age ² /100	0.071** (0.020)	16.45	0.069* (0.028)	17.66		
Foreigner	0.063 (0.079)	0.15	(. .)	.		
Married ¹	0.303** (0.052)	0.65	0.129+ (0.079)	0.74		
Restricted on account of health reasons ²	–0.709** (0.055)	0.24	–0.514** (0.070)	0.33		
<i>Hauptschulabschluss</i> /8. Klasse	–0.067 (0.054)	0.43	0.050 (0.087)	0.25		
(<i>Realschulabschluss</i> /10. Klasse) ³	(. .)	.	(. .)	.		
<i>Abitur</i> ⁴	0.014 (0.123)	0.04	–0.073 (0.184)	0.03		
(<i>Lehrabschluss</i>) ⁵	(. .)	.	(. .)	.		
<i>Meister (GDR)</i>			0.352 (0.293)	0.01		
<i>Berufsfachschule</i>	–0.026 (0.084)	0.08				
<i>Schule des Gesundheitswesens</i>	–0.161 (0.133)	0.03				
<i>Fachschule (FRG)</i>	–0.054 (0.086)	0.08				
<i>Beamtenausbildung</i>	0.113 (0.120)	0.04				
<i>Sonstiger berufsbildender Abschluß</i>	–0.196+ (0.107)	0.08				
<i>Ingenieur-/Fachschule (GDR)</i>			0.121 (0.124)	0.14		
<i>Fachhochschule</i>	0.040 (0.121)	0.05				
<i>Hochschule/Universität</i> ⁶	0.187+ (0.103)	0.10	0.289* (0.128)	0.11		
Unemployed/in the hidden labour reserve ⁷	–0.343** (0.102)	0.08	–0.292* (0.121)	0.17		
(Underemployed)	(. .)	.	(. .)	.		
Adequately employed	0.136* (0.066)	0.61	0.246* (0.097)	0.45		
Number of respondents (unweighted): n =	3,283		1,997			
Log-Likelihood	–2138.5		–1143.4			
Likelihood-Ratio-Statistic	296.2**		124.2**			
Dependent variables average (weighted)	0.492		0.282			

Dependent variable: morale (1 = high; 0 = [other]). For the exact research strategies, see text.
Significance level: ** = p < 0.01, * = p < 0.05, + = p < 0.10.

- 1) Including persons living as a married couple.
- 2) "Slightly"/"greatly" restricted on account of health reasons in carrying out daily tasks.
- 3) Including *Fachabitur*.
- 4) Only in combination with nonacademic vocational qualification.
- 5) East Germany: *Berufsausbildung/Facharbeiterabschluss*; including nonacademic vocational qualifications from 1991.
- 6) East Germany: including *Fachhochschulabschlüsse* from 1991.
- 7) Hidden labour reserve: persons not having registered as unemployed, but wanting to take up a job "as soon as possible".

Legend for German expressions: see table 0.

Covariates in brackets = reference category. Unweighted averages as model documentation.

Only persons with a vocational qualification from Germany below the age of 65. Excluding internees, persons receiving training or further training, and migrants between East and West Germany since 1989. West Germany: excluding immigrants included in the "D" sample of the German Socio-Economic Panel (GSOEP).

Source: own evaluation carried out by the German Socio-Economic Panel (GSOEP).

Table 4: Determinants of the probability of people's concern about their own economic prospects, depending on employment status and other personal characteristics (West Germany and East Germany, 1995, probit model)

Covariates	West Germany		East Germany			
	Coefficient	(Std.dev.)	Average	Coefficient (Std.dev.)	Average	
Constant	-0.177	(0.352)	-	0.864	(0.580)	-
Male	0.048	(0.050)	0.60	-0.009	(0.075)	0.51
Age (in years)	0.050**	(0.017)	39.03	0.026	(0.029)	40.70
Age ² /100	-0.081**	(0.021)	16.45	-0.043	(0.034)	17.66
Foreigner	0.251**	(0.088)	0.15	.	(.)	.
Married ¹	-0.008	(0.055)	0.65	0.099	(0.096)	0.74
Restricted on account of health reasons ²	0.415**	(0.060)	0.24	0.449**	(0.090)	0.33
<i>Hauptschulabschluss</i> /8. Klasse	0.146**	(0.057)	0.43	0.122	(0.112)	0.25
(<i>Realschulabschluss</i> /10. Klasse) ³	.	(.)	.	.	(.)	.
<i>Abitur</i> ⁴	-0.136	(0.126)	0.04	0.093	(0.227)	0.03
(<i>Lehrabschluss</i>) ⁵	.	(.)	.	.	(.)	.
<i>Meister (GDR)</i>				-0.006	(0.358)	0.01
<i>Berufsfachschule</i>	0.008	(0.090)	0.08			
<i>Schule des Gesundheitswesens</i>	0.184	(0.144)	0.03			
<i>Fachschule (FRG)</i>	-0.089	(0.089)	0.08			
<i>Beamtenausbildung</i>	-0.650**	(0.119)	0.04			
<i>Sonstiger berufsbildender Abschluß</i>	0.043	(0.117)	0.08			
<i>Ingenieur-/Fachschule (GDR)</i>				-0.331*	(0.157)	0.14
<i>Fachhochschule</i>	-0.529**	(0.124)	0.05	.	(.)	.
<i>Hochschule/Universität</i> ⁶	-0.668**	(0.107)	0.10	-0.635**	(0.156)	0.11
Unemployed/in the hidden labour reserve ⁷	0.431**	(0.121)	0.08	0.348*	(0.179)	0.17
(Underemployed)	.	(.)	.	.	(.)	.
Adequately employed	-0.145*	(0.072)	0.61	-0.404**	(0.128)	0.45
Number of respondents (unweighted): n =		3,281			1,990	
Log-Likelihood		-1900.9			-727.7	
Likelihood-Ratio-Statistic		333.2**			104.8**	
Dependent variables average (weighted)		0.666			0.869	

Dependent variable: great concern about their own economic prospects (1 = yes; 0 = no). For the exact research strategies, see text. Significance level: ** = $p < 0.01$, * = $p < 0.05$, + = $p < 0.10$.

- 1) Including persons living as a married couple.
- 2) "Slightly"/"greatly" restricted on account of health reasons in carrying out daily tasks.
- 3) Including *Fachabitur*.
- 4) Only in combination with nonacademic vocational qualification.
- 5) East Germany: *Berufsausbildung/Facharbeiterabschluss*; including nonacademic vocational qualifications from 1991.
- 6) East Germany: including *Fachhochschulabschlüsse* from 1991.
- 7) Hidden labour reserve: persons not having registered as unemployed, but wanting to take up a job "as soon as possible".

Legend for German expressions: see table 0.

Covariates in brackets = reference category. Unweighted averages as model documentation.

Only persons with a vocational qualification from Germany below the age of 65. Excluding internees, persons receiving training or further training, and migrants between East and West Germany since 1989. West Germany: excluding immigrants included in the "D" sample of the German Socio-Economic Panel (GSOEP).

Source: own evaluation carried out by the German Socio-Economic Panel (GSOEP).

Table 5: Determinants of the probability of allegiance to a political party, depending on employment status and other personal characteristics (West Germany and East Germany, 1995, probit model)

Covariates	West Germany			East Germany		
	Coefficient	(Std.dev.)	Average	Coefficient	(Std.dev.)	Average
Constant	-2.235**	(0.357)	-	-0.154	(0.475)	-
Male	0.154**	(0.050)	0.60	0.165**	(0.061)	0.51
Age (in years)	0.083**	(0.018)	39.03	-0.038+	(0.023)	40.70
Age ² /100	-0.073**	(0.021)	16.45	0.063*	(0.028)	17.66
Foreigner	-0.389**	(0.083)	0.15	.	(.)	.
Married ¹	0.131*	(0.054)	0.65	-0.039	(0.078)	0.74
Restricted on account of health reasons ²	0.070	(0.056)	0.24	0.061	(0.065)	0.33
Hauptschulabschluss/8. Klasse	-0.066	(0.056)	0.43	-0.081	(0.086)	0.25
(Realschulabschluss/10. Klasse) ³	.	(.)	.	.	(.)	.
Abitur ⁴	0.218+	(0.127)	0.04	0.600**	(0.177)	0.03
(Lehrabschluss) ⁵	.	(.)	.	.	(.)	.
Meister (GDR)				-0.433	(0.343)	0.01
Berufsfachschule	0.022	(0.086)	0.08			
Schule des Gesundheitswesens	-0.031	(0.136)	0.03			
Fachschule (FRG)	0.063	(0.089)	0.08			
Beamtenausbildung	0.187	(0.125)	0.04			
Sonstiger berufsbildender Abschluss	-0.383**	(0.112)	0.08			
Ingenieur-/Fachschule (GDR)				0.301*	(0.123)	0.14
Fachhochschule	0.468**	(0.127)	0.05			
Hochschule/Universität ⁶	0.573**	(0.109)	0.10	0.602**	(0.127)	0.11
Unemployed/in the hidden labour reserve ⁷	0.115	(0.104)	0.08	0.113	(0.114)	0.17
(Underemployed)	.	(.)	.	.	(.)	.
Adequately employed	0.216**	(0.069)	0.61	0.238*	(0.097)	0.45
Number of respondents (unweighted): n =		3,113			1,849	
Log-Likelihood		-1962.9			-1199.1	
Likelihood-Ratio-Statistic		377.0**			94.8**	
Dependent variables average (weighted)		0.601			0.399	

Dependent variable: allegiance to a political party (1 = yes; 0 = no). For the exact research strategies, see text.
Significance level: ** = $p < 0.01$, * = $p < 0.05$, + = $p < 0.10$.

- 1) Including persons living as a married couple.
- 2) "Slightly"/"greatly" restricted on account of health reasons in carrying out daily tasks.
- 3) Including *Fachabitur*.
- 4) Only in combination with nonacademic vocational qualification.
- 5) East Germany: *Berufsausbildung/Facharbeiterabschluss*; including nonacademic vocational qualifications from 1991.
- 6) East Germany: including *Fachhochschulabschlüsse* from 1991.
- 7) Hidden labour reserve: persons not having registered as unemployed, but wanting to take up a job "as soon as possible".

Legend for German expressions: see table 0.

Covariates in brackets = reference category. Unweighted averages as model documentation.

Only persons with a vocational qualification from Germany below the age of 65. Excluding internees, persons receiving training or further training, and migrants between East and West Germany since 1989. West Germany: excluding immigrants included in the "D" sample of the German Socio-Economic Panel (GSOEP).

Source: own evaluation carried out by the German Socio-Economic Panel (GSOEP).

Table 6: Types of employment status previously held by underemployed workers, broken down by qualification level and sex (West Germany and East Germany, 1984–1995 and 1991–1995, in %)

West Germany									
Access from:	<i>With vocational degree</i>			<i>With university or post-secondary technical college degree</i>			Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Work commensurate with qualifications	52	33	41	59	40	49	53	34	42
Unemployment/Hidden labour reserve	29	22	25	13	20	16	26	21	23
Other economic inactivity	6	37	24	0	15	8	5	33	21
(Full-time) training	13	8	10	28	26	27	16	11	13
Total	100	100	100	100	100	100	100	100	100
Number of respondents	398	524	922	69	71	140	467	595	1,062
East Germany									
Access from:	<i>With vocational degree</i>			<i>With university or post-secondary technical college degree</i>			Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Work commensurate with qualifications	48	30	39	70	50	57	53	37	44
Unemployment/Hidden labour reserve	45	51	48	20	20	20	39	40	39
Other economic inactivity	1	6	4	2	8	6	1	7	5
(Full-time) training	7	13	10	8	21	16	7	16	12
Total	100	100	100	100	100	100	100	100	100
Number of respondents	153	177	330	56	94	150	209	271	480

Only persons with a vocational qualification from Germany below the age of 65. Excluding internees, persons receiving training or further training, and migrants between East and West Germany since 1989. West Germany: excluding immigrants included in the "D" sample of the German Socio-Economic Panel (GSOEP).

Weighted frequency. Unweighted number of respondents.

Source: own evaluation carried out by the German Socio-Economic Panel (GSOEP).

Table 7: Determinants of the probability of transition to underemployment, depending on the various types of employment status previously held and other characteristics (West Germany and East Germany, 1984–1995 and 1991–1995, probit model)

Covariates	West Germany			East Germany		
	Coefficient	(Std.dev.)	Average	Coefficient	(Std.dev.)	Average
Constant	-0.669*	(0.278)	–	0.303	(0.472)	–
Male	-0.269**	(0.048)	0.58	-0.032	(0.066)	0.51
Age (in years)	0.006	(0.014)	37.82	0.058*	(0.023)	40.43
Age ² /100	-0.035*	(0.017)	15.83	-0.094**	(0.028)	17.79
Foreigner	0.063	(0.067)	0.15	.	(.)	.
Married ¹	0.082	(0.054)	0.63	0.115	(0.082)	0.74
Health restrictions ²	-0.036	(0.052)	0.28	0.033	(0.071)	0.32
Hauptschulabschluß/8. Klasse	0.390**	(0.052)	0.46	0.181*	(0.090)	0.26
(Realschulabschluß/10. Klasse) ³	.	(.)	.	.	(.)	.
Abitur ⁴	-0.416**	(0.135)	0.04	-0.181	(0.200)	0.03
(Lehre) ⁵	.	(.)	.	.	(.)	.
Meister (GDR)				-0.126	(0.145)	0.07
Berufsfachschule	0.023	(0.075)	0.09			
Schule des Gesundheitswesens	-0.129	(0.139)	0.03			
Fachschule (FRG)	-0.301**	(0.102)	0.08			
Beamtenausbildung	-0.562**	(0.175)	0.04			
Sonst. berufsbildender Abschluß	0.327**	(0.098)	0.07			
Ingenieur-/Fachschule (GDR)				0.354**	(0.096)	0.15
Fachhochschule	0.618**	(0.110)	0.04			
Hochschule/Universität ⁶	0.122	(0.091)	0.09	0.257*	(0.113)	0.10
Profess. success is not important ⁷	0.112+	(0.063)	0.16	0.008	(0.109)	0.12
Regional unemployment figures ⁸	-0.039**	(0.008)	8.41	-0.170**	(0.013)	15.27
Rural area ⁹	0.028	(0.046)	0.56	0.161*	(0.074)	0.73
(Access from adequate empl.) ¹⁰	.	(.)	.	.	(.)	.
Acc. from (other) econ. inactivity	0.497**	(0.065)	0.16	-0.129	(0.167)	0.10
Access from unemployment/ the hidden labour reserve	0.979**	(0.067)	0.10	0.783**	(0.075)	0.22
Access from (full-time) training	0.546**	(0.080)	0.08	0.431**	(0.121)	0.08
No. of respond. (unweighted): n =		4,982			2,615	
Log-Likelihood		-2144.6			-1008.4	
Likelihood-Ratio-Statistic		1325.0**			546.6**	
Depend. var. average (weighted)		0.155			0.173	

Dependent variable: 1 = transition, from one observation year to the next, from one of the various types of employment status (previous employment status) to underemployment, 0 = retention of employment status (transitions between employment status allowed).
Significance level: ** = $p < 0.01$, * = $p < 0.05$, + = $p < 0.10$.

- 1) Including persons living as a married couple.
- 2) 'Slightly'/greatly' restricted on account of health reasons in carrying out daily tasks.
- 3) Including Fachabitur.
- 4) Only in combination with nonacademic vocational qualification.
- 5) East Germany: Berufsausbildung/Facharbeiterabschluss; including nonacademic vocational qualifications from 1991.
- 6) East Germany: including Fachhochschulabschlüsse from 1991.
- 7) 'Professional success' is "not so important" or "quite unimportant", according to German nationals (foreigners were not asked).
- 8) West Germany: at regional level (BfLR data - [Bundesforschungsanstalt fuer Landeskunde und Raumordnung - Federal Research Institute for Regional Studies and Town and Country Planning]); East Germany: at Land level (relating to place of residence).
- 9) Number of inhabitants in place of residence < 50 000 inhabitants.
- 10) Reference date for access status: survey carried out in the previous year to that in which the person's transition to underemployment was first observed. Legend for German expressions: see table 0.

Covariates in brackets = reference category. Reference date for encoding the covariates: first year. Unweighted averages as model documentation.

Only persons having held one of the types of employment status examined (previous employment status) for two consecutive years (in the second year, underskilled work, in addition, is allowed). One observation at the most per person (first occurrence of a possible movement). Only persons with a vocational qualification from Germany below the age of 65. Excluding internees, persons receiving training or further training, and migrants between East and West Germany since 1989. West Germany: excluding immigrants included in the "D" sample of the German Socio-Economic Panel (GSOEP).

Source: own evaluation carried out by the German Socio-Economic Panel (GSOEP).

Table 8: Exit doors from underemployment, broken down by qualification level and sex (West Germany and East Germany, 1984–1995 and 1991–1995, in %)

West Germany									
Access from:	<i>With vocational degree</i>			<i>With university or post-secondary technical college degree</i>			Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Work commensurate with qualifications	43	40	41	74	42	62	50	40	44
Unemployment/ Hidden labour reserve	33	17	24	4	14	8	26	17	21
Other economic inactivity	16	40	30	9	38	20	15	40	29
(Full-time) training	9	3	5	13	6	11	10	3	6
Total	100	100	100	100	100	100	100	100	100
Number of respondents	367	458	825	64	47	111	431	505	936
East Germany									
Access from:	<i>With vocational degree</i>			<i>With university or post-secondary technical college degree</i>			Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Work commensurate with qualifications	38	26	31	69	41	55	45	29	36
Unemployment/ Hidden labour reserve	49	57	54	23	34	29	43	53	48
Other economic inactivity	9	9	9	6	10	8	8	9	9
(Full-time) training	4	7	6	2	14	8	4	9	7
Total	100	100	100	100	100	100	100	100	100
Number of respondents	124	175	299	38	49	87	162	224	386

Only persons having been underemployed in the exit year and observed in one of the types of employment status examined in the following year. Only persons with a vocational qualification from Germany below the age of 65. Excluding internees, persons receiving training or further training, and migrants between East and West Germany since 1989. West Germany: excluding immigrants included in the "D" sample of the German Socio-Economic Panel (GSOEP).

Weighted frequency. Unweighted number of respondents.

Source: own evaluation carried out by the German Socio-Economic Panel (GSOEP).

Table 9: Determinants of the probability of transition from underemployment or adequate employment to unemployment/the hidden labour reserve, depending on exit status and other characteristics (West Germany and East Germany, 1984–1995 and 1991–1995, probit model)

Covariates	West Germany			East Germany		
	Coefficient	(Std.dev.)	Average	Coefficient	(Std.dev.)	Average
Constant	0.166	(0.289)	–	1.314**	(0.478)	–
Male	–0.010	(0.050)	0.60	–0.269**	(0.063)	0.53
Age (in years)	–0.085**	(0.014)	39.52	0.002	(0.024)	40.08
Age ² /100	0.094**	(0.017)	17.08	–0.001	(0.029)	17.16
Foreigner	0.100	(0.076)	0.15	(.)	(.)	(.)
Married ¹	–0.070	(0.054)	0.67	–0.026	(0.081)	0.77
Restricted on account of health reasons ²	0.154**	(0.052)	0.29	0.021	(0.070)	0.30
Hauptschulabschluß/8. Klasse	0.286**	(0.057)	0.47	0.182*	(0.086)	0.24
(Realschulabschluß/10. Klasse) ³	(.)	(.)	(.)	(.)	(.)	(.)
Abitur ⁴	–0.162	(0.148)	0.04	0.070	(0.203)	0.02
(Lehre) ⁵	(.)	(.)	(.)	(.)	(.)	(.)
Meister (GDR)				–0.197	(0.128)	0.08
Berufsfachschule	0.172*	(0.080)	0.09			
Schule des Gesundheitswesens	–0.159	(0.159)	0.03			
Fachschule (FRG)	0.117	(0.091)	0.08			
Beamtenausbildung	–0.332*	(0.159)	0.04			
Sonstiger berufsbildender Abschluß	0.340**	(0.101)	0.09			
Ingenieur-/Fachschule (GDR)				–0.359**	(0.098)	0.17
Fachhochschule	–0.148	(0.149)	0.04			
Hochschule/Universität ⁶	–0.097	(0.110)	0.09	–0.465**	(0.126)	0.11
Profess. success is not important ⁷	0.103	(0.066)	0.15	–0.008	(0.106)	0.09
Regional unemployment figures ⁸	0.027**	(0.008)	8.33	–0.148**	(0.012)	14.86
Rural area ⁹	–0.015	(0.049)	0.57	0.039	(0.071)	0.72
Exit status: underemployment ¹⁰	0.120*	(0.055)	0.24	0.367**	(0.069)	0.25
Number of respondents (unweighted): n =		4,939			2,404	
Log-Likelihood		–1828.5			1053.1	
Likelihood-Ratio-Statistic		634.2**			335.2**	
Dependent variables average (weighted)		0.115			0.212	

Dependent variable: 1 = transition, from one observation year to the next, from underemployment or adequate employment to unemployment/the hidden labour reserve; 0 = (other). Significance level: ** = $p < 0.01$, * = $p < 0.05$, + = $p < 0.10$.

- 1) Including persons living as a married couple.
- 2) "Slightly"/"greatly" restricted on account of health reasons in carrying out daily tasks.
- 3) Including Fachabitur.
- 4) Only in combination with nonacademic vocational qualification.
- 5) East Germany: Berufsausbildung/Facharbeiterabschluß; including nonacademic vocational qualifications from 1991.
- 6) East Germany: including Fachhochschulabschlüsse from 1991.
- 7) "Professional success" is "not so important" or "quite unimportant", according to German nationals (foreigners were not asked).
- 8) West Germany: at regional level (BfLR data - [Bundesforschungsanstalt fuer Landeskunde und Raumordnung - Federal Research Institute for Regional Studies and Town and Country Planning]); East Germany: at Land level (relating to place of residence).
- 9) Number of inhabitants in place of residence < 50 000 inhabitants.
- 10) Alternative status: adequate employment.

Legend for German expressions: see table 0.

Covariates in brackets = reference category. Reference date for encoding the covariates: first year. Unweighted averages as model documentation.

Only persons having been underemployed or adequately employed in one observation year and interviewed the following year. One observation at the most per person (first occurrence of a possible movement). Only persons with a vocational qualification from Germany below the age of 65. Excluding internees, persons receiving training or further training, and migrants between East and West Germany since 1989. West Germany: excluding immigrants included in the "D" sample of the German Socio-Economic Panel (GSOEP).

Source: own evaluation carried out by the German Socio-Economic Panel (GSOEP).

Table 10: Determinants of the probability of transition from adequate employment within five years (three years for the former East Germany) to unemployment/the hidden labour reserve, depending on a possible interim phase of underemployment and other characteristics (West Germany and East Germany, 1984–1995 and 1991–1995, probit model)

Covariates	West Germany			East Germany		
	Coefficient	(Std.dev.)	Average	Coefficient	(Std.dev.)	Average
Constant	0.508	(0.393)	–	–0.237	(0.588)	–
Male	–0.284**	(0.071)	0.64	–0.279**	(0.078)	0.56
Age (in years)	–0.096**	(0.022)	35.65	–0.065*	(0.028)	39.29
Age ² /100	0.111**	(0.028)	14.00	0.097**	(0.035)	16.49
Foreigner	–0.029	(0.138)	0.09	.	(. .)	.
Married ¹	0.031	(0.080)	0.63	0.068	(0.106)	0.80
Restricted on account of health reasons ²	0.143+	(0.080)	0.23	0.122	(0.088)	0.25
Hauptschulabschluss/8. Klasse	0.189*	(0.077)	0.47	0.106	(0.109)	0.23
(Realschulabschluss/10. Klasse) ³	.	(. .)	.	.	(. .)	.
Abitur ⁴	–0.087	(0.182)	0.04	–0.113	(0.246)	0.03
(Lehre) ⁵	.	(. .)	.	.	(. .)	.
Meister (GDR)				–0.113	(0.138)	0.09
Berufsfachschule	0.085	(0.112)	0.09			
Schule des Gesundheitswesens	–0.244	(0.211)	0.03			
Fachschule (FRG)	0.030	(0.125)	0.08			
Beamtenausbildung	–0.548**	(0.208)	0.05			
Sonst. berufsbildender Abschluß	0.562**	(0.170)	0.05			
Ingenieur-/Fachschule (GDR)				–0.320**	(0.121)	0.17
Fachhochschule	–0.003	(0.211)	0.04			
Hochschule/Universität ⁶	–0.008	(0.135)	0.10	–0.359*	(0.144)	0.12
Profess. success is not important ⁷	0.292**	(0.088)	0.14	0.449+	(0.140)	0.06
Regional unemployment figures ⁸	0.012	(0.010)	8.96	0.032	(0.019)	11.00
Rural area ⁹	0.018	(0.068)	0.55	0.112	(0.087)	0.71
Interim phase: underemploymt. ¹⁰	–0.856**	(0.134)	0.15	–0.307*	(0.123)	0.13
No. of respond. (unweighted): n =		2,911			1,536	
Log-Likelihood		–894.0			–702.5	
Likelihood-Ratio-Statistic		223.0**			57.2**	
Dependent variables average (weighted)		0.106			0.215	

Dependent variable: 1 = transition within five years (three years for the former East Germany) from adequate employment to unemployment/the hidden labour reserve; 0 = (other). Significance level: ** = $p < 0.01$, * = $p < 0.05$, + = $p < 0.10$.

- 1) Including persons living as a married couple.
- 2) "Slightly"/"greatly" restricted on account of health reasons in carrying out daily tasks.
- 3) Including Fachabitur.
- 4) Only in combination with nonacademic vocational qualification.
- 5) East Germany: Berufsausbildung/Facharbeiterabschluß; including nonacademic vocational qualifications from 1991.
- 6) East Germany: including Fachhochschulabschlüsse from 1991.
- 7) "Professional success" is "not so important" or "quite unimportant", according to German nationals (foreigners were not asked).
- 8) West Germany: at regional level (BfLR data - [Bundesforschungsanstalt fuer Landeskunde und Raumordnung - Federal Research Institute for Regional Studies and Town and Country Planning]); East Germany: at Land level (relating to place of residence).
- 9) Number of inhabitants in place of residence < 50 000 inhabitants.
- 10) Transition to unemployment/the hidden labour reserve following a phase of underemployment.

Legend for German expressions: see table 0.

Covariates in brackets = reference category. Reference date for encoding the covariates: first year. Unweighted averages as model documentation.

Only persons having been in adequate employment in one of the observation years (1984–1995) (East Germany: 1991–1995) and interviewed within the following five years (three years for the former East Germany). One observation at the most per person (first occurrence of a possible movement). Only persons with a vocational qualification from Germany below the age of 65. Excluding internees, persons receiving training or further training, and migrants between East and West Germany since 1989. West Germany: excluding immigrants included in the "D" sample of the German Socio-Economic Panel (GSOEP).

Source: own evaluation carried out by the German Socio-Economic Panel (GSOEP).

Table 11: Determinants of the probability of transition from underemployment or unemployment/the hidden labour reserve to adequate employment, depending on exit status and other characteristics (West Germany and East Germany, 1984–1995 and 1991–1995, probit model)

Covariates	West Germany			East Germany		
	Coefficient	(Std.dev.)	Average	Coefficient	(Std.dev.)	Average
Constant	-0.409	(0.357)	–	-0.023	(0.611)	–
Male	0.239**	(0.059)	0.52	0.292**	(0.086)	0.44
Age (in years)	0.057**	(0.018)	38.96	0.104**	(0.030)	40.91
Age2/100	-0.092**	(0.023)	16.73	-0.152**	(0.037)	18.15
Foreigner	-0.444**	(0.088)	0.24	.	(.)	.
Married1	-0.085	(0.067)	0.67	0.304**	(0.109)	0.75
Restricted on account of health reasons2	-0.142*	(0.065)	0.33	-0.263**	(0.094)	0.35
Hauptschulabschluss/8. Klasse (Realschulabschluss/10. Klasse)3	-0.169*	(0.072)	0.54	-0.212+	(0.115)	0.33
Abitur4	0.156	(0.224)	0.02	-0.033	(0.273)	0.02
(Lehre)5	.	(.)	.	.	(.)	.
Meister (GDR)	.	(.)	.	0.414*	(0.198)	0.04
Berufsfachschule	0.038	(0.097)	0.09			
Schule des Gesundheitswesens	0.141	(0.206)	0.02			
Fachschule (FRG)	0.157	(0.141)	0.04			
Beamtenausbildung	0.397	(0.246)	0.01			
Sonst. berufsbildender Abschluß	-0.469**	(0.122)	0.16			
Ingenieur-/Fachschule (GDR)				-0.122	(0.128)	0.15
Fachhochschule	0.017	(0.149)	0.05			
Hochschule/Universität6	0.118	(0.135)	0.05	-0.116	(0.158)	0.08
Professional success is not important7	-0.345**	(0.082)	0.17	-0.371**	(0.137)	0.15
Regional unemployment figures8	-0.037**	(0.010)	8.28	-0.142**	(0.016)	14.96
Rural area9	-0.103+	(0.060)	0.56	-0.346**	(0.095)	0.76
Exit status: underemployment	-0.358**	(0.059)	0.61	-0.261**	(0.086)	0.43
Number of respondents (unweighted): n =		2,375			1,320	
Log-Likelihood		-1305.3			-608.0	
Likelihood-Ratio-Statistic		584.6**			263.4**	
Dependent variables average (weighted)		0.301			0.226	

Dependent variable: 1 = transition, from one observation year to the next, from underemployment or unemployment/the hidden labour reserve to adequate employment; 0 = (other).

Significance level. ** = $p < 0.01$, * = $p < 0.05$, + = $p < 0.10$.

1) Including persons living as a married couple.

2) 'Slightly/'greatly' restricted on account of health reasons in carrying out daily tasks.

3) Including Fachabitur.

4) Only in combination with nonacademic vocational qualification.

5) East Germany: Berufsausbildung/Facharbeiterabschluß; including nonacademic vocational qualifications from 1991.

6) East Germany: including Fachhochschulabschlüsse from 1991.

7) 'Professional success' is 'not so important' or 'quite unimportant', according to German nationals (foreigners were not asked).

8) West Germany: at regional level (BfLR data - [Bundesforschungsanstalt fuer Landeskunde und Raumordnung - Federal Research Institute for Regional Studies and Town and Country Planning]); East Germany: at Land level (relating to place of residence).

9) Number of inhabitants in place of residence < 50 000 inhabitants.

10) Alternative status: unemployment/the hidden labour reserve.

Legend for German expressions: see table 0.

Covariates in brackets = reference category. Reference date for encoding the covariates: first year. Unweighted averages as model documentation.

Only persons having been underemployed or unemployed/in the hidden labour reserve in one observation year and interviewed the following year. One observation at the most per person (first occurrence of a possible movement). Only persons with a vocational qualification from Germany below the age of 65. Excluding internees, persons receiving training or further training, and migrants between East and West Germany since 1989. West Germany: excluding immigrants included in the "D" sample of the German Socio-Economic Panel (GSOEP).

Source: own evaluation carried out by the German Socio-Economic Panel (GSOEP).

Table 12: Determinants of the probability of transition from unemployment/the hidden labour reserve within five years (three years for the former East Germany) to adequate employment, depending on a possible interim phase of underemployment and other characteristics (West Germany and East Germany, 1984–1995 and 1991–1995, probit model)

Covariates	West Germany			East Germany		
	Coefficient	(Std.dev.)	Average	Coefficient	(Std.dev.)	Average
Constant	-0.948	(0.674)	-	-3.253**	(1.002)	-
Male	0.640**	(0.122)	0.46	0.401**	(0.152)	0.41
Age (in years)	0.142**	(0.037)	35.91	0.258**	(0.052)	41.85
Age ² /100	-0.222**	(0.047)	14.44	-0.350**	(0.064)	19.03
Foreigner	-0.676**	(0.196)	0.20	.	(.)	.
Married ¹	-0.247+	(0.132)	0.61	-0.038	(0.185)	0.78
Restricted on account of health reasons ²	-0.265*	(0.133)	0.33	-0.465**	(0.179)	0.30
Hauptschulabschluß/8. Klasse	-0.232+	(0.143)	0.53	-0.380*	(0.197)	0.38
(Realschulabschluß/10. Klasse) ³	.	(.)	.	.	(.)	.
Abitur ⁴	-0.197	(0.346)	0.03	0.212	(0.422)	0.02
(Lehre) ⁵	.	(.)	.	.	(.)	.
Meister (GDR)				0.291	(0.338)	0.04
Berufsfachschule	0.093	(0.193)	0.10			
Schule des Gesundheitswesens	0.372	(0.377)	0.02			
Fachschule (FRG)	0.471+	(0.256)	0.06			
Beamtenausbildung	0.445	(0.465)	0.02			
Sonst. berufsbildender Abschluß	-0.473+	(0.274)	0.11			
Ingenieur-/Fachschule (GDR)				-0.057	(0.241)	0.13
Fachhochschule	-0.445	(0.405)	0.03			
Hochschule/Universität ⁶	-0.385	(0.253)	0.06	-0.017	(0.303)	0.07
Profess. success is not important ⁷	-0.541**	(0.146)	0.21	-0.093	(0.217)	0.17
Regional unemployment figures ⁸	-0.036*	(0.018)	9.51	-0.063*	(0.029)	12.54
Rural area ⁹	-0.055	(0.120)	0.53	-0.371*	(0.162)	0.74
Interim phase: underemployment ¹⁰	-1.582**	(0.133)	0.35	-1.409**	(0.182)	0.27
Number of respondents (unweighted): n =		707			463	
Log-Likelihood		-317.7			-212.3	
Likelihood-Ratio-Statistic		373.0**			163.2**	
Dependent variables average (weighted)		0.456			0.307	

Dependent variable: 1 = transition within five years (three years for the former East Germany) from unemployment/the hidden labour reserve to adequate employment; 0 = (other). Significance level: ** = $p < 0.01$, * = $p < 0.05$, + = $p < 0.10$.

- 1) Including persons living as a married couple.
- 2) "Slightly"/"greatly" restricted on account of health reasons in carrying out daily tasks.
- 3) Including Fachabitur.
- 4) Only in combination with nonacademic vocational qualification.
- 5) East Germany: Berufsausbildung/Facharbeiterabschluß; including nonacademic vocational qualifications from 1991.
- 6) East Germany: including Fachhochschulabschlüsse from 1991.
- 7) "Professional success" is "not so important" or "quite unimportant", according to German nationals (foreigners were not asked).
- 8) West Germany: at regional level (BfLR data - [Bundesforschungsanstalt fuer Landeskunde und Raumordnung - Federal Research Institute for Regional Studies and Town and Country Planning]); East Germany: at Land level (relating to place of residence).
- 9) Number of inhabitants in place of residence < 50 000 inhabitants.
- 10) Transition from unemployment/the hidden labour reserve following a phase of underemployment.

Legend for German expressions: see table 0.

Covariates in brackets = reference category. Reference date for encoding the covariates: first year. Unweighted averages as model documentation.

Only persons having been unemployed/in the hidden labour reserve in one of the observation years (1984–1995) (East Germany: 1991–1995) and interviewed within the following five years (three years for the former East Germany). One observation at the most per person (first occurrence of a possible transition). Only persons with a vocational qualification from Germany below the age of 65. Excluding internees, persons receiving training or further training, and migrants between East and West Germany since 1989. West Germany: excluding immigrants included in the "D" sample of the German Socio-Economic Panel (GSOEP).

Source: own evaluation carried out by the German Socio-Economic Panel (GSOEP).

Table 13: Determinants of income growth, depending on adequate employment at the beginning of the observation period and other influential factors (West Germany and East Germany, 1984–1995 and 1991–1995, OLS)

Covariates	West Germany			East Germany		
	Coefficient	(Std.dev.)	Average	Coefficient	(Std.dev.)	Average
Constant	0.449**	(0.064)	–	0.418**	(0.134)	–
Male	0.070**	(0.009)	0.61	–0.015	(0.013)	0.54
Age (in years)	0.005	(0.003)	40.04	0.001	(0.005)	40.64
Age2/100	–0.008*	(0.003)	17.42	–0.0002	(0.006)	17.50
Foreigner	–0.044**	(0.014)	0.16	.	(.)	.
Married ¹	0.013	(0.009)	0.67	0.009	(0.016)	0.77
Restr. on acc. of health reasons ²	–0.024	(0.009)	0.28	–0.027+	(0.014)	0.28
Hauptschulabschluss/8. Klasse	–0.073*	(0.010)	0.46	–0.064**	(0.018)	0.20
(Realschulabschluss/10. Klasse) ³	.	(.)	.	.	(.)	.
Abitur ⁴	0.081**	(0.021)	0.04	0.059	(0.037)	0.03
(Lehre) ⁵	.	(.)	.	.	(.)	.
Meister (GDR)				0.009	(0.026)	0.07
Berufsfachschule	0.031*	(0.015)	0.08			
Schule des Gesundheitswesens	–0.014	(0.025)	0.03			
Fachschule (FRG)	0.074**	(0.017)	0.08			
Beamtenausbildung	–0.023	(0.020)	0.05			
Sonst. berufsbildender Abschluß	–0.067**	(0.019)	0.09			
Ingenieur-/Fachschule (GDR)				0.127**	(0.018)	0.19
Fachhochschule	0.193**	(0.023)	0.04			
Hochschule/Universität ⁶	0.271**	(0.018)	0.08	0.266**	(0.022)	0.12
Profess. success is not important ⁷	–0.021+	(0.012)	0.13	0.010	(0.025)	0.06
Regional unemployment figures ⁸	–0.003*	(0.001)	8.35	0.001	(0.005)	15.12
Rural area ⁹	0.001	(0.008)	0.57	–0.056**	(0.014)	0.70
Initial income/100 ¹⁰	–0.014**	(0.0005)	29.21	–0.022**	(0.001)	18.24
Observation period (in years)	0.041**	(0.001)	6.27	0.140**	(0.006)	3.06
Number of times the person has switched companies ¹¹	0.014**	(0.003)	0.92	–0.036**	(0.007)	0.68
No. of years of econ. inactivity ¹²	–0.037**	(0.007)	0.10	–0.045	(0.050)	0.01
Number of years the person could not be observed ¹³	0.016	(0.011)	0.09	0.009	(0.032)	0.04
Number of years unemployed/ in the hidden labour reserve	–0.066**	(0.009)	0.11	–0.054**	(0.015)	0.12
At the beginning of the income observation period:						
in an underskilled job ¹⁴	–0.049**	(0.011)	0.21	–0.056**	(0.016)	0.18
No. of respond. (unweighted): n =		3,396			1,625	
R2adj.		.45			.47	
F value		113.8**			73.6**	
Depend. var. average (weighted)		0.3556			0.4895	

Dependent variable: plotted on a logarithmic scale (final income/initial income) covering the longest possible observation period; "Income": potential gross monthly salary, based on information relating to working time (full-time equivalent). Significance level: ** = $p < 0.01$, * = $p < 0.05$, + = $p < 0.10$.

Footnotes 1 to 9: see Table 12

10) Gross monthly salary in DM (full-time equivalent). 11) During the observation period. 12) "Number of years" below: number of years the person held the corresponding employment status during the observation period. 13) Years missing from the panel records (non-response unit). 14) Research strategies: see text. Reference category: adequate employment.

Legend for German expressions: see table 0. Covariates in brackets = reference category. Unweighted averages as model documentation. Reference date for encoding the covariates: final year. Full-time equivalents on the basis of a 40-hour working week. Only persons with a vocational qualification from Germany below the age of 65. Excluding internees, persons receiving training or further training, and migrants between East and West Germany since 1989. West Germany: excluding immigrants included in the "D" sample of the German Socio-Economic Panel (GSOEP).

Source: own evaluation carried out by the German Socio-Economic Panel (GSOEP).

Table 14: Determinants of income growth among adequately employed people, depending on possible interim phases of underemployment and other influential factors (West Germany and East Germany, 1984–1995 and 1991–1995, OLS)

Covariates	West Germany			East Germany		
	Coefficient	(Std.dev.)	Average	Coefficient	(Std.dev.)	Average
Constant	0.496**	(0.065)	–	0.440**	(0.144)	–
Male	0.056**	(0.010)	0.63	–0.026+	(0.014)	0.55
Age (in years)	–0.000	(0.003)	39.56	–0.000	(0.006)	40.58
Age ² /100	–0.002	(0.003)	17.03	0.003	(0.007)	17.44
Foreigner	–0.047**	(0.015)	0.11	.	(. .)	.
Married ¹	0.014	(0.010)	0.66	0.004	(0.018)	0.77
Restricted on account of health reasons ²	–0.040**	(0.010)	0.27	–0.021	(0.015)	0.27
Hauptschulabschluss/8. Klasse (Realschulabschluss/10. Klasse) ³	–0.070**	(0.010)	0.45	–0.062**	(0.020)	0.19
Abitur ⁴	0.074**	(0.020)	0.05	0.047	(0.038)	0.03
(Lehre) ⁵	.	(. .)	.	.	(. .)	.
Meister (GDR)	.	(. .)	.	–0.024	(0.026)	0.08
Berufsfachschule	0.023	(0.016)	0.09			
Schule des Gesundheitswesens	–0.020	(0.024)	0.03			
Fachschule (FRG)	0.045**	(0.016)	0.09			
Beamtenausbildung	–0.034+	(0.019)	0.06			
Sonst. berufsbildender Abschluß	–0.042+	(0.023)	0.05			
Ingenieur-/Fachschule (GDR)				0.167**	(0.020)	0.17
Fachhochschule	0.177**	(0.024)	0.04			
Hochschule/Universität ⁶	0.225**	(0.018)	0.09	0.270**	(0.023)	0.12
Profess. success is not important ⁷	–0.005	(0.013)	0.12	–0.026	(0.030)	0.05
Regional unemployment figures ⁸	–0.004**	(0.001)	8.36	–0.000	(0.005)	15.11
Rural area ⁹	0.008	(0.009)	0.57	–0.041**	(0.015)	0.69
Initial income/100 ¹⁰	–0.012**	(0.0005)	30.61	–0.020**	(0.001)	18.85
Observation period (in years)	0.045**	(0.001)	5.96	0.145**	(0.006)	3.01
Number of times the person has switched companies ¹¹	0.020**	(0.003)	0.86	–0.030**	(0.008)	0.59
No. of years of econ. inactivity ¹²	–0.041**	(0.011)	0.07	–0.070	(0.065)	0.01
Number of years the person could not be observed ¹³	0.016	(0.012)	0.08	0.033	(0.038)	0.03
Number of years unemployed/ in the hidden labour reserve	–0.071**	(0.013)	0.08	–0.051*	(0.021)	0.08
No. of years underemployed ¹⁴	–0.018+	(0.011)	0.09	–0.055+	(0.033)	0.03
No. of respond. (unweighted): n =			2,835			1,295
R2adj.			.48			.50
F value			107.5**			65.5**
Depend. var. average (weighted)			0.3505			0.4917

Dependent variable: plotted on a logarithmic scale (final income/initial income) covering the longest possible observation period; "Income": potential gross monthly salary, based on information relating to working time (full-time equivalent).

Significance level: ** = $p < 0.01$, * = $p < 0.05$, + = $p < 0.10$.

Footnotes 1 to 9: see Table 12

10) Gross monthly salary in DM (full-time equivalent).

11) During the observation period.

12) "Number of years" below: number of years the person held the corresponding employment status during the observation period.

13) Years missing from the panel records (non-response unit)

14) Research strategies: see text.

Legend for German expressions: see table 0.

Covariates in brackets = reference category. Unweighted averages as model documentation. Reference date for encoding the covariates: final year. Full-time equivalents on the basis of a 40-hour working week. Only persons adequately employed from the beginning to the end of the examination period.

Only persons with a vocational qualification from Germany below the age of 65. Excluding internees, persons receiving training or further training, and migrants between East and West Germany since 1989. West Germany: excluding immigrants included in the "D" sample of the German Socio-Economic Panel (GSOEP).

Source: own evaluation carried out by the German Socio-Economic Panel (GSOEP).

Forecasting skill requirements at national and company levels

Rob A. Wilson

Abstract

The document reviews recent work on demand and supply forecasts at national level, broken down by sector, occupation and qualification, covering both European and other countries. This includes an assessment of forecasting approaches and results at regional and local levels. A review of the methods used and the results obtained at company level is also presented.

Labour market forecasts can be seen as having two prime roles: first to guide policy decisions made by the government and its representatives; and second, as a general aid to the individual actors operating within the labour market, providing them with information which can aid their own decision making. The fact that considerable efforts to conduct such forecast are going on all over the world suggests that, on balance, such activities are regarded as very useful and worth substantial investment by the public sector.

It is concluded, therefore, that forecasting of the labour market is inevitable. The only real question, is how this should be done. There appear to be two main possibilities:

- a) centrally, in a transparent, logical, consistent and systematic fashion, recognising the 'public good' aspects of such work;*
- b) or in a decentralised, often ad hoc fashion, by individual actors or groups, frequently based on implicit rather than explicit assumptions.*

A number of different approaches have been adopted to anticipate changing skill needs. The traditional approach has usually involved formal, quantitative methods, focusing mainly on occupations. More recently, other, rather less formal methods have been developed which have a strong qualitative emphasis. However, many exercises nowadays involve a mixture of both quantitative and qualitative methods, which are regarded as complementary. Increasingly, the focus is moving away from occupations to consider more general aspects of skill requirements.

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Summary¹

In the first Cedefop report, Tessaring (1998) reviewed a number of quantitative forecasts of employment by sector, occupation and qualification for several European countries. This included Denmark, Finland, France, Germany, Ireland, the Netherlands and the UK. A prime objective of the current work is to update this review, focusing on new methods, approaches and results and extending the coverage to additional countries. As well as examining practice in Europe, the review also covers recent work conducted in a number of non-European countries, including the USA, Canada and Australia.

The paper focuses on the issue of 'forecasting skills and requirements at national and company levels'. It begins with a review of recent work on demand and supply forecasts at national level, broken down by sector, occupation and qualification, covering both European and other countries. This includes an assessment of forecasting approaches and results at regional and local levels. It provides a comprehensive review of the different methods used and an assessment of their advantages and disadvantages. This includes the recent emphasis on changing generic skill requirements and the use of qualitative methodologies, as well as more traditional quantitative model-based approaches which focus on occupations. A review of the methods used and the results obtained at company level is also presented.

An eclectic methodological approach has been followed in undertaking this review, involv-

ing a range of techniques to locate relevant research being conducted in this area. This included a traditional literature search, a computerised literature search using digital databases including the internet and the use of various network contacts including Cedefop itself. A comprehensive bibliography of recent research throughout the Community and beyond has been produced.

The key hypotheses addressed are twofold:

- a) first, is labour market forecasting necessary?
- b) and second, if the answer to this question is yes, how should they be conducted?

Both the criticisms of forecasting and the counter arguments of its proponents are reviewed in detail.

There is a small, but at times vociferous, group of critics who have decried the value of such activities. They argue, variously, that it is unnecessary, impossible and /or irrelevant. It is argued in the review that most of these criticisms are misguided. In many cases, the criticisms have been constructive and have led directly to improvements in methods and approaches used, including the development of more qualitative methods. In other cases the practitioners involved in making projections have argued, convincingly in the opinion of the present author, that the criticisms are invalid.

There is a much larger body of opinion, therefore, that such forecasts can be of value to a broad range of potential users within a particular geographical area, be it a national economy or a much smaller local area. A strong case can be made that the provision of such projections can be regarded as a valuable *public good*, which should therefore be supported by central government. Labour market forecasts can be seen as having two prime roles: first to guide policy decisions made by the government and its representatives; and second, as a general aid to the individual actors operating within the labour market, providing them with information which can aid their own decision making.

¹ The author is indebted to a number of people who have assisted in this review. The bibliographies in Spanish, Italian and German draw upon the work of a Leonardo project organised by CESOS in Rome. The author is grateful to various colleagues from these countries for provision of this bibliographical material, including Michèle Blin, Jürgen Schultze, Antonio Vergani and Juan Antonio. Geoff Briscoe also made a number of important contributions, especially Section 4, while Barbara Wilson provided invaluable assistance in word processing. The author alone bears responsibility for the opinions expressed and any remaining errors.

Employers, education and training providers and, of course, individual students and workers themselves, all have an interest in trying to peer into the future in order to try to anticipate what may occur and to ensure that their own decisions result in the best possible outcomes (however these might be defined). The fact that considerable efforts to conduct such forecast are going on all over the world suggests that, on balance, such activities are regarded as very useful and worth substantial investment by the public sector.

It is concluded, therefore, that forecasting of the labour market is inevitable. The only real question, is how this should be done. There appear to be two main possibilities:

- a) formally, in a transparent, logical, consistent and systematic fashion, recognising the 'public good' aspects of such work (often undertaken centrally);
- b) or in an informal, often ad hoc fashion by individual actors or groups, frequently based on implicit rather than explicit assumptions.

A number of different approaches have been adopted to anticipate changing skill needs. The traditional approach has usually involved formal, quantitative methods, focusing mainly on occupations. More recently, other, rather less formal methods have been developed, which have a strong qualitative emphasis. Often this has reflected problems or lack of key data. However, most exercises nowadays involve a mixture of both quantitative and qualitative methods, which are regarded as complementary. Increasingly, the focus is moving away from occupations to consider more general aspects of skill requirements.

The present review of the main forecasting methodologies suggests that a formal, quantitative behavioural, model is a very important foundation stone upon which such forecasting activity should be based. This should, in principle, enable a better understanding of the main factors influencing the supply of and demand for skills. However, it is important to go beyond the traditional 'manpower

requirements model', with its focus on occupational employment levels. Most recent work has emphasised the need to consider replacement demands and not just to focus on projected levels of employment. In addition, other more qualitative methods, involving surveys, case study work, focus groups and other techniques have all been found to have the potential for 'adding value' to the more traditional methods. Finally, a key feature of much recent work has been the emphasis on key or generic skills which go beyond the straight-jacket imposed by traditional occupational classifications, to look at the skills needed to do various tasks.

It is clear that the political, institutional and legal context, have had a crucial influence in the systems for labour market forecasting which have been developed across the world. In particular, this is reflected in the statistical infrastructure within which the analyst has to operate, including the development of macroeconomic and labour market forecasting models. Most of the countries where fully developed systems are in operation have invested very heavily in such activities over a period of many years. The impact of IT in this area has been immense. In the USA, for example, the development of ALMIS the American Labour Market Information System has facilitated all kinds of research and commercial activities in the area of Labour Market Information (LMI) and labour market forecasting. It has also facilitated the development of local as well as national level forecasts as in the UK.

The main conclusion from the review is that employment projections *can and do* provide a useful aid to policy makers in making decisions about training, recruitment and the personnel issues. It can also provide very useful information to a broad range of other actors in the labour market, including employers, individuals and education and trainer providers. This includes the development of 'early warning systems' to avoid bottlenecks, shortages and imbalances, which have been regarded as a serious problem in many countries. However, it is important to be realistic about the accuracy with which this can be accomplished. The idea of indicative planning

of education and training systems has long been discarded by labour market forecasters.

The value of such exercises depend crucially on the quality of the data upon which they are based, as well as the validity of the various assumptions built into the forecasts. To some extent the latter will depend upon the degree of sophistication of the models adopted, the more sophisticated the model the more likely it is to be able to deal with the many subtle influences on changing employment structures. A substantial investment by the public sector is necessary to support such activity, both to provide the basic data (which may also have a variety of other uses) and to support the forecasting activity itself.

Despite all the various problems associated with such activity, the experience of many countries, particularly the USA, suggests that useful forecasting tools can be developed at European level. This experience suggests that such forecasts can provide helpful information to both labour market participants as well as for policy makers about the labour market environment they are likely to face. It is therefore recommended that a regular European wide labour market forecasting exercise should be undertaken, supported by central government funds. This should include detailed occupational forecasts but also focus more generally on the changing supply and demand for skills (by sector, occupation, region, etc).

1. Introduction

1.1 Background to the project

Tessaring (1998) provided a brief general review of the methodologies used in employment forecasting. The present contribution expands upon this review. It provides a much more comprehensive and in-depth coverage than the Tessaring paper, which was concerned with a rather broader range of issues to do with the future of work. The present review covers the literature on what has traditionally been termed 'manpower planning', including the various quantitative forecasting mod-

els used at national level in many countries². However, it also extends the focus to include a number of new approaches to anticipating changes in the pattern of the demand for skills. The aim has been to summarise some of the key methodological issues in employment forecasting. The review also addresses questions concerned with the rationale for forecasting as well as some of the problems and pitfalls associated with it.

1.2 Aims and objectives

The key aims of the review are to provide:

- a summary of recent work on demand and supply forecasts at national level, broken down by sector, occupation and qualification, covering both European and other countries;
- a corresponding assessment of forecasting approaches and results at regional level, including an assessment of the importance of focusing on the local level (which some argue is necessary if such forecasts are to attain full operational relevance) as well as the problems and pitfalls in doing this;
- a comprehensive review of the different methods used and an assessment of their advantages and disadvantages in both national and regional cases. This includes an assessment of the various new approaches being used to anticipate changing skill needs, which have been advocated in recent years as well as a considered review of the various criticisms which have been made of more traditional methods;
- a corresponding review of the methods used and results obtained from assessing the future skill requirements at company

² Although this terminology appears increasingly outdated, given pressures towards equal opportunity and the use of non-sexist language, the term 'manpower' remains in regular use. The word planning has also come to be regarded in somewhat derogatory terms in some circles. The present review has adopted the alternative terminology of employment forecasting. This should be understood to refer to the analysis and management of all human resources.

level and their implications for the development of formal and informal skill training within companies;

- an assessment of the relevance of the forecasts for training provision, and the implementation of 'early warning systems' to avoid bottlenecks, shortages and labour market imbalances;
- an assessment of the need for a regular European forecasting activity concerning the supply and demand for skills (by sector, occupation, region, etc.).

1.3 Methodological approach to the review

An eclectic methodological approach has been followed in undertaking the literature search and review. This has involved various techniques to locate any relevant research being conducted in this area, including:

- a traditional literature search using bibliographical indexes;
- a computerised literature search using digital databases;
- use of network contacts:
 - based on the IER's established network, including members of the symposia held at the University of Warwick between 1989 and 1997,
 - contacts through an ongoing Leonardo project,
 - contacts through Cedefop;
- use of the world wide web to search for relevant sites and information;
- use of the IER's own website to attract interest and invite comment on the review as it is progressing.

The aim of all this effort has been to produce a comprehensive bibliography of recent research throughout the Community and beyond. The full bibliography, including subsec-

tions in Italian, German and Spanish, is attached to this report.

1.4 Outline of the report

Sections 2 and 3 provide a summary of the literature on general employment forecasting at national and regional levels. This discussion includes a review of the methodologies adopted as well as a summary of the main criticisms of the approach. The employment forecaster's responses to such criticism are also reviewed and an assessment of the benefits and limitations of such work is attempted. Recent changes in emphasis towards local forecasting and more qualitative approaches are discussed.

Section 4 extends the review to cover company level employment planning and forecasting. In parallel with the development of national employment models there was a growing interest during the 1960s in personnel planning at microeconomic level. Company employment planning began in earnest during the 1960s, although some institutions had undertaken this kind of exercise for many years before then. Much intellectual effort has been put into understanding the problems of wastage and recruitment to ensure that companies have the skills they require. Many very sophisticated statistical models have been developed, based on Markov methods. As at national level, the nature of such planning has changed over the years, with much less emphasis today on mechanistic manpower models. Nevertheless there is a considerable amount of effort devoted to forecasting wastage and assessing future recruitment needs. Most major companies and other large employing institutions are now well aware of the importance of human resource planning. Many now have personnel officers in quite senior positions whose main responsibilities are to deal with such problems.

Section 5 considers how the different political, legal and institutional frameworks in individual countries have shaped the kind of work which has been carried out in each case. A particularly important issue is how these factors have affected the statistical infrastructure in each country. This is dealt with

separately in Section 6. The importance of development of standard systems of classification, the need for regular and detailed employer and household surveys on employment structure and the advantages of electronic access via the internet are discussed. Some of the key methodological issues in employment forecasting are reviewed in Section 7. These include: the limits to our understanding of socioeconomic systems; inadequacies in data; and ending with a brief discussion of various other technical, methodological problems. Finally, Section 8 contains the main conclusions.

2. A general review of employment forecasting

2.1 Background

Employment forecasting first became prominent during the early 1960s when economists were concerned about problems of both structural unemployment and labour shortages. Initially, it was hoped that governments would be able to intervene, especially on the supply side of the labour market, to ensure a balance between the demand for and supply of skills.

The initial optimism of the planners was soon dented, both by technical and practical problems in producing accurate forecasts, as well as a barrage of theoretical criticism, which questioned the whole rationale for employment forecasts. Although these criticisms have been rejected to some extent, the nature of the employment forecasting undertaken in the 1990s is now very different from that attempted in the 1960s. Forecasts of both the demand for (and in a few cases the supply of) skills at national level are regularly undertaken in most of the major OECD economies. However these assessments are very different from the indicative type planning exercises attempted by the pioneers of the 1960s. In particular, the attempt to develop a direct link between the changing pattern of demand for skills and the regulation of the intake into education and training courses has now been recognised as impractical in most countries.

Current labour market assessments emphasise the implications of past patterns of change for the future demand for skills, often using quite sophisticated econometric models. The aim is to present policy-makers with information on the labour market environment that they may face if such trends continue. They may also attempt to assess the effect of different courses of action. The information provided by such assessments is only one of the necessary inputs into decisions about the scale and content of different education and training programmes which government officials, education and training providers, companies and trade unions will need to use in developing their strategic thoughts.

However, current thinking, in most but still not all countries, is that the scale of education and training programmes needs to reflect the demand from *individuals*. In most market oriented economies, the latter are regarded as best placed to make choices based upon a vast range of micro as well as macroeconomic information, which a bureaucrat would not be able to take into account. It is felt in many such countries, that individuals need good labour market information to help them make the best choices.

In countries such as the USA and the Netherlands, very detailed information, including forecasts, are regarded as an essential part of this. In many others more general macro level projections are becoming more readily available and are seen as having an important role to play in making young people and others who make career choices aware of labour market trends. While it is recognised that such information may offer only a broad brush picture of the possibilities facing those making training and career development choices, it can provide an important input for use in vocational counselling and guidance by practitioners who are aware of its limitations.

In practice, such projections will often provide only general guidance on such matters, although in some countries much more detailed information is available. In many (if not most) cases, of course, the labour market prospects in a chosen career path will not be the major factor in an individual's decision. Nev-

ertheless, if such decisions are to be made efficiently, it is important that individuals have the best information available, even if they choose to discount it.

Nevertheless, it is important, right from the outset, to recognise the limitations of employment forecasting. It is important to avoid the pitfall of thinking that it is possible to develop computerised models which can provide accurate predictions of the future demand for training. The lessons from almost 40 years of research caution against this. Despite these caveats, the present author is firmly of the view that formal forecasts can provide useful information for policy-makers and the various actors in the labour market, as long as it is used in combination with other relevant information and its limitations are recognised.

2.2 Employment forecasting: a brief history

Employment forecasting has been undertaken, in one form or another, for many years. The literature in this area dates back at least to the 1950s. Ahamad and Blaug (1973) wrote of the need to review the previous 20 years of experience of manpower forecasting. In carrying out this review, they identified examples of forecasting for all occupations and for single categories of worker in several developed and developing economies around the world. There is now an enormous literature covering work at both a macro and micro level.

The previous work by Tessaring (1998) covered a limited range of work conducted at national level within a few major European countries. Tessaring (1998) referenced a large number of works, including some general reviews, which have explored these issues, such as Eijs (1994), Heijke (1994) and Youdi and Hinchliffe (1985).

A number of other useful reviews have been conducted, to which the interested reader is referred for more detailed discussion, see for example, Hopkins (1988), Hughes (1991), Colclough (1990), Smith and Bartholomew (1988), Meltz (1996), Haskell and Holt (1999) and, most recently, Strietska-Ilina (1999).

The document by Hughes (1991) contains a particularly comprehensive review of many of the technical issues, including details of work in the USA and Canada. Meltz (1996) reviews the position for Canada, while Heijke (1994) contains chapters by many of the leading European practitioners. Haskell and Holt (1999) have brought things up to date with a critical review of the merits and limitations of such work, albeit focusing on the UK experience³. Most recently Strietska-Ilina (1999) has provided a review of practices in France, Germany, Ireland and the Netherlands as well as a number of eastern European countries. The present section attempts to provide a summary of the main features of this literature.

During the 1960s employment forecasting became prominent at national level as economists attempted to advise governments on how to avoid imbalances between the supply and demand for skills, (whether appearing as structural unemployment or skill shortages impeding economic growth). One of the most influential works was done within the OECD-Mediterranean project in the early 1960s, Bombach (1965). At that time it was hoped that detailed employment plans could be developed which could be used to guide policy decisions relating to the provision of educational and training programmes at a very detailed level (i.e. for particular levels of qualifications or skill).

In practice the methods adopted at that time tended to be rather naive and mechanistic. As a result, these early forecasts were usually very inaccurate, especially on the supply side. The typical methods adopted involved linking the demand for particular skills to output projections for different industries, often via some form of input-output model (see for example Parnes 1962). The links were generally a series of fixed coefficients. This assumption was heavily criticised as failing to recognise the possibility of substitution of one factor of production (or skill) for another, (see for example, Ahamad and Blaug 1973).

³ In a paper prepared for the Skills Task Force, which has been set up to advise the UK Government's Secretary of State for Employment.

2.3 Criticisms of employment planning

Many of the early models used for employment forecasting were not explicitly specified in a quantitative form. Such forecasts could not be evaluated by statistical methods (see Ahamad and Blaug 1973). Where quantitative evaluation did prove possible there were often large errors in the forecasts for different occupations. As might have been expected, the errors tended to increase the longer the time horizon of the forecast. Most of the early demand forecasts were derived from fixed coefficient models which were prone to error. On the supply side the forecasts were highly simplistic, with no attempt to examine the implications of variable retirement or wastage rates.

A number of criticisms of the general manpower requirements approach have been offered (see, for example, Colclough 1990):

- that national level employment planning is irrelevant because markets will respond of their own accord to ensure that the correct skills are produced;
- that the fixed coefficient approach is invalid since it ignores the possibilities of economic substitution;
- that inaccuracies in the assumptions will be compounded making the projections of little value;
- that such approaches focused solely on economic considerations without reference to wider social implications;
- that past imbalances were often ignored and carried forward into the projections;
- that the approach did not allow for interaction between supply and demand factors.

Employment forecasters have rejected all these criticisms. With regard to the first criticism, they point to evidence of market failure (reflected in persistent skill shortages, which seem to be a feature in many countries) and to the long-lags in training (which can lead to

temporary but long-lasting imbalances in occupational labour markets).

With regard to the second point they highlight empirical evidence that the elasticity of substitution for skills is low and argue that wage structures tend to exhibit stability over the long term. More recently, improvements in methodology have opened up the possibility of allowing for substitution possibilities explicitly in the econometric models which can be built (although this remains the exception rather than the rule).

The third criticism is rejected on the grounds that the problem of forecasting inaccuracy is not unique to employment forecasting but applies to any economic projections. Evidence does not suggest that employment forecasts are significantly more inaccurate than any others. Moreover, there is considerable evidence that policy makers have found these useful, (see Strietska-Ilina 1999, Borghans et al. 1998 and Meltz 1996).

The fourth point has been answered by introducing a broader range of disciplines into the process and recognising that economics is only one of a number of important considerations to be borne in mind. The fifth and sixth points have been addressed by attempts to deal with these limitations, taking such factors into account explicitly, in a manner which was not possible in the pioneering studies.

More recently, a more general criticism has been characterised by a quotation from a French manager who stated that 'the term planning is imbecilic; everything can change tomorrow' (Mintzberg 1994).

Occupational projections fell into disrepute in France during the 1970s when the fifth and sixth economic plans were blown off course by the oil crisis and subsequent sectoral readjustments. As a consequence, the seventh economic plan abandoned direct confrontation of detailed demand and supply projections, (see Paul 1985). Indeed, occupational projections were omitted altogether from the eighth economic plan. Nevertheless, the demand for occupational forecasts continued, with an in-

creasing emphasis on decentralisation, (see *Commissariat General du Plan* 1991). A review of more recent developments in employment forecasting in France is given in Giffard et al. (1999).

The kind of views expressed by the French manager implicitly assume that planning involves a quite mechanistic process based on the past, that it is more backward than forward looking. However, most practitioners have a much more open-ended view about what planning (and forecasting) can provide. Reilly (1996) sees the process as:

- conscious,
- explicit,
- analytical,
- purposive,
- forward looking,
- dynamic,
- aggregate (broad brush),
- quantitative.

Such a view is certainly characteristic of the philosophy behind much employment forecasting (see for example, Wilson 1994 and Lindley 1994). Indeed, some would argue that one of the main benefits of such activity is in posing the questions rather than providing precise answers (Pascale 1991).

2.4 Employment forecasting in the 1990s

As a consequence, employment planning at national level has continued to be practised, albeit in a less mechanistic and indicative fashion. During the 1990s a growing consensus developed that conventional manpower planning was too mechanistic and inflexible to meet changing economic conditions. Criticisms of conventional employment planning were advanced by Psacharopoulos (1991) and Castley (1996a, 1996b), amongst others. Psacharopoulos (1991) has advocated that manpower planning should embrace a much fuller labour market analysis which would include measurement of wages, wider use of household surveys and skill and educational profiling of the working population. The emphasis has moved away from employment planning towards more general labour market assessment and

forecasting, with the emphasis on anticipating change.

Most developed countries now undertake regular labour market projections. However, these are used more as general aid to policy makers and labour market participants to illustrate the implications of a continuation of past patterns of economic and labour market behaviour for the future, rather than as an indicative input into educational planning. It is emphasised by most practitioners that such assessments should be regarded as a broad-brush guide to the sort of environment that labour market participants and policy-makers may face, rather than a crystal ball. It is notable, however, that in some of the far east 'tiger' economies there is greater adherence to the notion of indicative planning than in many western countries.

In some countries, such as the USA and the Netherlands, more detailed projections are still conducted although these are not carried out with the idea of supporting precise indicative planning of education to match changing demand patterns. There are also many recent examples of employment forecasting at below the nationwide level. These include the development of local area employment models and the production of detailed forecasts for key industrial sectors (e.g. the engineering industry) or important occupational sub-groups (e.g. highly qualified workers).

Employment forecasts can be subject, of course, to wide margins of error but this does not invalidate them, any more than it does other economic forecasts. One of the key problems in all social science forecasting is that the forecast itself may alter behaviour and indeed this is often a key objective (see, for example, Wilson 1994 and Meltz 1996). In any event, as Cairncross (1969) notes, forecasts should not be taken too literally or as telling policy-makers or individuals what to do. They should be treated as one among many pieces of information, which is needed before taking decisions and which can be used to help evaluate the risks to be faced. Employment forecasts can contribute to the decisions which have to be taken with regard to education, training, and choice of occupation by provid-

ing, as Colclough (1990, p.20) argues, 'a detailed, consistent and plausible picture (if properly done) of how the future might look'.

More recently criticisms of employment forecasting have focused on the question of how relevant traditional occupational projections are for both policy-makers and other labour market participants. One criticism was that many such projections failed to recognise the significance of replacement demands (Dekker et al. 1994). More recently, there has been growing concern that the focus on occupations fails to get to grips with the skill requirements that employers have or the skills which individuals need to acquire to gain and retain employment. The response of the practitioners to these criticisms is discussed below (in Section 3.2.1) but essentially they have extended their analysis to include these elements.

3. Methodological approaches

3.1 Alternative methods

There are a number of different approaches that have been adopted to anticipate changing skill needs. Some, particularly the more traditional approaches, involve formal, quantitative methods. Others, especially some of the more recent attempts, are rather less formal and have a strong qualitative emphasis, involving the use of multidisciplinary methods. Such methods are not primarily concerned with precise quantitative measurement. All of the following have been used at different times and in different contexts. The main approaches that have been used are as follows:

- a) quantitative methods:
 - mechanistic/extrapolative techniques,
 - behavioural/econometric models,
 - survey of employers' opinions,
 - skills audits;
- b) qualitative approaches:
 - Delphi techniques (consultation of expert opinion),
 - case studies,
 - focus groups,
 - holistic modelling approaches.

3.2 Quantitative modelling

3.2.1 Traditional approaches to employment forecasting

For many years the dominant technique has been quantitative modelling, using a combination of behavioural/ econometric models as well as more basic extrapolative techniques (where the data are inadequate to apply more sophisticated methods). Typically, quite sophisticated, behavioural models are used, with parameters estimated using econometric methods where the data are good enough to permit. This usually includes the macroeconomic and sectoral employment aspects. More basic extrapolative techniques are used where the data are less adequate, notably for producing more detailed breakdowns of employment by occupation and qualification.

Pioneering work in this area was undertaken in the USA by the predecessors to the Bureau of Labour Statistics (see, for example, Department of Labor 1963 and 1965); in France, where the occupational dimension was included in the fourth economic plan for 1962-65; and in the OECD Mediterranean study (Bombach 1965). This was followed up by work in Canada by the Federal Department of Labour, in Germany by organisations such as the *Institut für Arbeitsmarkt-und Berufsforschung* (Institute for Employment Research – IAB) and in the UK by research conducted by the Institute for Employment Research (IER), funded by the Department for Education and Employment⁴. The US approach is summarised in Figure 1, while a summary of the situation in the UK is given in Figure 2.

A detailed review of the German approach can be found in Tessaring (1997). This highlights the increasing diversity of methods and data sets that have been used to tackle the problem of anticipating labour market change in Germany. The combination of econometric,

⁴ When IER first started its work on occupational forecasting in 1975 it was known as the Manpower Research Group, while the DfEE's predecessor, the Manpower Services Commission, managed the research on behalf of the then Department of Employment.

survey and other approaches is typical of the way the methodology for undertaking employment projections has been developing over the past 10 to 20 years.

Similar work has been conducted in many other European countries. Strietska-Ilina (1999) describes the current positions in France, Ireland, the Netherlands as well as Germany. Tessaring's (1998) review also details models used in countries such as Finland, Germany, Ireland, the Netherlands and the UK. Recent reviews of the situation in France, Germany, Italy, Spain and the UK can also be found in a series of papers produced as part of an ADAPT project, (Blin 1999, Schultze and Reimers 1999, Vergani and Muscella 1999, Antonio 1999 and Wilson 1999).

Other countries have made only limited progress in this area. For example, in Austria the collation of key economic and employment statistics is carried out by the Austrian Central Office for Statistics (ÖSTAT) but this body does not carry out any forecasting work. Rather, organisations such as the Institute for Advanced Studies (IHS) do such research. They use a macroeconomic model (link model Austria, LIMA) to produce a set of highly aggregative forecasts. A second set of forecasts is produced by the Austrian Institute for Economic Research (WIFO) who use a model which is capable of some disaggregation into different sectors. The forecasts of these two institutes are critically important and they are presented regularly to government officials and Austrian social partners. Fuller details on the Austrian forecasting approach can be found in Lassnigg and Mayer (1999).

Important work has been carried out outside Europe and the USA. The main national economic model used to forecast employment in Australia and more recently adapted by South Africa, Pakistan, Thailand, Indonesia and China, amongst others, is the ORANI model. Work on this model began at Monash University in 1975 and the original specification of the multisectoral model was described in Dixon et al. (1982). The features of the original model were a facility for multiproduct industrial sectors, elasticities of substitution between domestic and imported goods and services,

technical change variables for all commodities, very detailed treatment of key distribution and transport sectors and a regional dimension. This basic model format is published as ORANI-G (Horridge et al. 1998), where 'G' stands for the generic version of the model and details are now available on the internet (www.monash.edu.au/policy/oranig.htm).

The Australian model has been extensively revised and upgraded since its inception. The comparative-static framework has been replaced with dynamic equations arising from stock/flow accumulation between capital stocks and investment and also between foreign debts and trade deficits. Other extensions to the basic model have included systems of government accounts and fuller regional breakdown of model results. The present model contains 112 industries (defined according to the Australian standard industrial classification), which map into some 21 broader industrial groups. A variant on the ORANI is the version developed at Monash (Malakellis and Dixon 1994), which exhibits a higher degree of disaggregation for households, occupations, sectors and regions. In particular it yields employment forecasts for some 283 occupations across some 56 regions.

Improvements in modelling techniques have resulted from the significant investments made in IT equipment and data, as well as from the more general advance in economic scientific methods over this period. All of the governments mentioned above have supported such developments indirectly via their funding of academic research efforts in higher education. The latter has also been facilitated by the effects of the IT revolution on the ability to handle increasingly complex statistical problems with increasingly less effort. Statistical and econometric modelling techniques have been particular beneficiaries. In addition, the general process of scientific advance (which has benefited from the massive expansion of investment in education and research and development worldwide) has had a major impact.

The availability and accessibility of labour market data has gradually improved since the early 1970s, again linked to the IT revolution. This has again been a feature common to all

Figure 1: The US approach to labour market forecasting

The US Bureau of Labor Statistics (BLS) has a long involvement with model-building to forecast employment by industry and occupation for at least 10 years forward. Bureau projections are based upon extensive detailed econometric modelling of output and employment relationships. Data are used from a number of different BLS surveys, current population surveys, Bureau of the Census surveys of business, as well as national income and interindustry accounts. Forecasts are produced for some 500 to 1,000 detailed occupations and some 240 industrial sectors (precise numbers vary with particular types of analysis). The results of the projection exercises are published in a number of journals (the key one being *Monthly Labor Review*), as well as on the internet (<http://stats.bls.gov/emphone.htm>).

A full up-to-date account of the BLS approach to employment forecasting is provided in *Bureau of Labor Statistics* (1997). The key component of the forecasts is the input-output accounts which are only updated periodically. The most recent set of US forecasts is based on the 1987 input-output matrix which is projected forward using RAS methodology. Similar problems arise in allocating the final demand product groups to detailed commodities and this exercise requires the use of an updated bridge table. The whole modelling exercise critically depends on the maintenance of regular and consistent time series observations on industry and commodity outputs, employment, hours worked, wages and salaries and critically, on occupational staffing patterns. The staffing information is derived from a series of surveys conducted by individual state employment security agencies. These data are complemented by occupational information provided by federal government employees as well as for self-employed workers, agricultural workers and for those employed in the private household sector.

The efficiency of the BLS forecasts is heavily dependent on the quality of its data inputs to the model. Improvements invariably require the development of new or refined data series. The available data is seen as the major limitation on the forecasting exercise. One of the latest developments in the US has been the coming on line of the O*NET system which has been designed to focus on skill needs in great detail and is intended to provide useful information for careers guidance.

these countries as well as to most other European countries. Although there have been some notable set backs, the overall position in the late 1990s is vastly better than when labour marketing forecasting first started⁵.

A number of early national economic models which contained a significant employment forecasting dimension were reviewed by Hopkins (1988) for the International Labour Organisation. Amongst the models which were examined were the Cambridge multi-sectoral model for the UK, the French and Dutch equivalents, as well as the overall OECD interlink model, which was an attempt to tie together some major economet-

ric models in use across the world. Table 1 provides a listing of the link participants in the early 1980s and so shows the international interest in employment forecasting at this date.

Some of the broad conclusions reached by Hopkins (1988) are worth noting, although developments since the early 1980s have served to invalidate some of the findings. The actual prediction records of the major models were found to be very mixed with the most inaccurate sets of forecasts arising from the interlink exercises. Most models were superior to very naive predictions but many did not inspire much confidence with regard to detailed projections. This of course, was a conclusion from many of the very early indicative planning exercises. Nevertheless, the forecasting models were found to be useful for exploring a range of alternative scenarios rather than for making precise predictions.

⁵ For example, in the UK, a number of major surveys, including the planned 1976 census, were cancelled and there have from time to time been significant cuts in expenditure on many key national data sets.

Figure 2: The UK experience of labour market forecasting

The first serious attempt at employment projections in the UK were produced in the late 1970s using a modified version of a static multisectoral macroeconomic model developed by Professor Richard Stone and his colleagues in the Cambridge Growth Project (CGP). Subsequent forecasts used improved versions of this model which was the subject of a continuous programme of development both by the CGP (and its successor, Cambridge Econometrics (CE), a private sector organisation) and the Institute for Employment Research (IER). National government funding from the Department for Education and Employment (DfEE) and its various predecessors supported this work.

More recently, the emphasis in the UK has changed to the local rather than national level. After 1988 the responsibility for delivering government training programmes for young people and the unemployed passed to the local level. Local organisations have often conducted their own surveys of employer's labour and training needs. Many also commission forecasts. Various software packages have been developed to exploit the data collected by DfEE and made available on National Online Manpower Information System (NOMIS).

Careers guidance companies in the UK have also recently been privatised (previously they were part of local government) and are now taking an active interest in anticipating future labour market conditions on behalf of the clients they advise. They also operate at local level. Moreover, education and learning suppliers (colleges, universities, etc.) have been charged with the responsibility of ensuring that the courses they provide are relevant to future labour market needs.

Recently, a new series of Industry Training Organisations (ITOs) have been set up in the UK, operating at national level. These include the Construction Industry Training Board (CITB) which is the ITO for construction and the Engineering and Marine Training Authority (EMTA) which covers engineering. Others cover areas such as agriculture, distribution and security services.

The Skills Task Force is a national body set up by the Secretary of State for Employment in 1998 to assess the UK's future skill needs. It has members from a broad range of companies although it is not intended to be representative. It has commissioned a number of research studies including a major project on skills deficiencies. This research is intended to identify the nature, causes and implications of skills deficiencies in the UK. It involves an eclectic set of research methodologies, including in-depth case studies, large-scale survey work and econometric analysis.

Specification in these early models varied quite markedly and it was subject to much change. Several models used a mixture of econometric modelling combined with expert subjective judgement. A strong case could be made for better specification and the incorporation of a fuller set of labour market variables. Estimation techniques have improved very significantly since the early 1980s and, taken together with greatly enhanced computing power, this has enabled far superior model specifications to be produced. Most of these models were restricted to macroeconomic and employment forecasting, by sectors, although a number have been extended to include further characteristics such as occupation and qualification.

During the 1970s and 1980s many of these countries' governments invested heavily in macroeconomic model development⁶. In the USA and Canada, such work has been undertaken directly by the government. In Canada the work of the Federal Department of Labour

⁶ In the UK, this included major programme grants (via the Economic and Social Research Council and its predecessors) to various organisations for the development of general macroeconomic models, as well as the DfEE's own support for work specifically concerned with the labour market. This was substantially reduced in the 1980s and the 1990s due to cutbacks in public expenditure. Currently the DfEE is supporting such activity through the auspices of the Skills Task Force set up by the Secretary of State for Employment.

Table 1: Interlink participants in early 1980s: models for labour market forecasting

Models for OECD countries	
Australia	University of Melbourne
Austria	Institut für Hoehere Studien, Vienna
Belgium	Université libre de Bruxelles
Canada	University of Toronto
Denmark	Danmarks Statistik, Copenhagen
Finland	Bank of Finland, Helsinki
France	INSEE, Paris
Germany, Federal Republic of	Universität Hamburg
Greece	KEPE, Athens
Iceland	LINK Central, Philadelphia
Ireland	Central Bank of Ireland
Italy	Università di Bologna
Japan	Kyoto University
Netherlands	Central Planning Bureau, The Hague
New Zealand	Reserve Bank of New Zealand
Norway	LINK Central, Philadelphia
Portugal	LINK Central, Philadelphia
Spain	Universidad Autónoma de Madrid
Sweden	Stockholm School of Economics
Switzerland	Université de Lausanne
Turkey	LINK Central, Philadelphia
United Kingdom	London Business School
United States	University of Pennsylvania/WEFA, Philadelphia
Yugoslavia	LINK Central, Philadelphia
Models for centrally planned economies	
Bulgaria Czechoslovakia German Democratic Republic	} United Nations
Hungary	University of Lodz
Poland	Market Research Institute, Budapest
Romania USSR	} Wharton, EFA, Philadelphia
China	Stanford University
Regional models for developing countries	
Africa Asia Latin America Middle East Pacific Far East	} United Nations

Source: Hopkins (1988).

has been carried forward by Human Resources Development Canada (HRDC), which is a part of the federal government. In the USA the BLS's work in this area has gone from strength to strength. In the UK, the Institute for Em-

ployment Research (IER) an academic research unit has conducted this work for most of the past 25 years, while in Germany and France a combination of academic and public research institutions have led the way.

The approaches to generating national projections have gradually been refined and improved in parallel with the development of macroeconomic modelling more generally. These improvements have resulted from:

- significant investments in methodological advances;
- improvements in techniques and understanding;
- huge increases in the ability to handle and process data;
- improvements in the availability and accessibility of data.

Many of these elements are interconnected and related to the general effects of the IT revolution.

3.2.2. Spatial disaggregation

The approaches adopted in most countries involved the development of national models covering all sectors. From an early stage such analyses have often also included a spatial (regional) dimension.

In the USA, separate results for individual states have been produced for many years. In Canada, although the initial work focused on the national level, demand for more local information soon led to the addition of regional/provincial dimensions (Meltz 1996). Many of the results for other countries, including France and Germany also include regional dimensions.

These developments reflect both institutional factors and data availability. In the case of the UK, for example, detailed analysis of the standard regions of the UK (which include Wales, Scotland and Northern Ireland as well as the nine regions of England have been conducted for many years. However, the UK regional projections only covered sector and not occupation until the early 1990s. The reintroduction of occupational projections at regional level in the UK reflected the shift in emphasis towards local provision of education and training programmes, with the introduction of the Training and Enterprise Councils (TECs and the corresponding LECs in Scot-

land). More recently this has led to the further narrowing of the geographical scope to a focus on the areas covered by the new regional development agencies.

In France, every region has, since the late 1980s, had a regional employment and training observatory (OREF). These were intended to develop decision-making tools to allow the linking of analysis, data and forecasting for education and training in support of decentralisation. In Germany, the importance of the local dimension has also long been recognised, the role of the *Länder* in education and training provision being critical. These examples highlight the importance of the political, institutional and legal contexts in shaping both what is regarded as desirable as well as what is feasible.

3.2.3. The 'demand' for skills

The demand side of employment forecasting has adopted a variety of different methods. The most common method involves some form of econometric macroeconomic model. In the early days the fixed coefficient, 'Manpower requirements' approach, was the most common method of dealing with the demand side. As noted above, this usually involved making a series of links from gross national product (GNP), or other measures of individual industry output, to employment. From there, further links to the demand for particular skills, were made, usually focusing on occupations. In most of the early employment models the latter links were all in the form of fixed coefficients. More recently the models used have been more sophisticated, allowing for changing coefficients and responses to economic variables such as prices and relative wages.

Details of the methods used have been summarised in Tessaring (1998) and in the earlier review by Hughes (1991), so they are not repeated here. It is perhaps worth noting that most of the early models concentrated on just two main dimensions: industry (or sector) and occupation⁷. More recently, there has been

⁷ Having said that, many of the very early studies also had a focus on educational requirements, including qualifications.

more effort to add a third dimension relating to qualification, skill or educational requirements, although such efforts often remain constrained by lack of adequate data.

In the early 1990s criticisms of employment forecasting have focused on the question of how relevant traditional occupational projections are for both policy-makers and other labour market participants. One criticism was that such projections failed to recognise the significance of replacement demands (Dekker et al. 1994). It was emphasised that projections of occupational employment levels failed to recognise the need to replace those leaving the workforce for retirement and other reasons. This has now been remedied in many models (for example, the current models for the Netherlands, the USA, Canada and the UK all now deal with such matters explicitly).

More recently, a key feature of much work has been the focus on key or generic skills which go beyond the straight-jacket imposed by traditional occupational classifications, to look at the skills needed to do various tasks. There has been growing concern that the focus on occupations failed to get to grips with the skill requirements that employers have or the skills which individuals need to acquire to gain and retain employment. The Department of Labor in the USA has been developing the O*NET database, which identifies, defines and describes various aspects of occupations, including the various generic skills typically associated with each job. Much of this information has been made available on the Internet. In the UK the Skills Task Force has also been taking a strong interest in such issues and a number of recent studies have attempted to grapple with this issue (see, for example Haskell and Holt 1998). Green (1998) has tried to demonstrate the value of different types of key and generic skills using hedonic wage equations, while BSL (1998) have tried to apply such concepts directly, in a skills assessment exercise for Wales. In Germany the IAB has used employer surveys to get more detailed information on the nature of jobs but this has tended to focus more on functions, such as R&D, rather than key skills (such as IT skills).

Thus the simple notion of concentrating upon just two (or three) key dimensions (industry, occupation and possibly qualification) is now being superseded by a multidimensional approach. This involves the use of terms such as functions, tasks, abilities, personal attributes, characteristics and generic skills. In many cases the precise use of these terms has yet to be widely agreed. Until they have been standardised, as is the case for industry and occupation, these dimensions will remain difficult to operationalise. Nevertheless, there seems to be widespread agreement that the two or three dimensional approach adopted in most traditional forecasts, will become increasingly irrelevant to policy-makers and individual labour market actors alike.

3.2.4 Employer surveys

The main alternative approach to anticipating changing skill needs has involved surveys of employers. To many people, it seemed that the obvious way of assessing employers' future skill needs was to go out and ask them directly. In the early days of 'manpower planning' and up until the late 1960s and early 1970s, this was a very popular approach. However, it was the subject of especially strong criticism. This centred upon the lack of any firm theoretical foundation as well as the practical problems of ensuring that all respondents to the survey were adopting common assumptions about the future scenario and that their responses were mutually consistent. For example *all* the firms in an industry cannot increase their market share *simultaneously* (see for example Ahamad and Blaug 1973). It fell into disrepute when projections produced for organisations such as the UK's Engineering Industry training Board (EITB), relating to engineering skills, turned out to be highly misleading. Lack of consistency in the underlying assumptions adopted by the respondents, and in particular conflicting views about future market share, resulted in very inaccurate projections.

Rajan and Pearson (1986) revived such methods in the UK in the mid-1980s. Theirs was a major survey of companies at national level. It was as much concerned with reviewing current trends and their causes as making pre-

dictions for the future. It also took a more qualitative than quantitative emphasis than many of the previous survey studies. Their work showed that this approach could, if used with care, produce useful results. Their main value is where the available data are inadequate to build more sophisticated time series econometric models (and as such they are still widely used in developing countries).

This contrasts with the results from a number of recent employer surveys commissioned by TECs in the UK to provide information and intelligence on key issues of concern to themselves and their local economic development partners. Some of these surveys have been of a very ad hoc nature and have produced data of dubious quality.

Others have been conducted in a much more structured and thoughtful manner and have both avoided the worst pitfalls of such approaches and provided valuable insights. A good example of the latter in the UK is the London TEC's employer survey (London TEC Council 1998). This generated a range of information on current structure and performance and immediate future prospects. The results focus on size of firm as a key issue but also move well beyond simple issues of quantitative changes, attempting to discern what is driving the observed changes. Issues of location of plant and inward investment are a key focus. However, the general consensus has been that such surveys can only provide useful indications for a very short period ahead.

There has been something of a revival of interest in this approach in recent years in the UK, with many TECs conducting regular surveys of the employers which they serve. However, these surveys are concerned with a range of issues and often do not attempt to obtain hard quantitative data on future skill demands.

Such approaches have also been popular in a number of other European countries where data from national/official sources are inadequate or do not exist (see for example Vergani and Muscella 1999 and Antonio 1999). However, they can also be an important complementary element to more quantitative mod-

elling approaches. For example, the work of Prognos and the IAB for Germany since the mid 1980s has also made use of such survey results (see Tessaring 1997). They also form an important element in the French approach (Giffard et al. 1999).

Although the value of the employer survey method for obtaining direct *quantitative* data on future requirements has been brought into considerable doubt, it can still have some value in obtaining a more *qualitative* picture about the state of a particular labour market. In such a guise it may have much in common with so-called 'Delphi' techniques used to assess future prospects in areas that are hard to quantify. This approach relies on obtaining a consensus of expert opinion. This method has seen renewed interest in the late 1990s as researchers and policy makers have sought to add value to the basic quantitative approaches based on econometrics. Another aspect which has been given considerable attention in recent years, is the use of such surveys to obtain data about detailed aspects of employers' skill requirements, including information on, so called, key generic skills (see for example Mori et al. 1998).

3.2.5 Modelling supply

On the supply side, the typical approach has been to develop simple stock-flow models relating the total stock of employment in period t to that in period $t-1$, using an accounting identity linking the main inflows and outflows to the stock. Supplementary models to determine the proportion of the stock that is economically active (and if it is a particular occupation that is of interest, the proportion actively engaged in that particular job) have also been used. The main outflows considered are those due to death, retirement and other exits from the workforce and emigration. The main inflows relate to the flow of new entrants (qualified as appropriate), reentrants to the workforce and migration. If the focus is on particular occupational categories, then interoccupational mobility also needs to be considered. These approaches drew upon micro level company planning procedures, where often very comprehensive and detailed data were available to estimate and model such flows and transitions.

At national level, quite sophisticated systems of demographic accounts began to be constructed in the 1960s in many countries. These were intended to parallel the national economic accounts. However, lack of government interest in most countries (with one or two notable exceptions, such as the Netherlands) has meant that these have not been developed to anything like the same extent as the economic and financial accounts. As a result employment models have not flourished to the same degree as the macroeconomic models based upon the economic data. Nevertheless, employment forecasters have made attempts to fill the information gaps from various ad hoc surveys and to build models which allow for some response in flow and activity rates to economic and other factors.

In the more sophisticated models, detailed econometric analysis of time series data has been undertaken to explain historical changes in rates of flow and economic activity rates, with a view to projecting them into the future. Where data are more limited these rates are assumed fixed or extrapolated from a few observations. Data limitations have meant that in most countries the more sophisticated models are restricted to particular occupational categories, where good information on the various stocks and flows are available (see for example the treatment of highly qualified occupations in Wilson et al. 1990). Only where particular emphasis has been placed on collecting and analysing such data have more general models been developed covering all occupations (see for example the work of Heijke 1994 and the contributions for Germany, Netherlands and the UK in this reader).

It is also worth mentioning that so called skills audits (generally based on surveys of qualifications held by individuals) have also been widely used in recent years to establish the stock of skills available in particular local areas. These are surveys of households rather than employers. They are primarily concerned with assessing the supply of skills rather than the demand side of the labour market. However, such surveys can play a useful part in obtaining a complete overview of the supply demand balance.

3.3 Qualitative Methods

A variety of different types of study and approaches can be considered under this heading. They share in common the fact that they are not primarily concerned with obtaining precise or comprehensive *quantitative* measures of employer's skill requirements but rather a broad brush assessment of current trends and future possibilities. At the same time such studies can often involve a very detailed analysis of the particular circumstances affecting the sectors or occupations under review. They can be very useful in situations where the statistical infrastructure is not good enough to support quantitative model building.

Such methods are being employed in many countries to complement more traditional quantitative approaches. In France, for example, Giffard et al. (1999) describe the use of a variety of techniques to monitor and anticipate change. These have been increasingly popular in France since the more mechanistic quantitative approaches to planning fell into disrepute after the oil crisis of the 1970s and early 1980s. They often involve the input from a number of social partners as well as labour market analysts.

Such methods have also been widely adopted in a number of southern European countries, which do not have such good labour market statistics as some of their northern neighbours (see for example, Vergani and Muscella 1999 and Antonio 1999). Such methods do have some advantages compared to more quantitative ones (which can sometimes give a misleading impression of precision). They have therefore also been used to complement the quantitative methods.

The Delphi approach to forecasting involves pooling the opinions of a number of people (possibly experts of some kind) in order to try to identify the key issues. This can be done in a variety of different ways. The classic method is to bring the experts together in a suitable forum to exchange views and hopefully to develop some form of consensus. Another approach is to interview people and discuss the matter, possibly in a structured fashion. This

can be used to develop 'case studies', which can have some general messages. In this case the researcher/interviewer may be the only one to hear all the views expressed. They have then to make sense of all this, sometimes conflicting, information.

The UK's National Institute for Economic and Social Research has established a long and distinguished track record of such work (see, for example, the various works of Prais, Mason and Steedman listed in the bibliography). Such studies tend to focus primarily on the current situation and often involve detailed international comparisons. Anticipation of future change is generally very qualitative. Nevertheless this can add important insights which complement and support the results of more quantitative projections. This kind of approach has also been adopted in a number of other countries.

Another method, which has become increasingly popular, is to arrange 'focus groups'. Discussion of the topic of interest is then arranged, possibly based around material submitted in advance and possibly involving some kind of facilitator to prompt and structure the discussion. This type of approach is a feature of an ongoing EC ADAPT project being conducted by the UK's Engineering and Marine Training Authority (EMTA 1998). This has also involved partners in other Europe. Many other projects of a similar nature are being conducted across Europe under the auspices of the ADAPT programme. This type of approach has also been adopted in many other studies such as the UK's Merseyside economic assessment (KPMG 1996).

3.4 Non-traditional modelling

A number of analysts have attempted to develop less quantitative, more holistic approaches to assessing long-term futures. Such work is often focused on the notion of sustainable development and social cohesion. In the UK, the Henley Centre study of the future of work in London is a good example (see London TEC Council 1998).

In the Henley Centre approach, local competitiveness is viewed as a function of social cul-

tural and environmental factors as well as purely economic ones. Both long and short-term drivers of competitiveness, thus broadly defined, are distinguished. These are proxied by around 50 different indicators to operationalise the concept. The model does not deliver precise predictions of changes in levels of economic activity. Rather it represents a policy tool for exploring long range issues, developing various scenarios and strategies. Applying the model to London enables the different challenges facing each of its 33 boroughs to be identified and appropriate policy responses to be developed, including implications for skills.

3.5 Focus on local forecasts

As noted above, during the late 1980s and early 1990s, the emphasis in many countries has switched to a more local focus. In part this was supply driven. Improved access to local data, combined with ever increasing computing power, made development of local projections, linked to a national macroeconomic forecast, both easier to conduct and cheap. Much local research has attempted to replicate what is done at national level. However, what is practicable is clearly constrained by the data available. There has also been strong pressure demanding such local emphasis and involvement, many practitioners regarding this as essential if the results are to have practical value.

In France, the emphasis since the early 1980s has increasingly focused on the Regional Employment and Training Observatory (OREF) as a mechanism for analysis of current and future training needs. These observatories have developed a range of methodologies for translating from sectoral change, through occupations and qualifications to training needs. Much of this remains quantitative in approach, but the idea that indicative economic planning of educational needs can be achieved, has been abandoned in favour of a more qualitative multi-disciplinary approach to such issues (Giffard et al. 1999).

Initially, most local projections were fairly rudimentary. A typical approach was to simply apply employment growth rates taken from a national or regional economic forecast to some base year estimates of employment in the lo-

cality. In the UK, for example, such procedures were formalised by IER in the early 1990s with the development of a software package for local forecasting (Wilson et al. 1995). This package was designed to be run on a PC by the local operator. It could be used to develop a variety of employment scenarios for the locality, linked to a particular national/regional forecast produced by IER on an annual basis. Detailed sectoral data for the locality were based on official data, distinguishing around 50 industries. Default employment forecasts for each sector were based on the assumption that the local sector maintained a fixed relationship with the corresponding regional employment figure. Occupational results were spliced on to this by extrapolating the local area's occupational structure within each sector in line with national or regional trends. Various options were possible to enable the user to customise the results, taking into account local quantitative and qualitative information. A similar package based on a spreadsheet approach was developed by Portsmouth Polytechnic (Brettell and Jaffrey 1990). This also included a Leontieff input output employment matrix, enabling rudimentary impact analyses to be conducted.

Rapid advances in computer technology and software, including the adoption of Microsoft Windows as a virtual standard, have facilitated the development of much more sophisticated approaches. In a joint operation with Cambridge Econometrics (CE), the IER developed the first version of the Local Economy Forecasting Model (LEFM) in 1993 (Wilson et al. 1995). This took the basic ideas embodied in the Fortec and the Portsmouth models forward on a number of fronts. The new package was designed to provide local users with a complete economic and labour market model for the local area, constructed as a mirror image of the models used by CE/IER at national level. LEFM provides a detailed disaggregated database, covering all of the usual economic and labour market indicators for the locality. These are all linked by the same kinds of technical and behavioural linkages which one would expect to find in a national model, including a full input output matrix. Corresponding data are also provided within the package for the region within which the local area sits and for

the whole of the UK. Links between the local area and the rest of the world are dealt with by modelling the flow of goods and services and of people across the local boundary. The package operates in a Windows environment. It has been designed to be transparent and easy to operate. The results produced are readily accessible and designed for input directly into written reports such as the 'local labour market assessments' which TECs were legally obliged to produce.

LEFMs have been set up for over 100 local areas in the UK since the model was first developed. The main clientele has been TECs. However, the package has also been supplied to local authorities, careers guidance companies and a variety of other clients. It has been used to produce the economic and labour market forecasts which lie at the heart of very many 'local labour market assessments' and related reports. Versions of LEFM have also been set up for countries outside the UK, including Germany and Spain. Emphasis on local forecasting has also been a feature of work in many other countries although this rarely has the same quantitative, model based, emphasis as the UK research.

4. Company level employment planning

4.1 Background

Companies and other employing institutions also have an obvious interest in monitoring their workforces and assessing the implications for recruitment of such factors as the age structure of the workforce, wastage rates, and changing patterns of demand. Indeed the genesis of national employment forecasting can be regarded as work carried out at individual company level. Company level 'manpower planning' (as it used to be termed or personnel planning to use a less sexist term) is now a well established management function. Larger companies and employing institutions often have a specialist personnel manager in quite a senior position to undertake this function.

At the company level, the range of models and methods is, of course, even broader ranging

from very simple rules of thumb to quite complex models paralleling the national level ones described above. These tend to focus more on the short-term than the national models, reflecting the different interests of governments and individual companies. The former are generally more concerned with the longer term development of the economy and the provision of education and training programmes, which involve long lags between entry and qualification. They are therefore much more interested in projections five to 10 years ahead. Companies, on the other hand, often tend to be more concerned with immediate problems connected with recruitment and wastage.

Where the focus is more upon the short term, the assumptions of fixed coefficients are more sustainable. However, the longer term the forecast being undertaken, the more important it is to recognise that such coefficients may be changing because of long-term trend influences as behaviour responds to changing economic circumstances.

There is an enormous literature covering these topics, much of which is far too specific to be of general value, given the aims of this particular review. Nevertheless, it is useful to provide a brief overview of some of the key issues.

4.2 Statistical methods in use

Bartholomew, Forbes and McClean (1995) give a comprehensive review of the various techniques in use to produce company manpower forecasts. This review greatly expands on the earlier work of Lewis (1969) in this area. A great deal of the literature is very mathematical in content, see Vajda (1978), and a large number of the papers appear in statistical or operations research journals. A good summary of the earlier work in company manpower planning is provided by Smith and Bartholomew (1988).

The starting point for most traditional company manpower models is the existing stock of labour resources and the wastage flow from their stock. The mathematics of Markov chains provide a ready modelling framework

for predicting such flows. As personnel record systems have improved and new statistical developments in survival analysis have evolved, semi-Markov processes in continuous time have become established. An age-specific approach can be used, rather than just a job tenure-specific method and this model is used to explore alternative scenarios, when an analysis of career patterns is taken into account. The demand side of manpower forecasting calls for a different approach because it is primarily concerned with jobs rather than people. There is no clear-cut demand model to set alongside the Markov processes which are used to model the supply-side, because the demand determinants at company level are very diverse, depending on the organisation.

Marked differences are apparent between the demand for employment in the traded sector (e.g. manufacturing companies) and the non-traded sector (e.g. local government or the health services). There is now a huge body of work about planning in areas such as health services, education services and government administration. Much of this is in the public domain. However, it tends to focus on sector specific concerns. The work in companies operating in the traded sector is extremely diverse. Much of it is highly technical and falls within the boundaries of operational research rather than the broader economic and social science which underlie the national work. A problem in this area is that much of this research is not made public because of concerns about commercial confidentiality.

Where the time series of data is long enough and of sufficiently good quality, regression modelling can be used. Alternatively, if information on causal variables is lacking, a simple trend extrapolation approach can be applied. In its more sophisticated form the autoregressive moving average class of models (ARIMAs) developed by Box and Jenkins (1970) may be used. A common problem at company level remains the relatively short time series of consistent data on which such models can be based. As databases of employment records have developed, opportunities to build better demand-side models for specific company occupations have increased.

4.3 Other methods used to project company demand

Reilly (1996) has recently described some more general and less quantitative approaches to assessing company employment demand. Amongst the methods are work study, which establishes optimal levels of resourcing for planning levels of operation. Associated with this technique, is activity analysis, that can be used to identify the numbers of employees needed for specific tasks. Both methods presuppose the company can accurately determine its future scale of operations from market output forecasts.

Other approaches which could be used are ratio analyses, which assume a fixed relationship between sales volumes and the numbers employed in specific occupations. Such an approach could be amended to allow for productivity growth. Another method is to use benchmarking, whereby staffing in comparable factories and offices is used as the criteria for determining appropriate employment levels.

In many smaller companies demand forecasting (both for output and employment) is achieved by subjective judgement of the senior managers. The criteria for making such judgements is never made explicit, so that forecasting errors cannot be reviewed and there is little opportunity to improve predictive performance from past experience.

4.4 Evaluation and improvements in company employment planning models

Commercial confidentiality shrouds many of the models produced by the corporate sector and so, it is not possible to assess how well they perform in terms of predictive accuracy. As the sophistication of supply-side modelling has increased, the prediction of changes in the existing stock of employees is likely to have become more efficient. Difficulties remain with the models for forecasting demand changes and it seems likely that the shortcomings in this area will be similar to those encountered for the national employment forecasting approaches (see Section 2.2).

Company employment planning models continue to be a valuable tool for the planning of human resources and the development of suitable training and education strategies. The literature continues to produce papers from many different countries which demonstrate the evolution of models used for forecasting employment at varying levels of aggregation. Two recent such studies are the papers by Khoong (1996) and Kao and Lee (1998).

5. The importance of the political, institutional and legal contexts

It is important to recognise that there are significant differences between countries in the approaches to these issues. These differences reflect both different cultural, historical and institutional backgrounds (which influence the general approach to such problems), as well as more specific differences related to data availability (which can constrain what is feasible). It is notable that the availability of good labour market data tends to be positively correlated with levels of national income and wealth. Although it is clear that the higher are national income levels the easier it is to afford what can often be quite expensive data collection and processing activities, a case can also be made that causality may run in the other direction. In other words good labour market information can improve the operation of the labour market and thereby contribute to economic growth and the creation of wealth.

This is certainly a major part of the rationale for the very substantial investments in this area made by the Department of Labor and, in particular, the Bureau of Labour Statistics in the USA. Although the USA is perhaps the classic example of a modern, capitalist economy, both the federal and state governments see fit to invest very heavily in data collection, modelling and forecasting. The situation in many of the richer European countries is similar although few make such large investments as the USA. In other parts of the world, such as the Tiger economies of the Far East, many governments are also

putting considerable emphasis on planning for investments in human capital.

The quantitative, econometric model building approach to anticipating skill needs has probably been most popular and been developed to the greatest degree in English speaking countries. However, many of the countries in northern Europe have also placed considerable emphasis on this approach, including France, Germany, the Netherlands and a number of Scandinavian countries. In a number of cases, they have built on the experience of countries such as the USA, adding their own particular characteristics, reflecting the national institutional framework and the statistical database in their country. In many respects, this has resulted in unique developments, but ones which, in principle have important lessons for other countries.

In the Netherlands, for example, the work of the Research Centre for Education and the Labour Market (ROA) (see, for example, Heijke 1994 and Borghans et al. 1998), has been very innovative. However, it is closely tied to the particular data available in that country, much of which is not collected in the same form elsewhere. The emphasis in ROA's work has been on providing detailed careers advice to individuals. This has shaped its methods and models, resulting in a very detailed emphasis on occupations and educational levels.

In a number of countries in southern Europe, (for example, Italy, Spain and Greece) data systems have not been established to enable the kinds of modelling work conducted in other countries to be carried out, (see, for example, Vergani and Muscella 1999 and Antonio 1999). The approaches adopted there are therefore more qualitative, and based on ad hoc surveys and other methods of obtaining data.

In the UK, the national government has also supported the development of employment forecasting, albeit not in quite the same manner or to the same degree as in the USA or Canada. It provides a good example of how institutional and other constraints influence the nature of the work conducted. The Depart-

ment for Education and Employment⁸ (DfEE) is the national government department responsible for labour market and related issues. It has for many years collected and analysed labour market data based on a range of different sources (unemployment statistics, estimates of employment vacancies, pay and other key labour market indicators)⁹.

The DfEE itself carries out some of the analysis of labour market data, but it has a long history of commissioning research on the labour market, including forecasts of future labour demand. Academics and commercial consultants have undertaken this work. In particular, the Institute for Employment Research (IER) received support for developing and running a sophisticated econometric model of the national economy over many years, starting in 1975. This resulted in the production by the IER of an annual review of the economy and employment which looked at future trends in the labour market. This programme of work is described in Figure 2 above. The UK National Skills Task Force has recently recommended that such work be carried out on a regular biennial basis, supported by public funds¹⁰.

⁸ Formerly the Department of Employment.

⁹ These are collated and published in *Labour Market Trends* (formerly *The Employment Gazette*) and related publications. In addition, the DfEE is responsible for commissioning the labour force survey (LFS) as well as various other evaluations of specific training programmes and policy initiatives. As in other European countries, the LFS was instigated in response to the need to provide statistical data for the European Commission. More recently, it has developed into one of the major sources of labour market data, which is widely used by a vast range of analysts as well as government officials.

¹⁰ There are, therefore, a variety of well-established mechanisms for analysing, identifying and forecasting labour market trends and skill needs in the UK. However, the reliability of estimates based on some of the national surveys (often adjusted to reflect regional conditions) may be questioned. Moreover, the fragmentation at local level means that the quality of information can vary a great deal from one locality to another. The position, in general, remains less well developed than in the USA.

6. The importance of statistical infrastructure

In addition to investment in general economic modelling techniques, through support of research in universities, various national governments have also provided technical support for anticipating skill needs in a number of other ways. The key elements here have been:

- ❑ the development of standard systems of classification;
- ❑ the introduction of regular national surveys of households and employers;
- ❑ the development of means of access to these datasets electronically.

In many countries attempts have been made to develop standard systems of classification for both occupations and qualifications. Such systems are an essential prerequisite for the development of the sound statistical databases which in turn are basic building blocks for robust modelling and forecasting work.

In the USA the current focus of attention is on developing systems for classifying generic skills such as numeracy, literacy, problem solving, social skills, etc. Such developments are in hand in the UK but at a less advanced state. Other European countries, including France, Germany, the Netherlands and Sweden, have seen similar developments.

Sectoral information lies at the core of most macroeconomic models used for employment forecasting. This requires data on employment, of course, but also a range of other data if a fully specified macroeconomic model is to be developed. In most countries, where they are available, such data are based on surveys of establishments. A key issue is whether such data are available at regional and local levels. Without such information development of subnational models and forecasts is greatly constrained. Some countries are well served with regard to such data. The BLS in the USA, for example, conducts a range of very detailed sectoral and occupational surveys. In Ger-

many the *Mikrozensus* (labour force survey) and the establishment panel provide key inputs (cf., for example, Dostal 1999 and Bellmann, in this report).

Until recently, information on occupational structure was, in many other countries, only available from the Census of Population which is usually only conducted rather infrequently (typically every 10 years). For example, until the European labour force survey (LFS) was properly established, with reliable information on occupational employment, the main source of data on this topic in most European countries was the Census of Population (CoP). Other surveys may have contained occupational data but this was not their central purpose and they were inappropriate for many reasons. Even today there are severe problems of comparability both over time and between countries, despite moves towards the use of international standards such as ISCO. Perhaps the most problematic feature has been the lack of a standard system for classifying occupations. Considerable efforts have been made in many countries to standardise such systems across all major surveys, but at present the differences between countries remain significant.

The European LFS is conducted in a broadly similar fashion in all the countries of the European Union. The gradual improvement in the European LFS, and in particular its recent increase in sample size, mean that it is now a prime source of data on occupations. However, it is still limited in its ability to provide accurate data for small geographical areas. Compared to the huge survey of establishments conducted by the Bureau of Labour Statistics (BLS) for the USA, the European LFS provides a very fuzzy and erratic picture of trends in occupational structure. Further improvements will be needed here if models comparable to those described for the USA are to be developed across Europe.

Other data sets also need to be made more accessible and to move towards a standard system of classifying occupations. Such developments could dramatically improve the ability of researchers to monitor trends in occupational and related matters. However,

surveys available in most European countries remain inadequate compared to the much larger surveys conducted by the BLS in the USA which provide a much more accurate picture of skill mix and occupational earnings within sectors.

A major development in making labour market information (LMI) more accessible has been the introduction of systems such as the American Labour Market Information System (ALMIS)¹¹. Such national systems, funded by the government, are designed to allow analysts and others direct access to various datasets containing labour market information, via the internet. These datasets include censuses of population, surveys of employers, household surveys and surveys of earnings. The availability of ALMIS in the USA has led to a vast expansion of activity related to the processing and dissemination of LMI, including the development of a range of commercial services aimed at providing a forward look at the labour market, and an enormous growth of activities based on accessing, processing and disseminating these data.

7. Problems in labour market forecasting

It is important to recognise the limitations of what can be achieved using current best practice methods. Even the most sophisticated models available suffer from a range of problems. Some of these are, in principle, things which might eventually be solved. Others are likely to remain intractable for the foreseeable future. These problems can be discussed under three main headings:

¹¹ Similar systems have been developed in some European countries. The equivalent in the UK, for example, is the National Online Manpower Information Service (NOMIS). In the UK charges are imposed for access to these data, with different rates for commercial and academic use. NOMIS allows detailed data to be obtained for quite small geographical areas, such as local authority districts (of which there are almost 500). However, there are some limits imposed by DfEE because of reasons of confidentiality as well as other constraints imposed by considerations of statistical reliability.

- a) limits to understanding,
- b) data inadequacies,
- c) methodological difficulties.

7.1 Limits to understanding

The world is a very complex place. Most socioeconomic variables are the outcome of the decisions and actions of many different individuals and institutions. Chance factors, acts of God, in addition to well laid plans influence the eventual outcome. In developing models to explain behaviour, the objective is to identify and isolate the key factors which are held to affect the variable of interest. This is often much easier said than done. It is often quite difficult to disentangle the various influences which are thought to be important.

Most models are set up on the basis that behaviour is fixed. This itself may be a questionable assumption, especially in the social sciences. Behaviour may alter in response to new events or changes in exogenous variables (that is variables whose own determination lies outside the system being modelled). In some cases behavioural relationships may lie hidden because previously unexperienced influences come into play. A good example of this was in macroeconomic models used to explain aggregate consumption during the 1970s. These failed to include inflation as an explanatory variable until inflation reached significant levels in the 1970s. Inflation had always been a potential influence but its effect remained hidden while it was not at a high level. Until this was recognised by the modellers, their models produced biased forecasts.

In producing any particular forecast a view must be taken about any exogenous factors that may be important. For example, government policy is frequently regarded as exogenous because of the difficulties in modelling the political process. This does not mean to say that such matters are unimportant. Typically, the sensitivity of the forecast to alternative assumptions about such matters is assessed by developing a range of scenarios rather than just a 'fixed point' forecast. Major economic traumas in the rest of the world economy may need to be dealt with in a simi-

lar fashion. Few national employment forecasters attempt to model explicitly what is going on in the world economy, even though it may be a key driver of domestic employment.

Some other, non-economic events, such as earthquakes, may also be regarded as 'unforeseeable' in the context of forecasting the labour market. Such 'acts of god' are regarded as inherently beyond the understanding of the model (although in another context geologists may make serious attempts to forecast such events).

7.2 Data inadequacies

A major problem area in much forecasting work relates to data. This may reflect lack of data on key variables, for example, accurate and detailed data on occupational employment and occupational earnings, as well as many important labour market inflows and outflows. It may also reflect inadequate data in terms of timeliness, accuracy and fitness for the purpose it is being used. Frequently the data available are lacking (for example, labour market flows). Often they have been collected for a different (often administrative) purpose and are therefore less than ideal for the development of a forecasting model. There is no substitute for good quality, regular information. Unfortunately it is often not until model building has begun that it is possible to accurately identify data requirements. In the first instance, of course, it is necessary to do the best one can with whatever data are available. Data problems remain a key constraint to the development of employment forecasting tools in many countries. While a few, such as the USA, have very good systems, many others, including many European countries have to muddle through using what limited data are available. In other countries, even the basic data needed to build detailed multisectoral models (such as detailed measures of sectoral output and related economic accounts) remain a dream.

7.3 Methodological difficulties

Econometricians have identified a whole series of methodological problems in the devel-

opment of time series models. This is not the place to go into such issues in detail. For this, the reader is referred to a standard econometrics textbook. However, it is helpful to rehearse some of the main problems. One class of problems comes under the heading of multicollinearity. Most variables in economics are highly trended it is therefore often very difficult to disentangle the separate influences of different -variable. It is also too easy to discover spurious relationships which simply reflect the fact that two unrelated variables are both trended (and therefore closely correlated) while in reality there is no relationship between them. A second class of problems relates to simultaneity. Variable X may depend on Y but Y may also depend on X. Technically Y is said to be an endogenous variable, that is a variable determined within the system that is being modelled. This contrasts with an exogenous variable which is entirely determined by factors outside the system being modelled. Considerable care is required in such circumstances if misleading inferences are not to be drawn. It is of course a truism that nothing is truly exogenous and that everything depends upon everything else. The trick is to identify which are the essentially exogenous variables in any system and which need to be treated as simultaneously determined.

Various other technical pitfalls await the unwary forecaster, such as serial correlation, heteroskedasticity and omitted variable bias. This is not the place to discuss such matters in detail. Suffice it to say that in developing a satisfactory forecasting model, due consideration needs to be given to avoiding falling into such traps, if the forecasts are not to mislead rather than guide policy-makers.

There have been numerous methodological advances in this area in recent years which have been aimed at addressing these technical problems. However, it is probably true to say that these lessons have yet to be fully implemented in the practices of most labour market forecasters. However, this is not a reflection of the failure of such analysts to recognise the need to improve their methods so much as the difficulty of applying these new techniques when dealing with so few time series observations.

8. Conclusions

8.1 Forecasts – Who needs them?

The world is an uncertain place. In this context, almost everyone is involved in planning and forecasting, even if this amounts, in practice, to assuming implicitly that there will be 'no change'. It has been argued by employment forecasters, that since some forecasting of the labour market is inevitable, it is better that they be done in a logical, consistent and systematic fashion. There is a large body of opinion that such forecasts can be of value to a broad range of potential users within a particular geographical area, be it a national economy or a much smaller local area. At one level are policy makers charged with the responsibility of setting the institutional framework and delivering government policy. At another level are those concerned with providing goods and services, including education and training programmes. Employers, educationalists and, of course, individual students and workers themselves, all have an interest in trying to peer into the future and to ensure that their own decisions result in the best possible outcomes (however these might be defined)¹².

Forecasts can therefore be seen as having two prime roles: first to guide policy decisions made by the government and its representatives; and second, as a general aid to the individual actors operating within the labour market, providing them with information which can aid their own decision making. The degree of emphasis on these two elements differs quite significantly between countries.

Against this view must be set opinions of the smaller but at times vociferous group of critics, who have decried the value of such activities. They have argued, variously, that it is unnecessary, impossible and /or irrelevant to carry out employment forecasts. In many cases, however, their criticisms have been

¹² This information may need to be processed and moderated by careers guidance counsellors in order to be of value in making individual training and career choices.

constructive and have led directly to improvements in methods and approaches used, including the development of more qualitative methods. In other cases the practitioners have argued, convincingly in the opinion of the present author, that the criticisms are invalid. The fact that considerable efforts to conduct such forecast are going on all over the world suggests that, on balance, such activities are generally regarded as very useful and are perceived as having real value.

8.2 Accuracy and limitations of forecasts

It is important, of course, to have a clear appreciation of the limitations of any forecast. Forecasters do not have a crystal ball and cannot foresee the future precisely. Nor are they concerned to 'plan' in an indicative sense. Rather, they try to map out the consequences of a series of assumptions about patterns of behaviour and policy stances for likely future developments.

As set out in Section 7 there are severe limitations in our ability to forecast. These include:

- ❑ data problems – there is often considerable difficulty in establishing the current position let alone forecasting the future. These difficulties may be especially acute at local level;
- ❑ limits to understanding – although the social sciences have made considerable strides over recent years there are still major gaps in our knowledge about how systems and individuals behave;
- ❑ past behaviour may not always be a good guide as to how things will develop in the future;
- ❑ there are technical difficulties in forecasting which are often ignored due to data limitations (multicollinearity, serial correlation, simultaneity bias, etc.);
- ❑ a final set of problems relates to the fact that many events are inherently unpredictable (such as earthquakes or other acts of god, political events, etc.).

8.3 The benefits of conducting forecasts

The production of a formal forecast or set forecasts for a particular area should not be seen as an end in itself. Rather it is best regarded as part of a process of improving understanding about what is going on in the economy and the associated labour market. This understanding can then guide policy makers and other actors operating within the local economy (such as individual workers, students and employers) to better decisions. The main benefits can therefore be summarised as follows:

- the aims and objectives of intervention can be made clearer and the ability to evaluate policy can help to establish a virtuous circle;
- forecasts can provide a focus for discussion and cooperation ('posing questions') and may help to breakdown old misperceptions about labour markets;
- forecasts should enable those involved to take a more strategic, rather than a fire-fighting, approach to problems as the implications of current trends and outcomes for the future are explicitly explored;
- finally, forecasts can also provide important information and guidance to individuals enabling them to make better decisions about their own futures, although this may need to be moderated by expert careers guidance counsellors to be of most value.

8.4 Preferred methodologies

A number of different approaches have been adopted to anticipate changing skill needs. The traditional approach has usually involved formal, quantitative methods. More recently, other, rather less formal methods have been developed which have a strong qualitative emphasis. Often this has reflected problems or lack of key data. However, many exercises nowadays involve a mixture of both quantitative and qualitative methods, which are regarded as complementary.

With regard to quantitative methodologies, on the demand side, best practice increasingly involves more sophisticated econometric techniques, enabling quite complex behavioural models to be developed. Often this is now employed in conjunction with surveys of employers, asking them more or less directly about their future skill needs. Until recently, the latter had fallen into disrepute but is currently seeing something of a revival, albeit in a modified form.

On the supply side the main methods used usually involve a stock-flow approach. This projects future stocks from current levels by predicting inflows and outflows. In the early models this was usually done on the basis of assuming fixed rates of flow based on past data. However there is much evidence accumulating that such flows are dependent on economic and other variables. The focus of such models tends to be on the existing workforce, inflow rates and wastage rates. Better data are now becoming available enabling something approaching a full set of demographic accounts to be developed in some countries at the leading edge of such work. As such data are improved, this will facilitate the modelling of transition rates between the numerous states of training, employment, unemployment, etc.

Although the present review of the main forecasting methodologies suggests that a behavioural model is the most appropriate approach (which should, in principle, enable a better understanding of the main factors influencing the supply of and demand for skills), more basic time series models may also provide a useful supplement in situations where data limitations preclude the more sophisticated approach.

Most recent work has emphasised the need to consider replacement demands and not just to focus on projected levels of employment¹³. In addition, other more qualitative methods, involving surveys, case study work, focus

¹³ Although this has been done in some countries such as Germany since the 1970s, albeit not always in a detailed breakdown by single occupations or fields of study.

groups and other techniques have all been found to have the potential for 'adding value' to the more traditional methods. A key feature of much recent work has been the focus on key or generic skills which go beyond the straight-jacket imposed by traditional occupational classifications, to look at the skills needed to do various tasks.

8.5 The importance of the political and statistical infrastructure

When comparing the different approaches used to anticipate future skill needs in different countries, it is clear that the political, institutional and legal context, have had a crucial influence. In part, this is reflected in the statistical infrastructure within which the analyst has to operate. The latter has a particularly important influence. Without good data it is impossible to build some of the more sophisticated models. Statistics are of course only part of the story. The development of macro-economic and labour market forecasting models is a very slow and expensive business. Most of the countries where fully developed systems are in operation have invested very heavily in such activities over a period of many years. While new IT developments mean that it is now much easier to duplicate such effort and possibly to 'piggy-back' on what other countries have already achieved, it is less easy to suddenly invent a long time series database, which lies at the heart of most models.

The impact of IT in this area has been immense. In the USA the development of ALMIS the American Labour Market Information System has facilitated all kinds of research and commercial activities in the area of LMI and labour market forecasting. This has also been a feature in some European countries. For example, the DfEE has supported the development of the equivalent UK National Online Manpower Information System (NOMIS). This provides online access to labour market information via the internet to anyone with the appropriate technology. It includes all the major data sets for which DfEE is responsible¹⁴. This has led directly to

¹⁴ Charges are made for accessing these data and there are strict controls to ensure confidentiality.

the development of many new local products and services.

8.6 Increasing emphasis on local forecasting

In recent years, there has been an increasing tendency towards devolving power to smaller geographical units in many developed economies. This has led to an increased demand for labour market information (LMI) and, in particular forecasts, at local level. As the perceived need for information at local level has grown, so the capacity of the databases and the power of equipment required to process data have increased. The information revolution has gathered pace over the 1980s and early 1990s and analysts and policy-makers now face the prospect of an enormous increase in the amount of information available. Data are becoming more easily available in many ways, with the introduction of on line databases, the increasing ease with which large survey databases, such as public censuses, can be accessed and the growing power of computers to process this information.

However, in some respects, there is a danger of being overwhelmed by the mass of data available and a key problem is to avoid information overload and to sort out the key messages. As at national level, local forecasts are intended to identify the key trends and to highlight the main issues that will be important in the future. In these circumstances, analysts have begun to develop tools, which bring together relevant information about the local economy and present it in an easily digestible form. At the same time, these tools can draw out the implication for the future of continuation of past trends as well as enabling 'what if' scenarios to be developed. A basic aim is to convert basic labour market information into useful intelligence, which can be used to guide important decisions. Another objective, in many cases is to empower the local analyst by providing them with the tools to undertake their own forecasts.

8.7 Main policy conclusions

The main policy conclusion from this review is that employment forecasting *can and does*

provide a useful aid to policy-makers in making decisions about training, recruitment and the personnel issues. It can also provide very useful information to a broad range of other actors in the labour market. This includes employers, education and trainer providers as well as individuals, although the need for such information to be moderated by careers guidance counsellors and others is strongly emphasised in many countries.

However there are strong limitations to what such exercises can do and it is clear that they do not offer a crystal ball from which the precise details of the future can be gleaned. Rather they spell out the implications of a series of assumptions about future developments based on certain relationships representing a continuation of past patterns of behaviour. Appropriately done, they can provide a transparent, logical, consistent and systematic view of what the future might look like given these assumptions.

The value of such exercises depend crucially on the quality of the data upon which they are based, as well as the validity of the various assumptions built into the forecasts. To some extent the latter will depend upon the degree of sophistication of the models adopted, the more sophisticated the model the more likely it is to be able to deal with the many and subtle influences on changing employment structures. Naive, mechanistic models are, unless used very carefully, likely to mislead rather than inform. On the other hand, increasing detail, complexity and sophistication of some models can rapidly run into decreasing returns, unless backed up by data and analysis of equivalent quality. Increasing detail and complexity can also reduce transparency. It also makes it less easy to

identify simple causes and effects, as for example, in econometric models with several thousands of equations. Some forecast evaluations suggest that 'native' models, at a more aggregate level, are not necessarily of lower accuracy than more complex and detailed ones.

It is also important to emphasise the many problems and difficulties that face many forecasting exercises of the kind reviewed here. Gaps and inadequacies in the database set limits on what is feasible. Methodological problems further compound the difficulties that the forecaster faces. The sheer complexity of the real world and the difficulty of identifying and isolating the key influences on the supply of and demand for skills must not be underestimated. A major reservation on forecasting is that despite all the effort on forecasting activities since the 1960s and 1970s, this has not been able to prevent unemployment and over-education. The jury remains out on whether this is because of the inadequacies of the projections themselves, or whether it reflects the fact that policy makers and others have ignored them (or possibly failed to act appropriately).

Despite all these caveats, the experience of many countries outside Europe, particularly the USA, suggests that useful forecasting tools can be developed at European level. This experience suggests that such forecasts can provide helpful information to both labour market participants as well as for policy-makers about the labour market environment they are likely to face. It is therefore recommended that the possibility of developing a regular European-wide labour market assessment, including detailed occupational forecasts, be given serious consideration.

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