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oyment in Europe 2009

Country acronyms in tables and charts

EU Member States	
AT	Austria
BE	Belgium
BG	Bulgaria
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
EL	Greece
FI	Finland
FR	France
HU	Hungary
IE	Ireland
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
MT	Malta
NL	The Netherlands
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom
Further afield	
AU	Australia
CA	Canada
JP	Japan
KR	Korea
MX	Mexico
NZ	New Zealand
US	United States

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Employment in Europe 2009

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Directorate-General for Employment, Social Affairs and Equal Opportunities
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Foreword

Responding to the crisis and preparing our labour markets for the future

The Commission's annual *Employment in Europe* report, the 21st in the series, comes against a backdrop this year of quite exceptional economic circumstances. Hot on the heels of last autumn's global financial crisis, the worst economic downturn Europe has seen since World War II has brought several years of relatively high economic growth and job creation to an abrupt halt and thrown far too many businesses, households and workers into serious difficulties.

The European Union reacted swiftly to the financial and economic crisis, taking the steps necessary to prevent a meltdown of the financial markets and adopting a European Economic Recovery Plan. With Europe's labour markets already deeply affected by the challenges of globalisation, technological change, ageing societies and climate change, the ensuing employment crisis has heightened the need for policies to help people keep their jobs or get them back into employment quickly. The Union accordingly acted to stabilise labour markets, taking measures focused on maintaining existing employment and creating new jobs, improving workers' skills and matching labour-market demand and supply more closely.

In these turbulent times, the Commission has placed special emphasis on the monitoring and analysis of short-term developments and policy action. At the beginning of this year it launched the monthly *Labour Market Monitor*, a new short-term monitoring tool that provides a useful guide for EU and Member State policymakers. The onset of the crisis should not mean, however, that the broader structural issues affecting the EU labour market can be neglected. On the contrary, the Commission must make sure that short-term policy measures are not at odds with long-term structural reforms, which in turn are a prerequisite for the EU economy and labour markets to emerge well prepared for future challenges from the current downturn.

Bearing that challenge in mind, the 2009 *Employment in Europe* report takes a deeper look at two issues that are important for EU employment policy in the future: the dynamics of European labour markets and the implications of climate change for labour-market outcomes. A clearer understanding of labour-market dynamics is critical in a time of crisis, when prompt policy responses are crucial. Measures to get laid-off workers back into employment and to curb long-term unemployment are hugely important.

Meanwhile, climate change and the inescapable need to shift to a competitive low-carbon economy have become priorities for urgent action. There is significant scope in Europe for creating new 'green' jobs and for 'greening' existing jobs in many sectors and professions. But if these opportunities are to be grasped, the right policies, based on a sound understanding of the key trends underlying efforts to respond to and mitigate the impact of climate change, must be put in place. Careful analysis being a key ingredient of good policymaking, I am confident that this year's *Employment in Europe* report will provide useful insights for the employment policy debate.

Vladimír Špidla
Commissioner for Employment, Social Affairs and Equal Opportunities

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List of acronyms

ADP	Accelerated deployment policies
ALMP	Active labour market policy
BAU	Business as usual
CA	Cluster analysis
CCS	Carbon capture and storage
CDU	Completed duration of unemployment
CF	Churning flow
CHP	Combined heat and power
CL	Closing
CO	Contracting
CSR	Corporate social responsibility
DG ECFIN	Directorate-General for Economic and Financial Affairs
DG EMPL	Directorate-General for Employment, Social Affairs and Equal Opportunities
DG TREN	Directorate-General for Transport and Energy
E	Expanding
ECHP	European Community Households Panel
EEA	European Economic Area
EERP	European Economic Recovery Plan
EES	European Employment Strategy
EGF	European Globalisation Adjustment Fund
EGSS	Environmental goods and services sector
E_I	Employment to inactivity
EJT	Excess job turnover
ELT	Excess labour turnover
EMAS	Eco-Management and Audit Scheme
EMCO	Employment Committee
EPBD	Energy Performance of Buildings Directive
EPL	Employment protection legislation
ERM	European Restructuring Monitor
ESF	European Social Fund
EU	European Union
E_U	Employment to unemployment
EU-10	All Member States that joined the EU on 1 May 2004
EU-12	All Member States that joined the EU on 1 May 2004 and 1 January 2007 (EU-10 + EU-2)
EU-15	All Member States forming part of the EU before 1 May 2004
EU-25	All Member States forming part of the EU before 1 January 2007

EU-27	All EU Member States
EU-8	Belgium, Germany, Denmark, Greece, Spain, Italy, Portugal and the UK
EU ETS	EU Emissions Trading Scheme
EURES	European Employment Services
EU-SILC	European Union Statistics on Income and Living Conditions
FTE	Full-time equivalent
GDP	Gross domestic product
GHG	Greenhouse gases
H	Hiring
HP	Hodrick-Prescott
I	Inactive
IDU	Incomplete duration of unemployment
I_E	Inactivity to employment
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
JC	Job creation
JD	Job destruction
JT	Job turnover
LFS	Labour Force Survey
LPG	Liquefied petroleum gas
LT	Labour turnover
LTC	Long-term care
LTU	Long-term unemployment
METR	Marginal effective tax rate
NAIRU	Non-accelerating inflation rate of unemployment
NAWRU	Non-accelerating wage rate of unemployment
NEG	Net employment growth
NGV	Natural gas vehicles
O	Opening
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary least squares
PCA	Principal component analysis
PES	Public employment services
PPS	Purchasing power standards
R&D	Research and development
RES	Renewable energy sources
S	Separation
SME	Small and medium-sized enterprise
SSGI	Social services of general interests
STWA	Short-time working arrangements
TE	Temporary employment
TFP	Total factor productivity
U	Unemployed
U_E	Unemployment to employment
UK	United Kingdom
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change
USA	United States
USB	Users' database
VAR	Vector autoregressive systems

Chapter 1

EU labour markets in times of economic crisis

1. Introduction – the new economic context for EU labour markets

The unprecedented crisis in global financial markets which gathered pace in autumn last year has led to the most severe recession since the Second World War, affecting the wider economy and increasingly impacting on labour markets in the EU. After many years of relatively high growth and job creation (9.7 million new jobs alone between 2005 and 2008) – taking Europe back to employment levels not seen for decades – the global financial crisis and its repercussions on the real economy are hitting businesses, jobs and households. They are thus increasingly affecting the prospects and livelihoods of European citizens. The sudden reversal of the previous period of employment growth has set new challenges to policy-making and research. As unemployment continues to rise, the spotlight has fallen more and more on limiting the effect of the crisis on jobs and addressing the social impact.

Although the picture varies across Member States, the crisis is expected to have significant consequences for all of their labour markets; for many this will manifest itself as a substantial increase in unemployment. Initially the bulk of the negative impact on labour markets was concentrated in Spain and the United Kingdom (UK), but more recently unemployment has begun to rise across all Member States. In a number of European countries, job losses have been rather restrained to date, largely due to recourse to increased internal flexibility in the form of shorter hours or temporary partial unemployment. However, even if labour markets have proven to be more resilient, the European Union (EU) is still expected to lose some 8.5 million jobs over 2009–10, with unemployment potentially reaching around 11% by 2010.[1] Indeed, historical experience shows that employment reacts to economic conditions with a certain lag; hence labour market conditions can be expected to worsen for some time even after the trough in the economic situation has been reached.

At the same time, the crisis appears to be affecting some groups of workers more deeply than others. Although men still have higher employment rates than women, to date the former have been more affected by the downturn than the latter, reflecting that many of the sectors hit hardest by the crisis are predominantly male-oriented in terms of employment. There has also been a continued strong rise in unemployment among young people, with young men being particularly affected, highlighting a rising need for support to tackle youth unemployment.

Acting in concert, the EU has already taken important steps to address the fallout from the crisis, having taken action to prevent a meltdown in the financial markets last autumn. In December it agreed to put in place a European Economic Recovery Plan[2] to lessen the effects of the downturn and create the conditions for recovery. The top employment challenge for the EU must be to minimise job losses, prevent unemployment from becoming entrenched (i.e. becoming long-term unemployment), favour transitions back into employment and boost job creation, and pave the way for economic renewal and for sustainable recovery and growth. This requires stronger cooperation between all stakeholders, better policy coordination and mutual learning – i.e. with a shared commitment to develop and implement the right policies and actions: to preserve sustainable jobs in sound economic activities and help people into productive employment; to support the most vulnerable; and to prepare for the jobs and skills of the future.

In line with the European Economic Recovery Plan, the agreed fiscal stimulus and an acceleration of structural reforms will help boost demand, restore confidence and ensure that Europe emerges more strongly from the crisis. Accelerating recovery must

(1) European Commission, 'Economic forecast', spring 2009, European economy, 3/2009, Directorate-General for Economic and Financial Affairs.

(2) European Commission, A European Economic Recovery Plan, COM(2008) 800, available at: http://ec.europa.eu/commission_barroso/president/pdf/Comm_20081126.pdf

be assisted by structural reforms to create more flexible, secure and inclusive labour markets. The Commission Communication 'Driving European recovery'[3] outlined a number of elements to help Member States design and implement appropriate and effective employment policies. On this basis, the Spring Council and the three employment workshops held in Madrid (ES), Stockholm (SE) and Prague (CZ) in April 2009 helped define three key priorities: maintaining employment, creating jobs and promoting mobility; upgrading skills and matching labour market needs; and increasing access to employment. The 7 May Employment Summit allowed for an exchange of views on these priorities and found common ground on concrete actions.[4]

Building on this mutual effort, the Commission recently published its Communication entitled 'A shared commitment for employment'.[5] This aims to strengthen cooperation between the EU and its Member States, as well as among EU social partners, on the three key priorities mentioned above. It focuses on concrete actions and is supported by all available Community instruments, particularly the European Social Fund and the Globalisation Adjustment Fund.

Last but not least, the new economic context arising from the global crisis has highlighted a need for more up-to-date monitoring and analysis of the labour market situation, which has been addressed in part by the Commission's publication of a new monthly monitoring report.[6] In addition, it has shown the need for further research on ways to limit the negative impact of the crisis on labour markets and better position them so they are well placed to respond to the recovery when it comes and to prepare them against any future crises.

Even in these turbulent times, it is still worthwhile to present the longer-term picture to highlight the progress that has been made in European labour markets over the last decade up until the global crisis hit last year (see section 2 below); however, in view of the rapidly changing situation, this year's report also presents a more up-to-date picture of the short-term developments in labour markets since last spring (section 3).

2. PANORAMA OF EU LABOUR MARKETS IN 2008

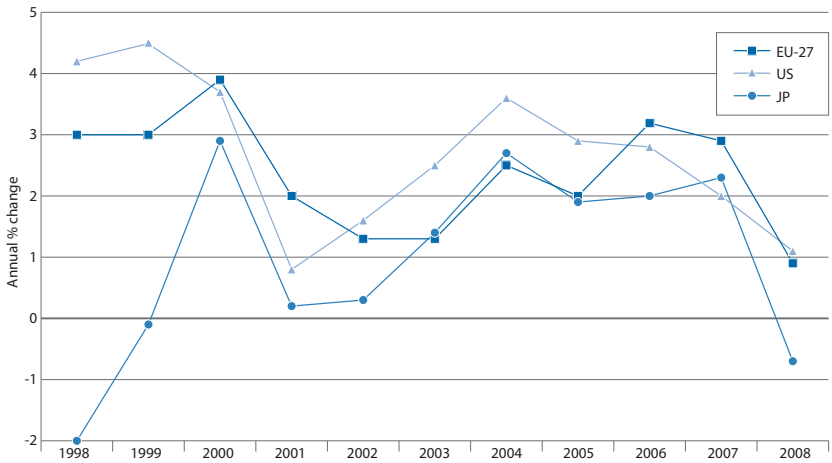
2.1. EU labour market from a global perspective

In 2008, the EU economy clearly suffered from the global economic downturn which emanated from the crisis in financial markets and which resulted in the EU having entered a recession by the end of the year. Over the course of 2008, expansion in the first quarter was followed by three quarters of contraction in gross domestic product (GDP), leading to rather limited annual GDP growth of only 0.9% – much lower than the 2.9% growth rate achieved in 2007 (Chart 1 and Table 1). The economic crisis especially affected output in industry, construction and retail trade. Indeed, by mid-2008, these sectors had undergone a decrease in production that became substantial by the end of the year.

By end-2008, over half of the EU Member States were either in recession or in the process of entering one: 18 of the EU-27 had entered recession – namely Austria, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Portugal, Romania, Spain, Sweden and the UK – with the economy continuing to expand only in Cyprus, Greece and Slovakia.

The economic growth for the EU's main trading partners also showed a decrease in 2008 compared with the preceding year. For the United States (USA), economic growth declined to 1.1%, down from 2.0% in 2007 and from 2.8% in 2006. Over each of the last two years, the USA has shown pronounced declines in annual growth, while in the EU growth underwent a very fast decline in 2008. The latter pattern of a sharp deterioration in 2008 was even more pronounced for Japan, where growth of –0.7% was recorded for 2008, in comparison with the strong 2.3% growth of the year before.

Chart 1: **GDP growth in the EU, USA and Japan, 1998–2008**



Source: Eurostat, national accounts.

(3) European Commission, Driving European recovery, COM(2009) 114 final, available at: http://ec.europa.eu/commission_barroso/president/pdf/press_20090304_en.pdf

(4) For the Key Messages of the May 7 Summit, and a report on the three Workshops, see: http://ec.europa.eu/social/main.jsp?catId=88&langId=en&eventsId=173&furtherEvents=yes

(5) European Commission, A shared commitment for employment, COM(2009) 257 final, available at: http://ec.europa.eu/social/BlobServlet?docId=2798&langId=en

(6) Available on the website of the Directorate-General for Employment, Social Affairs and Equal Opportunities at http://ec.europa.eu/social/main.jsp?catId=120&langId=en

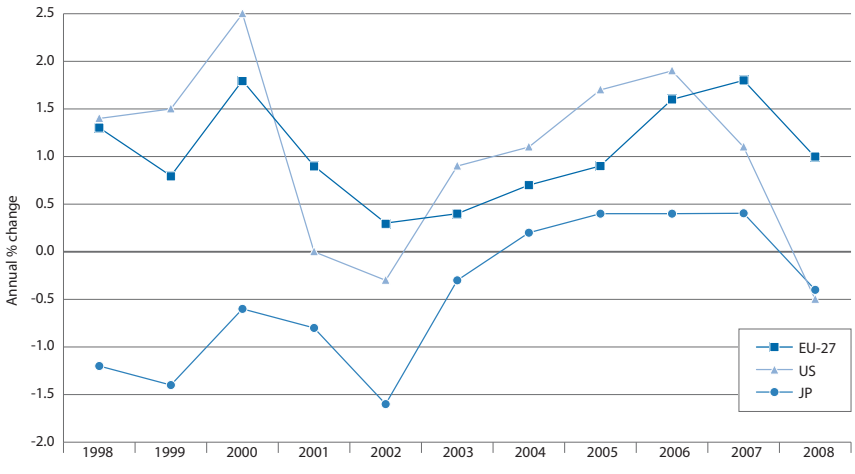
Table 1: **International comparison of key indicators, 2006–08**

	2006	2007	2008
Population (millions)			
EU-27	493	495	497
EU-15	390	392	394
USA	299	302	304
Japan	128	128	128
GDP (in 1000 million PPS, current prices)			
EU-27	11 684	12 360	12 512
EU-15	10 371	10 927	10 993
USA	10 927	11 416	11 560
Japan	3 400	3 568	3 558
Real GDP Growth (annual % change)			
EU-27	3.2	2.9	0.9
EU-15	3.0	2.6	0.6
USA	2.8	2.0	1.1
Japan	2.0	2.3	-0.7
Employment Rate (as % of working age population)			
EU-27	64.5	65.4	65.9
EU-15	66.2	67.0	67.3
USA	71.9	71.7	70.9
Japan	69.9	70.6	70.7
Employment Growth (annual % change)			
EU-27	1.6	1.8	1.0
EU-15	1.5	1.6	0.7
USA	1.9	1.1	-0.5
Japan	0.4	0.4	-0.4
Unemployment Rate (as % of civilian labour force)			
EU-27	8.2	7.1	7.0
EU-15	7.7	7.0	7.1
USA	4.6	4.6	5.8
Japan	4.1	3.9	4.0

Source: GDP and employment growth from national accounts, Eurostat (GDP for the USA according to the System of National Accounts and employment growth for Japan from AMECO database, Commission Services). GDP in purchasing power standards (PPS) from national accounts, Eurostat. Employment rate from Eurostat (EU LFS) and OECD data for USA and Japan. Unemployment rate from Eurostat series on unemployment. Population from demographic statistics, Eurostat, and for USA and Japan from AMECO database, Commission Services.

Note: Employment rates for the EU and Japan refer to persons aged 15–64; USA employment rate refers to persons aged 16–64.

Chart 2: **Employment growth in the EU, USA and Japan, 1998–2008**



Source: Eurostat, national accounts.

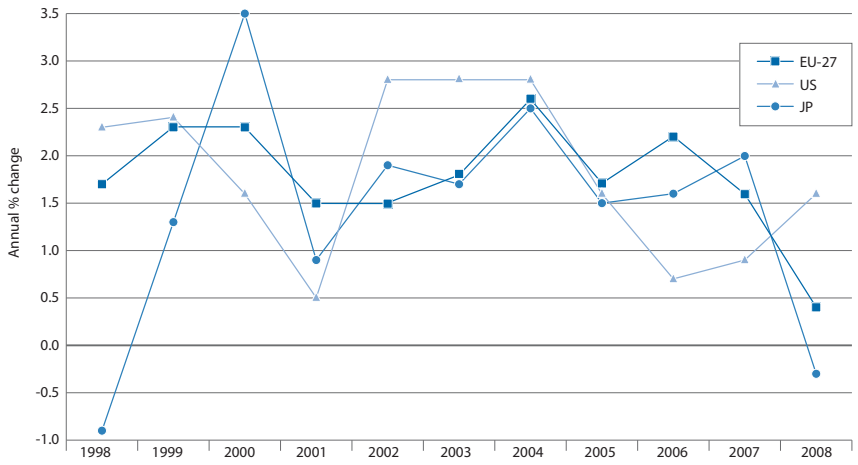
The deteriorating economic climate already affected the labour market in 2008, with employment growth in the EU declining to 1.0% compared with 1.8% in 2007 (Chart 2). However, the slowdown in employment growth was less pronounced than that in GDP. This partly reflects the fact that labour markets usually respond with some delay to economic trends but also the fact that labour demand started to adjust through flexible working arrangements (e.g. shorter working hours) rather than through a reduction in employment.[7] As a result, EU employment growth in 2008 remained considerable given the extent of the economic downturn, being substantially higher than that in the USA and Japan.

In the USA, the continued adverse economic situation, with GDP growth decreasing for the second year in a row, had extensive repercussions for the labour market. Negative employment growth of –0.5% was recorded in 2008 (compared with positive growth of 1.1% in the preceding year) similar to the level of employment contraction in Japan where employment growth also dropped sharply in 2008, with a negative rate of –0.4% being recorded. Over the last 10 years, employment growth in Japan has been persistently lower than that in the EU and USA.

Growth in labour productivity (per person employed) was slightly positive for the EU in 2008 (0.4%), over one percentage point lower than the previous year (Chart 3). This was the result of a substantial slowdown in economic growth while employment levels increased slightly. For Japan the downward trend in labour productivity was even more significant. Having been higher in recent years compared with the EU, productivity growth dropped to –0.3% in 2008. Productivity growth in the USA rose to 1.6% in 2008, up from 0.9% the year before.

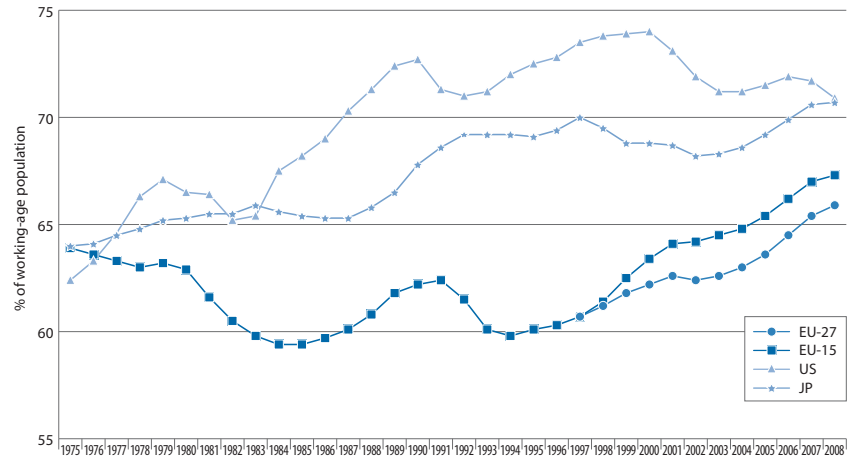
(7) Employment growth is based on the number of employed persons regardless of their part- or full-time status, and not on full-time equivalent employment.

Chart 3: **Growth in productivity per person employed in the EU, USA and Japan, 1998–2008**



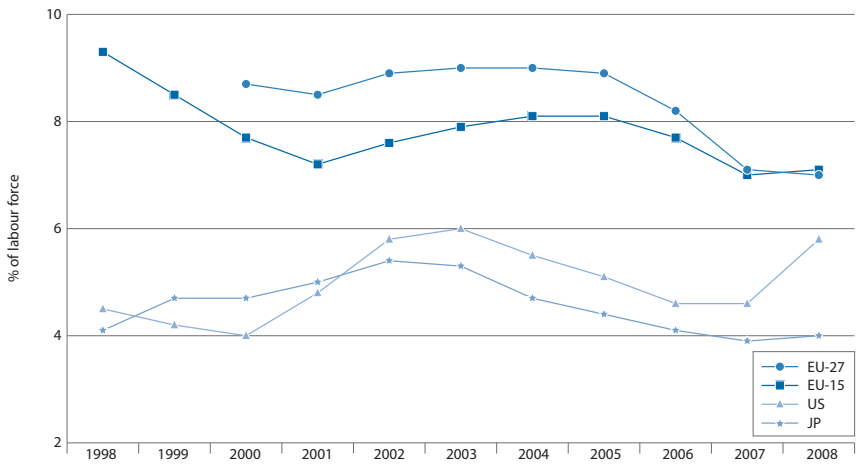
Source: Eurostat, national accounts.

Chart 4: **Employment rates in the EU, USA and Japan, 1975–2008**



Source: DG EMPL calculations based on long-term trends in employment and population, Commission Services.

Chart 5: **Unemployment rates in the EU, USA and Japan, 1998–2008**



Source: Eurostat, series on unemployment.

This development was driven by the relatively strong contraction in employment in conjunction with positive GDP growth in the USA.

As indicated, compared with the year before, total employment continued to expand in the EU in 2008, while the deteriorating economic situation and consequent weakening of the labour market was not yet fully reflected in the annual EU labour market indicators for that year. The EU employment rate – i.e. the share of the population aged 15–64 years (the working-age population) in employment – amounted to 65.9% in 2008, up 0.5 percentage points compared with 2007. This trend contrasts with that in the USA, where the share of the working-age population in employment dropped from 71.8% to 70.9%. This resulted in virtually the same rate as in Japan, where it remained broadly stable. Even though the employment rate of those countries remains considerably higher than that of the EU, it can be noted that, over the last 10 years, the EU rate shows a clear upward trend in contrast to that of the USA (Chart 4).

During 2008 some 16.7 million persons – or 7.0% of the labour force – were unemployed in the EU-27. This rate is very similar to that for the preceding year but marks a halt in the decline in unemployment that had been observed since 2004. In Japan a similar situation could be seen in 2008, as the unemployment rate increased only marginally to 4%. In the USA, however, unemployment grew strongly in 2008, rising 1.2 percentage points on the year before to 5.8%, but still more than one percentage point lower than the EU-27 (Chart 5).

2.2. Labour market situation in the EU

2.2.1. Employment growth

Employment in the EU increased by 2.3 million between 2007 and 2008. However, the rise was not uniform with respect to gender, age and type of employment. The growth rate for female employment was almost three times that for male employment. With regard to age, growth was strongest for older workers, where employment increased by around 4%, much greater than the 0.6% growth rate for prime-age workers (25–54 years) and 0.4% for youth (15–24). In terms of type of employment, the relative growth in part-time employment was similar to that for full-time jobs, while the number of employees with temporary contacts decreased by around 3% in contrast to the 1.6% rise in employment for those with permanent contracts (Table 2).

Table 2: **Change in employment in the EU by age, gender, and type of employment, 2007–08 (% growth)**

		Relative (as % of 2007 level)
	Total	1.0
Gender		
	Men	0.6
	Women	1.5
Age		
	15-24	0.4
	25-54	0.6
	55-64	3.8
	65+	4.5
Type of employment		
Employee versus self-employed	Employee	1.2
	Self-employed	-0.1
Full-time versus part-time	Full-time job	1.0
	Part-time job	1.2
Permanent versus fixed-term employees	Permanent	1.6
	Fixed-term	-2.7

Source: Eurostat, national accounts, EU LFS and DG EMPL calculations.

Taking a longer-term perspective, the number of people in employment in the EU expanded by around 17 million between 2000 and 2008. Prime-age workers aged 25–54 accounted for almost 60% of the net increase in employment, with women making a higher contribution than men. In addition, the contribution from older workers over this period was especially noteworthy (Table 3). Older workers aged over 54 accounted for 40% of employment expansion, with broadly equal contributions from men and women in this age group. In contrast, the contribution of young people aged 15–24 to employment expansion was negligible, in part reflecting the trend for youth to stay longer in education. In terms of type of employment, almost 90% of employment growth was made up of employees, with only a relatively small share associated with self-employment. Part-time employment made a significant contribution to employment expansion, accounting for 37% of the net rise in employment, although full-time jobs still accounted for the majority of the expansion (63%). Permanent jobs accounted for almost three quarters of employment growth, with fixed-term jobs accounting for a much smaller but still important share, although there is a large underlying heterogeneity across Member States.

Table 3: **Contribution to net employment creation in the EU by age, gender and type of employment, 2000–2008**

		% contribution to employment creation 2000–08		
		Total	Men	Women
Age and gender				
	Total		41.0	59.0
	15–24	1.3	0.9	0.3
	25–54	58.2	19.1	39.1
	55–64	37.9	18.9	19.0
	65+	2.6	2.0	0.6
Type of employment and gender				
Employee versus self-employed	Employee	89.8	34.8	55.0
	Self-employed	10.2	5.7	4.5
Full-time versus part-time	Full-time job	63.0	32.8	30.2
	Part-time job	37.0	10.1	27.0
Permanent versus fixed-term employees	Permanent	72.4	26.8	45.6
	Fixed-term	27.6	12.3	15.3

Source: Eurostat, EU LFS.

Note: Data for RO 2002 instead of 2000. Data for full-time/part-time and permanent/ temporary indicators for BG 2001 instead of 2000.

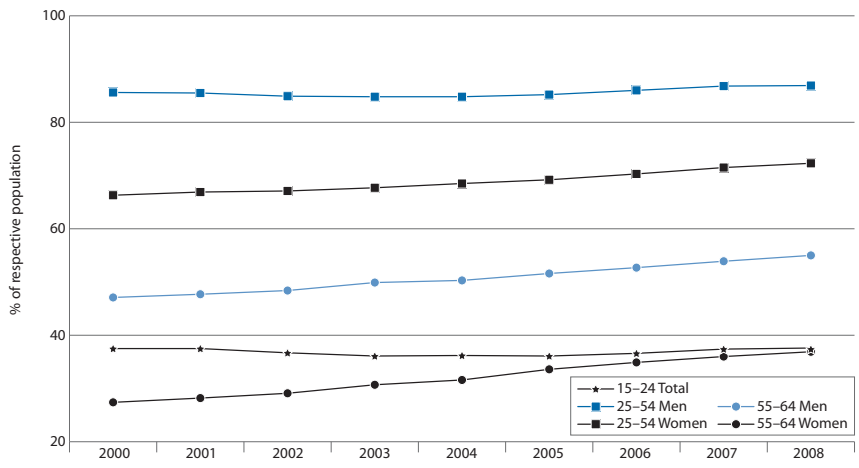
2.2.2. Employment rate

The strong rise in the employment rate between 2000 and 2008 was driven by specific subgroups of the population. For young persons and men aged 25–54, employment rates remained broadly stable over this period, and similarly showed little change in 2008. In contrast, those among older men increased substantially (in 2008, 55% of men aged 55–64 were in employment compared with 47% in 2000), while for older women even larger rises were visible (up more than 9 percentage points, from 27.4% to 36.9%). Employment rates for women aged 25–54 also rose considerably, up 6 percentage points compared with 2000 (Chart 6).

In the EU-27, labour market participation varies strongly by gender and age, with women and older persons having a substantially lower employment rate than average (Chart 7). In 2008, the employment rate of women aged 15–64 amounted to 59%, while for men it was almost 73%. This gender gap in employment rates exists for all age categories but is largest for older persons. This reflects the fact that older generations of women, in particular mothers, used to participate less in the labour market compared with younger generations, as well as the difficulties in re-entering the labour market after a long period of absence.

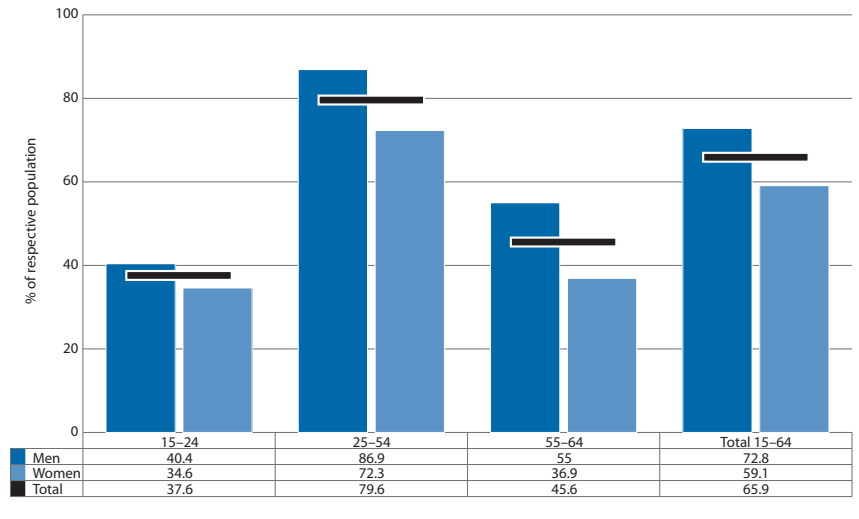
While the gender and age gap in employment rates is shrinking, employment rates of women and older persons remain substantially lower than those of prime working-age men (i.e. men aged 25–54). Indeed, the employment rate for men in the prime working-age group is almost 15 percentage points higher than that of similarly aged women, while, in the older age group, the gender gap was even higher at 18 percentage points. The difference in employment rates between the prime working-age and older age group is even bigger. The employment rate for people aged 55–64 is more than 30 percentage points lower than that for those aged 25–54 – less than 46% of persons aged 55–64 were working compared with almost 80% for persons aged 25–54. Employment rates for the young are also relatively low – less than 38% of those aged 15–24 were in work in 2008, reflecting the fact that many are still in full-time education.

Chart 6: **Employment rates in the EU by age group and gender, 2000–2008**



Source: Eurostat, EU LFS.

Chart 7: **Employment rates in the EU by age group and gender, 2008**



	15–24	25–54	55–64	Total 15–64
Men	40.4	86.9	55	72.8
Women	34.6	72.3	36.9	59.1
Total	37.6	79.6	45.6	65.9

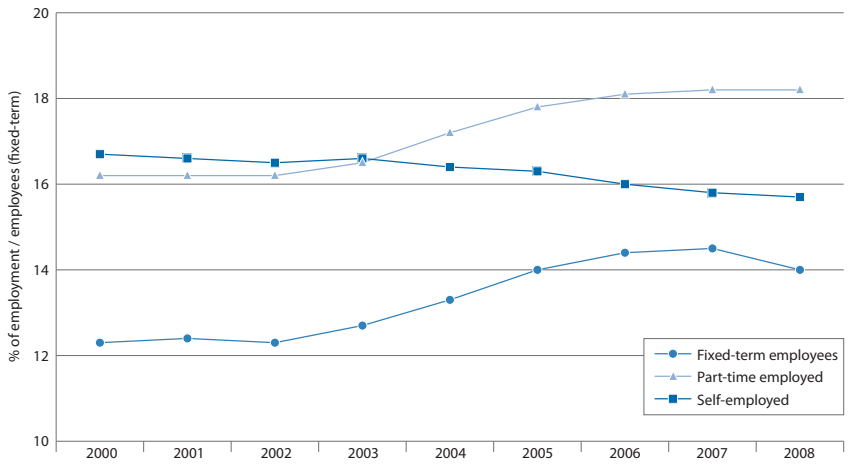
Source: Eurostat, EU LFS.

2.2.3. Contractual arrangements

In 2008 about 18% of those in employment were working on a part-time basis in the EU-27. After rising by around 2 percentage points between 2002 and 2006, this share has remained more or less stable in recent years. Part-time work remains more common in the older Member States than in the newly acceded countries (and has been increasing at a higher rate in the EU-15), with the share for the EU-15 considerably higher than that for the EU-27.

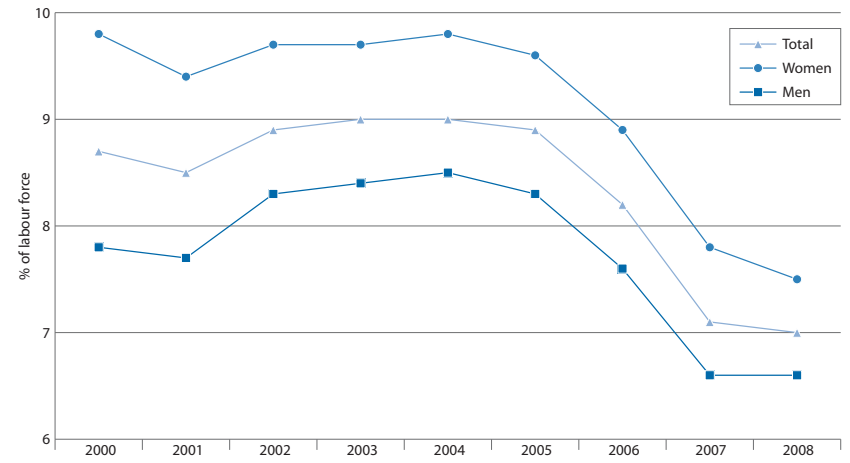
Some 14% of employees had a fixed-term contract in 2008, representing a decrease of 0.4 percentage points compared with 2007. While the change in the percentage of part-time workers seems to indicate a long-term upward trend, the percentage of workers with a fixed-term

Chart 8: **Part-time and fixed-term contracts, and self-employment in the EU, 2000–2008**



Source: Eurostat, EU LFS.

Chart 9: **Unemployment rates in the EU by gender, 2000–2008**



Source: Eurostat, EU LFS.

contract is more sensitive to the economic situation. The latter increased from 2003 until 2007, but declined in 2008, clearly following the business cycle (Chart 8).

The extent of self-employment remained stable in 2008 compared with the year before, with 16% of workers being self-employed, although the share has fallen since 2000 by the order of a percentage point. This suggests that the increase in employment over that period, which was generally accounted for by women and older persons, were mainly jobs as employees rather than as self-employed.

2.2.4. Unemployment

Unemployment in the EU-27 remained more or less stable in 2008, as the deterioration in the economic situation brought an abrupt end to the strong downward trend in unemployment of the previous three years (Chart 9). However, the situation varies somewhat according to gender. For men the unemployment rate in 2008, at 6.6%, was exactly the same as the year before, while that for women continued to decrease (falling to 7.5%, compared with 7.8% the year before), although at a substantially slower pace.

This highlights one early distinguishing feature of the current economic downturn – namely that it has had a noticeably larger impact on the labour market situation of men than on that of women. This reflects the fact that, so far, many of the sectors hit hardest by the downturn – such as construction, the car industry and transport and storage – are predominantly male-oriented in terms of employment.

2.3. Labour market situation in the Member States

2.3.1. Employment

Employment growth

Although employment continued to expand in the EU in 2008, the rate of growth decreased in the vast majority of Member States compared with 2007. Furthermore, large differences were visible between the Member States. Employment growth was negative for Hungary, Ireland, Lithuania and Spain in 2008, with the downturn in the labour market brought about by the deterioration in the economic situation being particularly severe in the last three countries, which had experienced employment growth of around 3% in 2007. Employment growth in 2008 was rather limited in Estonia, Romania, Italy and Portugal, at less than 0.5%, while in Latvia – a country with one of the highest growth rates in the EU in previous years – employment growth dropped by almost three percentage points in 2008.

Nevertheless, several Member States still recorded relatively high employment growth in 2008. Luxembourg and Poland posted growth of 4% or more, similar to the year before, while employment growth in Bulgaria increased to 3.3%. Among the larger Member States, France recorded a substantial slowdown in its rate of employment expansion, with the growth rate falling by 0.8 percentage

points to around 0.5%, while the rate in Italy showed a similar development. For Germany and the UK the situation more or less stabilised at around 1.5% and 0.7% respectively (Chart 10).

Employment rates

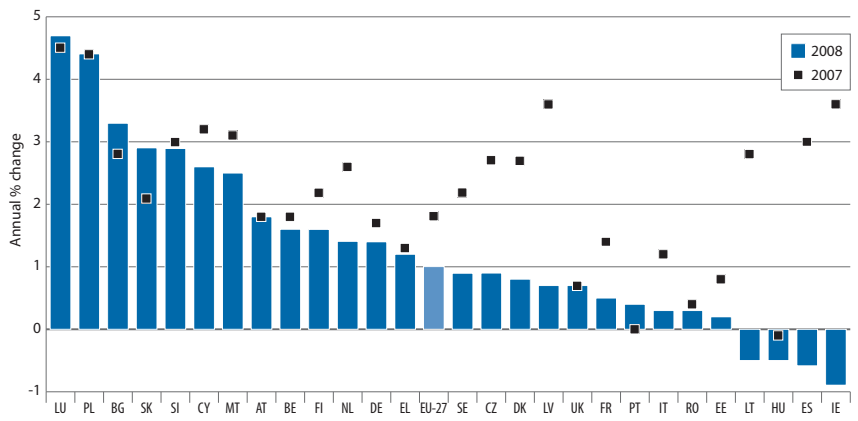
In the EU, the employment rate of the working-age population (i.e. those aged 15–64) reached 65.9% in 2008, an increase of 0.5 percentage points compared with the preceding year. The rate has risen by 3.7 percentage points since 2000, when the Lisbon target (Box 1) of an overall employment rate of 70% was set, leaving a gap of around 4 percentage points yet to be filled (Table 4).

The Lisbon target of a 60% employment rate for women, however, was much closer to being reached in 2008, with 59.1% of working-age women in work – a shortfall of less than 1 percentage point. Since 2000, considerable progress has been made in expanding female employment, with the employment rate for women increasing by more than 5 percentage points over that period. In 2008 the employment rate of women grew by 0.8 percentage points compared with 2007, while that for men rose only 0.3 percentage points, thereby further narrowing the gender gap in employment. Nonetheless, it remains considerably lower than the male employment rate of 72.8%.

This situation reflects the fact that within most Member States the gender gap in employment rates is still substantial (Chart 11). This is particularly the case in Malta, Greece and Italy, where the employment rate for men remains more than 20 percentage points higher than that for women. In a further 15 Member States, the gap varies between 10% and 20%. In contrast, in Sweden and Finland the employment rate for men is less than 5 percentage points higher than that for women.

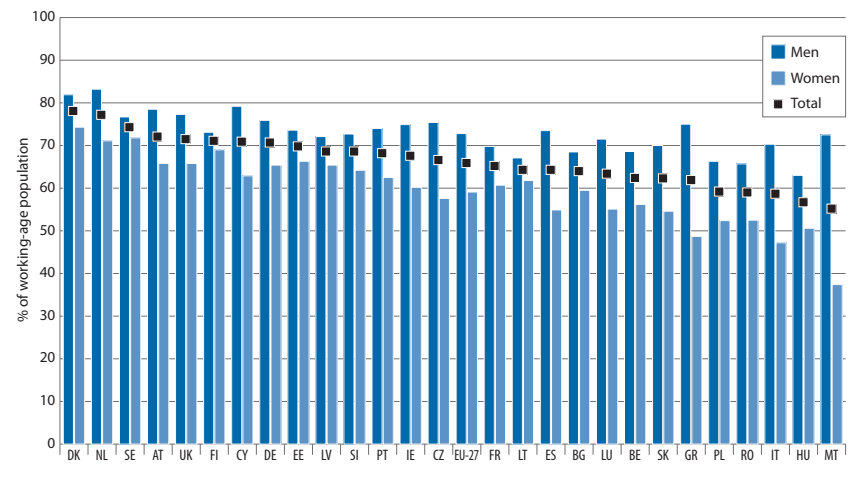
The employment rate for older persons aged 55–64 in the EU increased further in 2008, rising 1 percentage point compared with 2007, but at 45.6% the rate remains relatively low. Although the rate has risen substantially since 2000, increasing by almost 9 percentage points, the current performance falls short of the target set by the 2001 Stockholm Council of an employment rate of 50% by 2010 by 4 percentage points.

Chart 10: **Employment growth for Member States, 2007 and 2008**



Source: Eurostat, national accounts.

Chart 11: **Employment rates for Member States by gender, 2008**



Source: Eurostat, EU LFS.

Box 1: The Lisbon and Stockholm targets

The 2000 Lisbon European Council set a strategic goal, over the decade 2000–10, for the EU to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion.

It specifically stated that the overall aim of employment and economic policies should be to raise the employment rate to as close to 70% as possible by 2010, and to increase the employment rate for women to more than 60% by the same year, not least in order to reinforce the sustainability of social protection systems. In addition to the 2010 Lisbon targets, the 2001 Stockholm European Council set a new target of raising the average EU employment rate for older men and women (aged 55–64) to 50% by 2010.

In 2008, only eight Member States recorded an employment rate of more than 70%, the overall Lisbon target (Chart 12) – namely Denmark (78.1%), the Netherlands (77.2%), Sweden (74.3%), Austria (72.1%), the

Table 4: **Employment rates in EU Member States in 2008 and progress towards Lisbon and Stockholm targets for 2010**

	Total employment rate				Female employment rate				Older people's employment rate			
	2008	Change 2008–07	Change 2008–00	Gap below 2010 target	2008	Change 2008–07	Change 2008–00	Gap below 2010 target	2008	Change 2008–07	Change 2008–00	Gap below 2010 target
BE	62.4	0.4	1.9	7.6	56.2	0.8	4.7	3.8	34.5	0.1	8.2	15.5
BG	64.0	2.2	13.5	6.0	59.5	1.9	13.2	0.5	46.0	3.5	25.2	4.0
CZ	66.6	0.5	1.6	3.4	57.6	0.3	0.7	2.4	47.6	1.6	11.3	2.4
DK	78.1	0.9	1.8	>	74.3	1.0	2.6	>	57.0	-1.6	1.3	>
DE	70.7	1.4	5.2	>	65.4	1.5	7.3	>	53.8	2.3	16.2	>
EE	69.8	0.4	9.4	0.2	66.3	0.4	9.4	>	62.4	2.4	16.1	>
IE	67.6	-1.5	2.4	2.4	60.2	-0.4	6.3	>	53.6	-0.2	8.3	>
EL	61.9	0.5	5.4	8.1	48.7	0.9	7.0	11.3	42.8	0.3	3.8	7.2
ES	64.3	-1.3	8.1	5.7	54.9	0.2	13.6	5.1	45.6	1.0	8.6	4.4
FR	65.2	0.6	3.1	4.8	60.7	0.7	5.5	>	38.3	0.0	8.4	11.7
IT	58.7	0.1	5.0	11.3	47.2	0.6	7.7	12.8	34.4	0.7	6.8	15.6
CY	70.9	-0.1	5.2	>	62.9	0.4	9.3	>	54.8	-1.1	5.4	>
LV	68.6	0.3	11.2	1.4	65.4	1.0	11.7	>	59.4	1.8	23.4	>
LT	64.3	-0.6	5.3	5.7	61.8	-0.4	4.0	>	53.1	-0.3	12.7	>
LU	63.4	-0.8	0.7	6.6	55.1	-1.0	5.0	4.9	34.1	2.1	7.4	15.9
HU	56.7	-0.7	0.4	13.3	50.6	-0.3	0.8	9.4	31.4	-1.6	9.2	18.6
MT	55.2	0.6	1.0	14.8	37.4	1.7	4.2	22.6	29.1	0.6	0.6	20.9
NL	77.2	1.2	4.3	>	71.1	1.5	7.6	>	53.0	2.1	14.8	>
AT	72.1	0.7	3.6	>	65.8	1.4	6.1	>	41.0	2.4	12.2	9.0
PL	59.2	2.2	4.2	10.8	52.4	1.8	3.5	7.6	31.6	1.9	3.2	18.4
PT	68.2	0.4	-0.2	1.8	62.5	0.6	2.0	>	50.8	-0.1	0.1	>
RO	59.0	0.3	1.4	11.0	52.5	-0.3	0.7	7.5	43.1	1.7	5.9	6.9
SI	68.6	0.8	5.7	1.4	64.2	1.6	5.8	>	32.8	-0.7	10.0	17.2
SK	62.3	1.6	5.5	7.7	54.6	1.6	3.2	5.4	39.2	3.6	17.9	10.8
FI	71.1	0.8	3.9	>	69.0	0.5	4.8	>	56.5	1.4	14.8	>
SE	74.3	0.1	1.3	>	71.8	0.1	1.0	>	70.1	0.1	5.1	>
UK	71.5	0.0	0.3	>	65.8	0.3	1.1	>	58.0	0.6	7.3	>
EU-27	65.9	0.5	3.7	4.1	59.1	0.8	5.4	0.9	45.6	1.0	8.7	4.4
EU-15	67.3	0.3	3.9	2.7	60.4	0.7	6.3	>	47.4	0.9	9.6	2.6
2010 target	70%				More than 60%				50%			

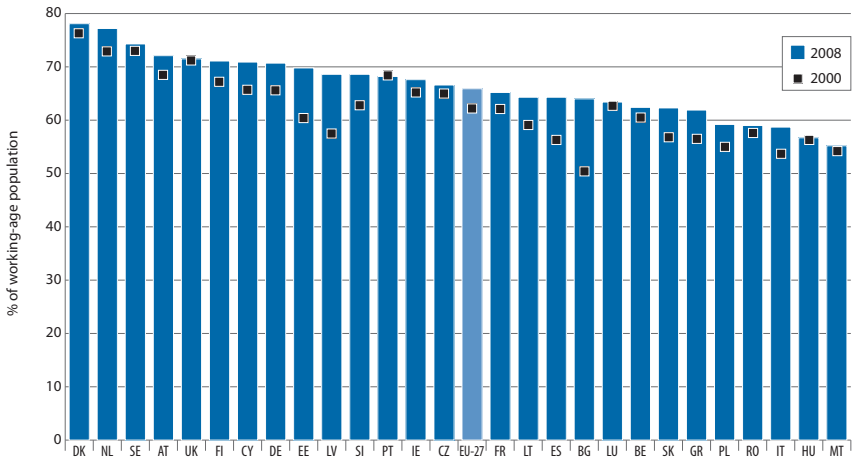
Source: Eurostat, EU LFS.

Note: Data for RO 2002 instead of 2000.

UK (71.5%), Finland (71.1%), Cyprus (70.9%) and Germany (70.7%) – with four Member States less than 2 percentage points short – Estonia (69.8%), Latvia and Slovenia (both 68.6%) and Portugal (68.2%).

However, five Member States remained a considerable distance from the target with rates over 10 percentage points lower – namely Malta (55.2%), Hungary (56.7%), Italy (58.7%), Romania (59%) and Poland (59.2%). The low rates in Italy and Poland have a substantial impact on the EU average, although Poland showed a strong increase in the employment rate in 2008 (of more than 2 percentage points compared with the previous year).

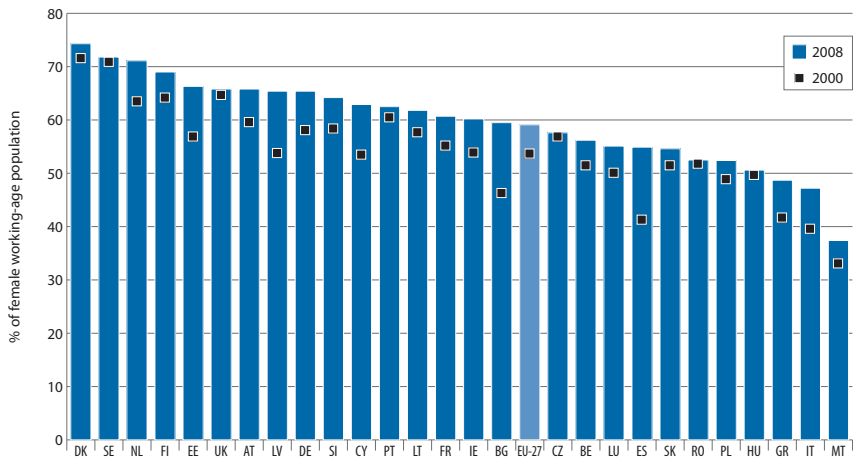
Chart 12: **Employment rates for Member States, 2000 and 2008**



Source: Eurostat, EU LFS.

Note: Data for RO 2002 instead of 2000.

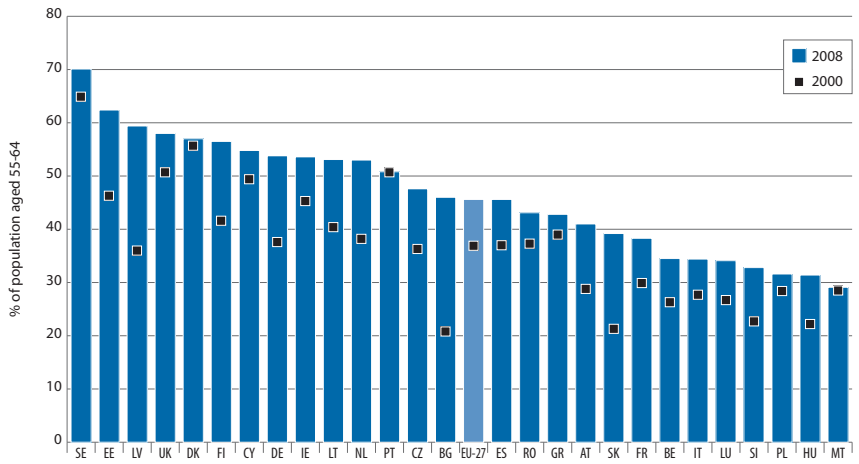
Chart 13: **Female employment rates for Member States, 2000 and 2008**



Source: Eurostat, EU LFS.

Note: Data for RO 2002 instead of 2000.

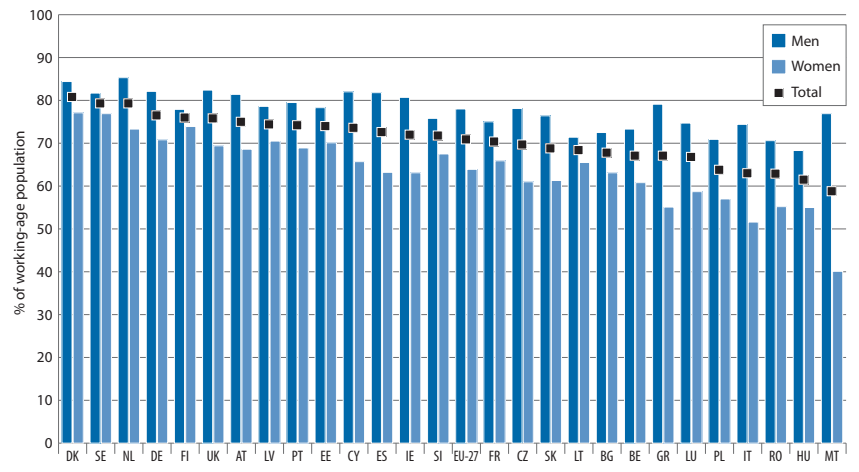
Chart 14: **Employment rates for persons aged 55–64 for Member States, 2000 and 2008**



Source: Eurostat, EU LFS.

Note: Data for RO 2002 instead of 2000.

Chart 15: **Activity rates for Member States by gender, 2008**



Source: Eurostat, EU LFS.

The particularly strong downturn in the economic situation in Ireland prevented it from reaching the target in 2008, as the employment rate slid to 67.6%, a decrease of 1.5 percentage points compared with 2007. Other countries which experienced a noticeable decline in employment rates in 2008 were Spain, Lithuania, Luxembourg and Hungary.

In 2008, as in 2007, a total of 15 Member States had a female employment rate at or above the Lisbon target of 60% (Chart 13). However, apart from Bulgaria, the remaining Member States were still far from the target, with three more than 10 percentage points short – namely Malta (37.4%), Italy (47.2%) and Greece (48.7%). Nevertheless, Bulgaria, Poland, Malta and Slovakia showed considerable progress in 2008, with an increase in their female employment rates of more than 1.5 percentage points compared with 2007.

As in 2007, only 12 Member States had an employment rate for older persons (aged 55–64) of more than 50% – the Stockholm target for 2010 – although, with a strong increase of 3.5 percentage points in 2008, Bulgaria is fast approaching the target. However, nine Member States are more than 10 percentage points short of the Stockholm target – Malta, Hungary, Poland, Slovenia, Luxembourg, Italy, Belgium, France and Slovakia – although the latter made significant progress in 2008, with the rate increasing by 3.6 percentage points. Austria and Luxembourg also showed substantial progress, with rates rising more than 2 percentage points in the last year. With a value of less than 30%, Malta had the lowest employment rate for older persons among all the Member States in 2008, having not made any significant improvement since 2000 (Chart 14).

Activity rates

In 2008, 71% of the working-age population in the EU-27 was active in the labour market (i.e. employed or unemployed). Participation rates ranged from as high as almost 81% in

Denmark to as low as 59% in Malta. More than half of the Member States displayed rates in excess of 70%, while Hungary, Romania, Italy and Poland also recorded relatively low rates of less than 65%.

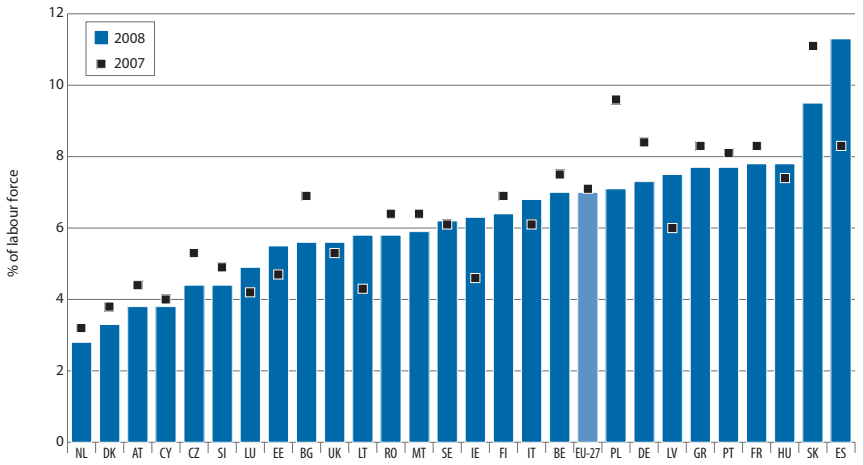
Activity rates vary significantly according to gender. For women the activity rate was less than 64% in 2008, compared with a rate of 78% for men (Chart 15). This unequal situation between men and women varies considerably from country to country. Large differences in male and female activity rates can be observed in Malta, Greece and Italy, while the Nordic and Baltic States display relatively small differences. The Member States with the largest gender differences in activity rates are also those countries that are furthest away from reaching the Stockholm target on female employment.

2.3.2. Unemployment

The unemployment rate for the EU averaged 7.0% in 2008. Spain had the highest unemployment rate (11.3%) followed by Slovakia (9.5%). Other countries with higher-than-average unemployment rates in 2008 were Hungary, France, Portugal, Greece, Latvia, Germany and Poland. In contrast, very low unemployment rates, of less than 4%, were recorded in the Netherlands, Denmark, Austria and Cyprus (Chart 16).

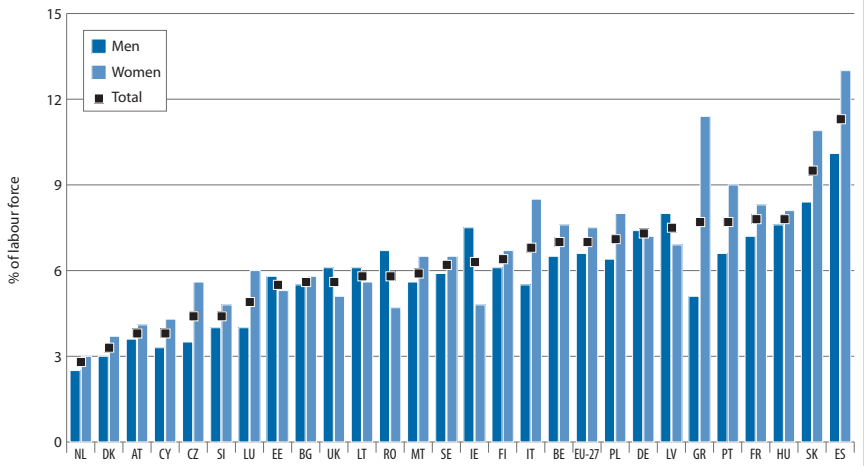
Although the unemployment rate at EU level remained stable for 2008 compared with 2007, different developments could be observed across individual Member States. For some unemployment increased in 2008, with this being especially the case for Spain (where the rate rose by 3 percentage points) together with Ireland, Latvia and Lithuania. For the first two countries, this reflects in particular a sharp drop in employment due to a strong contraction in the construction industry, caused by the marked downturn in the housing markets in those Member States. In other countries, unemployment

Chart 16: **Unemployment rates for Member States, 2008 and 2007**



Source: Eurostat, EU LFS.

Chart 17: **Unemployment rates for Member States by gender, 2008**



Source: Eurostat, EU LFS.

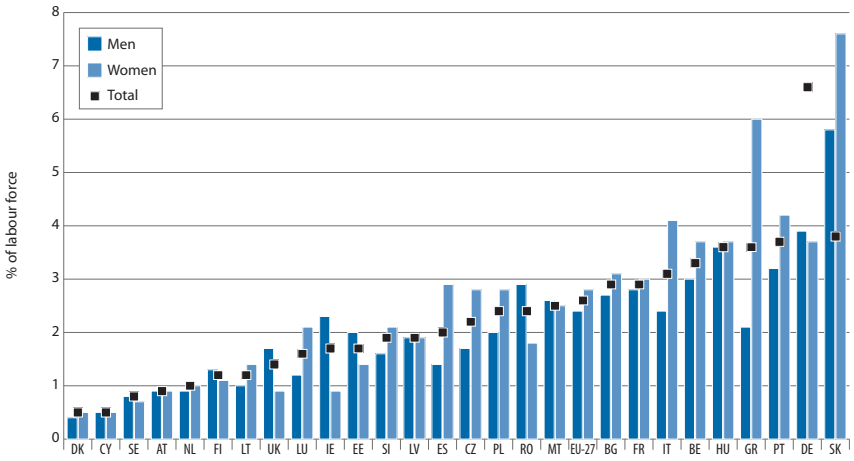
continued to decrease in 2008, with examples being Poland, Slovakia, Bulgaria and Germany, which all saw rates fall by more than 1 percentage point compared with 2007.

As in the past, unemployment was generally higher among women than men in 2008 (Chart 17). This was especially the case in Greece, where the labour market situation for women looks particularly challenging, with a gender gap of 6 percentage points. However, the opposite situation (of higher unemployment rates for men) is found in a few Member States. This is notably the case in Ireland and Romania, where the unemployment rate for men was 2 percentage points more than that for women in 2008, while this 'reverse' gender gap was also observed in the Baltic States, Germany and the UK.

In 2008, 2.6% of the labour force was in long-term unemployment (i.e. unemployed for a period of 12 months or more). Most Member States had rates around the average or lower, but some rates were considerably higher, for example in Slovakia which has by far the highest rate of long-term unemployment, at 6.6%.

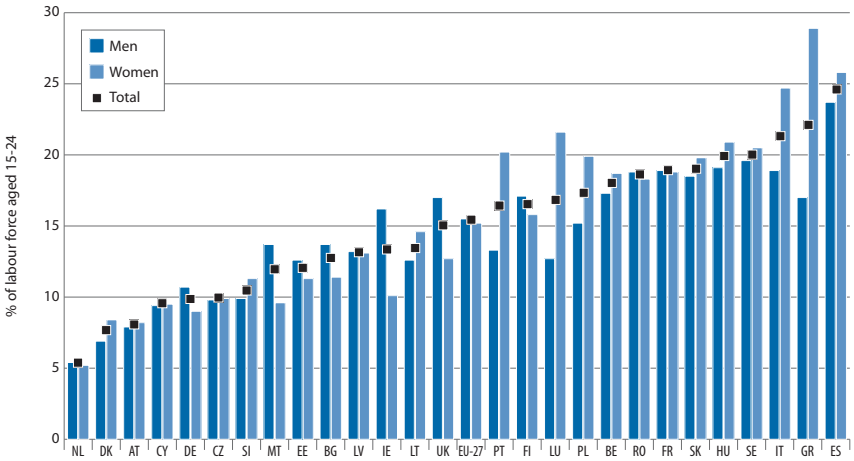
Long-term unemployment is generally more frequent among women than men. In Slovakia almost 8% of the female labour force was long-term unemployed in 2008, with Greece (6%), Portugal (4%) and Italy (4%) also having relatively high rates (Chart 18).

Chart 18: **Long-term unemployment rates for Member States by gender, 2008**



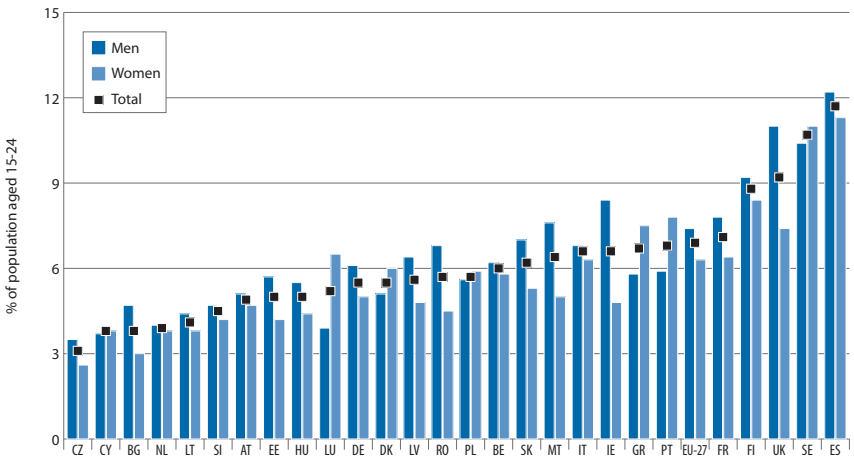
Source: Eurostat, EU LFS.

Chart 19: **Youth unemployment rates for Member States by gender, 2008**



Source: Eurostat, EU LFS.

Chart 20: **Youth unemployment ratio in the Member States, 2008**



Source: Eurostat, EU LFS.

Youth unemployment (i.e. unemployment among those aged 15–24) remains a serious concern, leading to renewed efforts to facilitate the entry of young people into the labour market and to support them as they take their initial career steps. The youth unemployment rate in the EU amounted to 15.4% in 2008 – virtually the same as in 2007 – and still more than twice the rate for adults aged 25–54. In several Member States, the problem is particularly severe, with youth unemployment rates of 20% or higher in Spain, Greece, Italy and Sweden in 2008 (Chart 19).

The relatively high unemployment rate for young persons is to a certain extent a result of the fact that unemployment is related to the labour force (those who are employed or unemployed). Since most young people are in education and therefore in many cases do not belong to the labour force, this rate can become artificially high. Furthermore, the labour market behaviour of persons in education differs considerably from country to country, which makes it difficult to compare youth unemployment rates across Member States.[8]

To gain a fuller understanding of the labour market situation for young people, the youth unemployment ratio – i.e. the unemployment of persons aged 15–24 relative to the total population of the same age – is often considered in parallel with the unemployment rate. In 2008 on average 6.9% of all persons aged 15–24 were unemployed in the EU-27, with only a few Member States displaying ratios higher than in the previous year. In Spain and Sweden more than 10% of young people were unemployed in 2008, while unemployment was also relatively high among young persons in the UK, Finland and France. In most Member States young men were more affected than women, with the fraction of unemployed among young men exceeding 11% in the UK and Spain (Chart 20).

(8) For further discussion see the chapter on unemployment in this report.

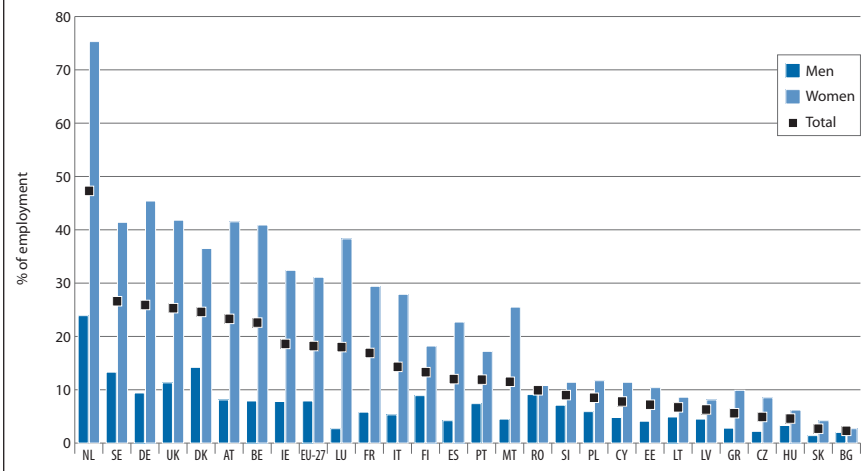
2.3.3. Contractual arrangements

Within the EU there are significant differences across Member States regarding the incidence of part-time work. Its share in total employment varied from around 47% at the one extreme in the Netherlands, where the share of part-time employment continues to be much higher than for any other Member State, to only 2% in Bulgaria in 2008 (Chart 21). Shares were also relatively high (above 20%) in Austria, Belgium, Denmark, Germany, Sweden and the UK. In contrast, in most of the new Member States, the overall share of part-time employment remains relatively low, particularly in Bulgaria, the Czech Republic, Hungary and Slovakia. In most Member States the share of part-time work has moderately increased since 2000, but in some the share has decreased – namely in the Baltic States, Poland, Romania, Cyprus, Czech Republic and Bulgaria, i.e. in most of the new Member States.

The incidence of part-time work is much higher for women than for men in virtually all countries. In the most extreme case, the Netherlands, more than 75% of female workers worked part time in 2008. Men working part time are less common than women in all Member States, but compared with most countries the share of part-time working men is relatively high in Denmark, the Netherlands, Sweden, the UK, Germany, Romania and Finland.

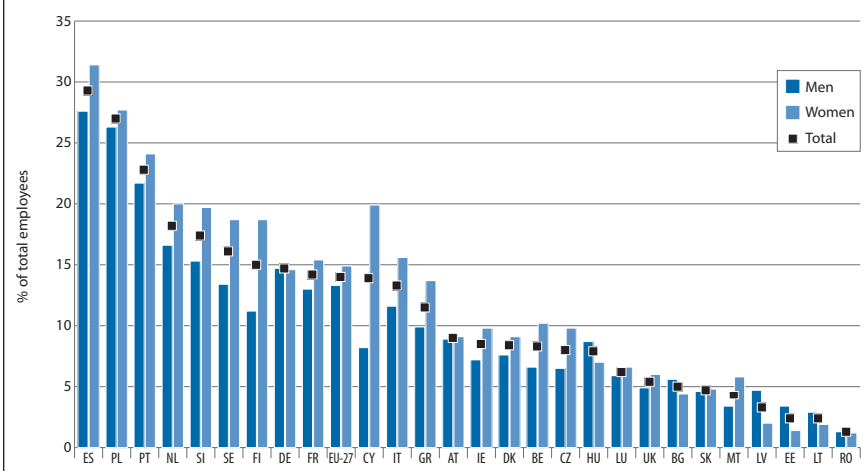
The use of fixed-term contracts among employees is relatively common in about a third of Member States. The share of employees on such contracts was highest in Spain in 2008 (29%), but was also relatively elevated in Poland, Portugal, the Netherlands, Slovenia and Sweden. In contrast, the incidence of temporary work was relatively low in Romania, the Baltic States, Malta and Slovakia. For these Member States less than 5% of employees had a fixed-term contract in 2008. Fixed-term contracts are more frequent among female than male employees. This is especially the case in Cyprus where the share of fixed-term contracts for women was 20% in 2008, while for men it was only 8%. Sweden and Finland also displayed relatively high shares of fixed-term contracts among women compared with men (Chart 22).

Chart 21: **Part-time employment for Member States by gender, 2008**



Source: Eurostat, EU LFS.

Chart 22: **Fixed-term employment for Member States by gender, 2008**



Source: Eurostat, EU LFS.

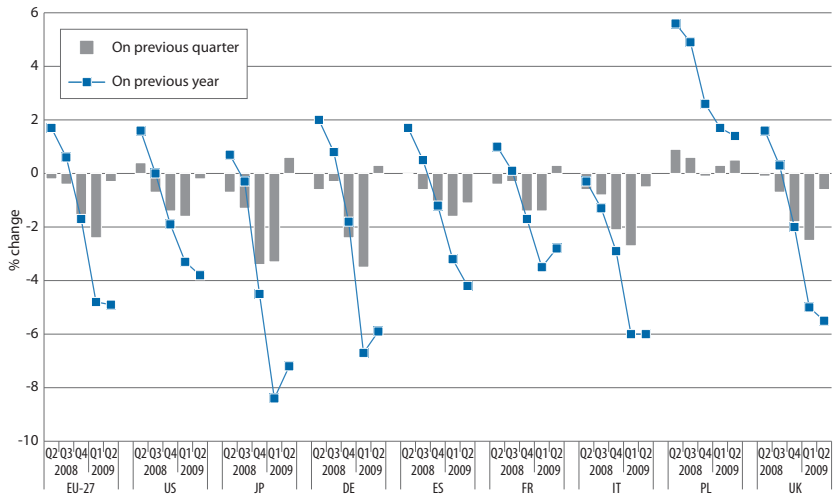
3. THE RECENT LABOUR MARKET DOWNTURN AND ITS INTENSIFICATION SINCE THE DEEPENING OF THE FINANCIAL CRISIS LAST AUTUMN

Currently the EU is in the midst of the deepest and most widespread recession in the post-war era. After several years of favourable growth, and in particular good performance in terms of employment creation, economic and labour market conditions deteriorated sharply in the second part of 2008. This mainly occurred as a result of the impact of the financial crisis which deepened last autumn and came on top of a correction in the housing markets in many economies. The ensuing weakening in global and domestic demand and a marked drop in investor confidence together with tighter financing conditions and a reduction in availability of credit has had a dramatic effect on the economy and subsequently the labour market.

Employment growth in the EU had already petered out in the second quarter of last year. This is when the level of employment in the EU peaked, but also when quarter-on-quarter

GDP growth first turned negative. At the same time, the unemployment rate troughed in spring 2008 and then headed upwards. As such, the second quarter of 2008 marks the turning point in the previous positive growth period of recent years. The already negative trend was subsequently bolstered in the third quarter of 2008, as the financial crisis deepened markedly in September and October, leading to more substantial impacts in subsequent quarters before initial signs of some easing started to appear in the second quarter of 2009. This section focuses on the recent period of employment contraction and rising unemployment from the second quarter of 2008 on, with special emphasis on the intensification in the labour market downturn since the deepening of the financial crisis last autumn.

Chart 23: **GDP growth for the EU, USA, Japan and the larger EU Member States**



Source: Eurostat, national accounts. Data seasonally adjusted.

3.1. Economic activity

The EU economy has clearly suffered from the ongoing global economic crisis, which deepened and broadened in autumn last year due to the crisis in the financial markets, and from the consequent further deterioration in the global economic situation. As a result of the financial crisis, risk evasion became pervasive with much tighter credit conditions, and lending volumes to companies and individuals dropped. In addition, exposure to the substantial ongoing housing-market corrections or other country-specific factors in several Member States brought a halt to growth in domestic demand at the same time as external demand weakened.

Faced with falling demand globally – as both developed and developing countries have been hit by the downturn – and therefore poor prospects for profits, firms sharply reduced investment. At the same time, confronted by risks to employment and the need to rebuild savings, households curtailed consumption, especially of durable items. As a clear example of the latter, car sales in the EU have plummeted[9], leading to temporary closures of car manufacturing plants and partial temporary unemployment and/or widespread use of short-time working arrangements. In some Member States, such as Ireland and Spain, the ongoing correction in the housing market severely aggravated the already difficult situation, as the negative wealth effect of falling house prices dampened consumer spending, as well as through employment losses due to the sharp drop in residential construction.

3.1.1. Developments in GDP

After entering a technical recession (two quarters of negative quarter-on-quarter growth) in the third quarter of 2008, the economic downturn in the EU worsened further in the following two quarters, although there were signs that it was easing somewhat by mid-2009 – following on from the sharp 1.9% and 2.4% contractions recorded in the previous two quarters, GDP declined by a more modest 0.3% in the second quarter of 2009. Consequently, compared with a year earlier, economic output in the EU had contracted by a substantial 4.9% by the second quarter of 2009 (Chart 23).[10]

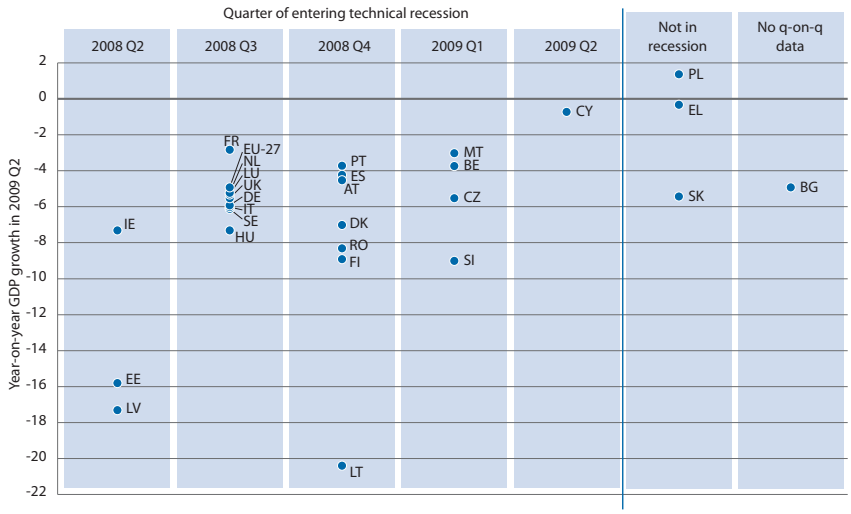
The decline in EU GDP compares with a somewhat more limited decrease in economic output in the USA (which entered a recession in the fourth quarter of 2008) but is much lower than the economic contraction in Japan, which also entered recession in the third quarter of 2008. Year-on-year, by the second quarter of 2009 economic output in the USA had contracted by 3.8%, while in Japan a sharp drop in exports combined with weak domestic demand led to economic output contracting by a substantial 7.2%.

The marked decline in economic output at EU level over the last year reflects strong contractions in GDP in Germany, Italy and the UK and slightly more moderate falls in France and Spain. Within the EU, most Member States had technically entered a recession by the first quarter of 2009, although some have recently returned to positive growth. (In the second quarter of 2009, the economies of the Czech Republic, France, Germany, Portugal, Slovenia and Sweden started to expand again to join Greece, Poland and Slovakia in posting positive growth.)

(9) Although in some Member States support measures such as 'scrapping premiums' have mitigated the fall in sales (for example, car sales in Germany, the biggest EU car producer, have not plummeted owing to the implementation of scrapping premiums).

(10) Quarter-on-quarter and year-on-year GDP growth is based on seasonally adjusted data.

Chart 24: **Year-on-year GDP growth in the second quarter of 2009 and timeline of entering recession**



Source: Eurostat, national accounts. Data seasonally adjusted.
Note: Data for BG non-seasonally adjusted.

There is quite a spread in the time at which individual Member States entered recession (Chart 24). Ireland and the Baltic States of Estonia and Latvia were the first to enter recession, in the second quarter of 2008. This early entry may at least in part explain why they are among those that have suffered the greatest year-on-year contraction in GDP up to the second quarter of 2009. Most Member States entered recession in the third (including France, Germany, Italy and the UK) or fourth quarter (including Spain) of 2008, and only Greece, Poland and Slovakia had still avoided a technical recession by the second quarter of 2009 (although Slovakia experienced a very sharp contraction in GDP in the first quarter).

Although most of the larger Member States had already experienced negative GDP growth by the third quarter of 2008, the main declines were recorded in the fourth quarter of last year and in the first quarter of 2009. Among the larger Member States, Germany is among those to have suffered the strongest contraction in economic output, with the recession deepening sharply since the last quarter of 2008, although output recovered somewhat in the second quarter of this year as GDP growth turned positive again. The recession has particularly hit manufacturing, while output also decreased notably in the trade, transport and communication sector. Overall, despite the recent improvement, by the second quarter of 2009 economic output was down 5.9% on the same quarter of the previous year, reflecting Germany's strong economic dependence on foreign exports, which have plummeted due to the global downturn. Similarly, strong declines in output have also occurred in Italy (down 6.0%) and the UK (down 6.0%), for the latter reflecting a sharp housing correction and its strong economic reliance on the financial sector.

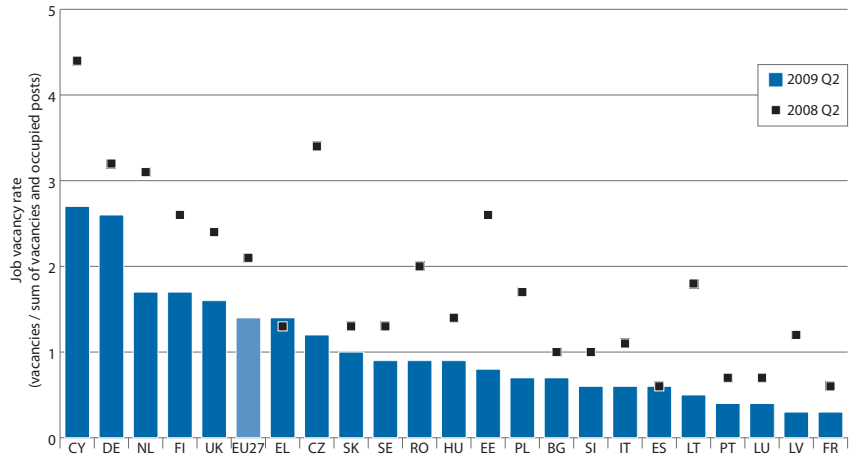
In comparison, declines in economic output compared to the second quarter of 2008 have been slightly less marked in Spain (down 4.2%) and France (down 2.8%), while in contrast to the other larger Member States, the Polish economy expanded year on year, though at a declining pace. (In the second quarter, year-on-year GDP growth fell to 1.4%, with positive growth still driven by expansion in service sectors and in construction.) All the remaining Member States had experienced a contraction in economic activity compared to the second quarter of 2008.

3.2. How has the labour market adjusted to the economic downturn?

3.2.1. Labour demand

Demand for new workers has declined in line with the economic downturn. The EU job vacancy rate (i.e. the number of vacancies relative to the sum of vacancies and occupied posts) started to drop in the third quarter of 2008 and subsequently fell to

Chart 25: **Job vacancy statistics for EU Member States**



Source: Eurostat, job vacancy statistics. Data non-seasonally adjusted.
Note: Firm size: total except for FR and IT (10 or more employees). Data for EU, DE, HU and SI 2008-2009, RO 2008 and BG, FR, LV, LU and NL 2009 provisional.

1.4% in the first and second quarters of 2009, a drop of 0.7 percentage points compared to a year earlier. This drop in the job vacancy rate was equivalent to a fall in demand for new workers of around one third over the year for the EU as a whole, but underlying this development is significant variation in the size of the decline in demand across individual Member States (Chart 25).

Among the larger Member States, the decline in the vacancy rate has been most pronounced in Poland (down by 1 percentage points year on year, or around a half), reflecting the recent cooling-off in employment expansion. The rate declined more moderately over the year in the UK (by 0.8 percentage points), Germany (by 0.6 percentage points) and in France (by 0.3 percentage points), and remained unchanged in Spain (but at an already low level).

By the second quarter of 2009, the rate stood at 0.5–0.7% in Italy, Spain and Poland, and at only 0.3% in France, the lowest in the EU. However, it remained relatively high in Germany (2.6%, the second highest rate in the EU) and the UK (1.6%), reflecting continued labour shortages despite growing unemployment. Official sources in Germany and the UK confirm that, although in mid-2009 job vacancies were down around a fifth and a third respectively on a year earlier, overall vacancy levels remained reasonably high at between 400 000 and 500 000 in each country.

All the other Member States for which vacancy data is available have seen the rate fall relative to the same quarter of the previous year, with the sole exception of Greece. The sharpest falls have occurred in Cyprus, the Czech Republic and the Baltic States. Apart from Germany and the UK, demand for new workers in the second quarter of 2009 remained relatively strong in Cyprus, Finland and the Netherlands (all with above average rates in excess of 1.5%), despite the strong declines relative to the year before. At under 0.5%, in addition to France, labour demand was weakest in Latvia, Luxembourg and Portugal.

Temporary agency work has been hit particularly hard by the downturn. Data from Eurociett over recent months has shown a sharp year-on-year contraction in the number of hours invoiced by private employment agencies, ranging from the order of 30% in the Netherlands, Italy and Belgium, to 40% in France, and as much as 50% in Spain.

Despite the clear downward adjustment in the demand for new workers, it appears that for much of the period to date, many firms have been reluctant to reduce the number of existing employees even when the demand for their output fell. Manpower Employment Outlook Surveys[11] over recent quarters have consistently indicated that the majority of employers report that they intend to make no changes in their staffing levels, which has been a reflection of employers' concern of losing skilled workers who will be hard to replace. However, faced with the more sustained period of weakness in demand and the ongoing tight credit conditions that increased the need to cut costs, including labour costs, maintaining the resolve to remain at existing staffing levels became increasingly difficult for many.

3.2.2. Employment

Employment growth

In reaction to the economic downturn, the labour market in the EU had already started to weaken considerably in the spring/summer of last year, as employment growth moderated from the high rates of 2006 and 2007. In the latter half of 2008, in response to the intensification of the financial crisis, employment growth subsequently deteriorated even more strongly, turning negative from the third quarter of 2008 on. After posting negligible growth in the second quarter, which marks the high point in the previous period of employment expansion, employment in the EU contracted by 0.2% and 0.3% over the third and fourth quarters of 2008, and by a more substantial 0.8% (1.8 million) and 0.6% (1.4 million) over the first and second quarters of this year (Chart 26). As a result, employment in the EU had declined to 223 million by mid-2009, down by 4.3 million (1.9%) compared with the level a year earlier, and mainly reflecting falls in employment for men.[12]

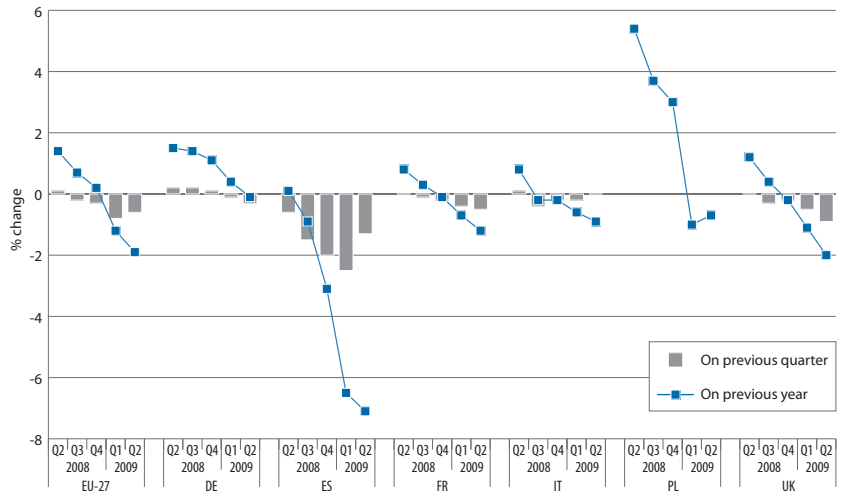
Underlying this development at EU level were deteriorating labour market performances in the larger Member States, most notably in Spain and in the UK, but also more recently in Germany and Poland where employment levels had remained relatively resistant to the effects of the crisis over 2008 (in the former due to extensive recourse to short-time working arrangements). Over the year to the second quarter of 2009, labour market performances deteriorated across all Member States, most notably in the Baltic States, Ireland and Spain, which have all been affected by severe housing market downturns leading to substantial employment contraction in the construction sector.

Among the larger Member States, Spain has clearly experienced the most significant decline in employment levels. In line with the slowdown in economic activity, employment growth in Spain progressively decelerated over the course of 2007 and turned negative in the second quarter of 2008. The contraction in employment accelerated over the following quarters, with quarter-on-quarter growth posting –2.5% in the first quarter of 2009 before moderating to –1.3% in the second quarter, and has been much stronger

(11) For more information see the website: www.manpower.com/press/meos.cfm

(12) Quarter-on-quarter employment changes and growth are based on seasonally adjusted data, year-on-year employment changes and growth are based on non-seasonally adjusted data. Levels of employment in 2009 are non-seasonally adjusted.

Chart 26: **Employment growth for the EU and larger Member States**



Source: Eurostat, national accounts. Data seasonally adjusted for change on previous quarter; data non-seasonally adjusted for change on previous year.

Note: Seasonally adjusted data not available for PL.

than in other larger Member States. Compared with the second quarter of the previous year, employment had contracted by 7.1%. The deterioration has been driven by labour reductions across all sectors apart from public-sector-based services, but has been particularly marked in the construction and industry sectors.

Despite the recession being deeper in Italy and the UK, and similar in France, the deterioration in labour markets in those Member States since the third quarter of last year has been less pronounced than in Spain (with employment declines at a significantly slower pace than declines in economic activity – see Box 1). By the second quarter of 2009, employment had contracted by 1.2% year on year in France, by 0.9% in Italy, and by 2.0% in the UK.

By contrast, in Germany the effects of the severe economic recession on the labour market have so far been mitigated by reductions in labour intensity, as companies have used internal adjustment measures such as temporary suspension of production and short-time working arrangements rather than reducing the workforce. Quarter-on-quarter employment growth turned negative (–0.1%) only in the first quarter of 2009 and declined only slightly further (to –0.3%) in the second quarter, mainly reflecting falls in the financial services/business activities and industry sectors. As a result, employment levels in the second quarter of 2009 had hardly changed compared with those a year earlier.

In Poland, the strong employment expansion observed in 2006 and 2007 started to moderate at the beginning of 2008. Despite still positive GDP

Table 5: **Employment growth for EU Member States**

	% change on previous quarter						% change on previous year					
	2008 Q1	2008 Q2	2008 Q3	2008 Q4	2009 Q1	2009 Q2	2008 Q1	2008 Q2	2008 Q3	2008 Q4	2009 Q1	2009 Q2
BE	0.5	0.3	0.3	0.0	-0.5	-0.5	1.9	1.7	1.7	1.2	0.1	-0.7
BG	:	:	:	:	:	:	4.8	3.4	3.0	2.1	-0.3	-1.8
CZ	-0.5	0.9	0.6	-0.1	-1.0	-0.8	1.1	1.4	1.3	0.9	0.3	-1.4
DK	0.3	0.0	0.2	-0.6	-1.5	-0.5	1.6	1.1	0.9	-0.1	-1.9	-2.6
DE	0.6	0.2	0.2	0.1	-0.1	-0.3	1.7	1.5	1.4	1.1	0.4	-0.1
EE	0.4	-0.1	-0.2	-0.6	-7.2	-1.8	2.0	-0.5	-0.3	-0.2	-7.2	-10.2
IE	-0.1	-0.8	-1.6	-1.5	-3.8	-1.5	1.6	-0.1	-2.1	-3.9	-7.5	-8.3
EL	0.4	0.1	0.1	0.6	-1.8	0.3	1.3	1.5	1.1	1.0	-0.6	-1.0
ES	0.7	-0.6	-1.5	-2.0	-2.5	-1.3	1.5	0.1	-0.9	-3.1	-6.5	-7.1
FR	0.2	0.0	-0.1	-0.2	-0.4	-0.5	1.2	0.8	0.3	-0.1	-0.7	-1.2
IT	0.1	0.1	-0.4	-0.2	-0.2	0.0	0.9	0.8	-0.2	-0.2	-0.6	-0.9
CY	:	:	:	:	:	:	2.4	2.7	3.5	1.9	1.4	-0.5
LV	0.1	-0.2	-2.3	-3.1	-3.3	-4.9	5.6	3.4	0.2	-5.4	-8.2	-13.1
LT	-0.2	-0.6	0.2	-0.7	-4.5	-1.8	0.9	-0.6	-1.0	-1.2	-5.1	-6.7
LU	1.2	1.4	0.7	0.7	-0.5	0.4	5.2	4.9	4.7	4.0	2.3	1.3
HU	:	:	:	:	:	:	-1.5	-1.8	-0.7	-0.9	-3.0	-4.5
MT	:	:	:	:	:	:	2.7	3.1	2.3	1.8	0.6	-0.8
NL	0.4	0.4	0.0	0.3	-0.4	-0.6	1.9	1.6	1.1	1.1	0.3	-0.8
AT	1.2	0.3	-0.1	-0.2	-0.4	-0.4	2.2	2.0	1.5	1.4	-0.4	-1.1
PL	:	:	:	:	:	:	7.0	5.4	3.7	3.0	-1.0	-0.7
PT	0.3	0.2	-0.9	0.4	-1.3	-0.9	0.9	1.2	-0.2	-0.1	-1.6	-2.7
RO	:	:	:	:	:	:	:	:	:	:	:	:
SI	0.7	0.7	0.6	0.4	-1.2	-1.4	3.2	3.1	2.9	2.4	0.5	-1.6
SK	0.4	0.2	1.7	-0.3	-1.9	-0.6	2.8	2.9	3.2	2.1	-0.4	-1.3
FI	1.1	0.5	-0.7	-0.2	-0.7	-1.2	2.5	2.1	1.0	0.8	-1.1	-3.0
SE	:	:	:	:	:	:	1.7	1.3	0.7	0.0	-1.2	-2.2
UK	0.3	0.0	-0.3	-0.2	-0.5	-0.9	1.5	1.2	0.4	-0.2	-1.1	-2.0
EU-27	0.5	0.1	-0.2	-0.3	-0.8	-0.6	1.8	1.4	0.7	0.2	-1.2	-1.9

Source: Eurostat, national accounts. Data seasonally adjusted for change on previous quarter; data non-seasonally adjusted for change on previous year.

growth, year-on-year employment growth in Poland turned negative in the first quarter of 2009 (posting a decline of –1%, a more severe downward adjustment of year-on-year growth compared to most other larger EU Member States except Spain) before moderating to –0.7% in the second quarter.

In the remaining Member States, year-on-year employment growth had turned negative in all except Luxembourg by the second quarter of 2009. The decline in employment over the last year has been particularly severe in Ireland (–8.3%) and the Baltic States (Estonia, –10.2%; Latvia, –13.1%; and Lithuania, –6.7%), which – alongside Spain – have registered the strongest deteriorations in their labour markets (Table 5).

Sectoral employment and restructuring

The moderation in year-on-year employment growth over 2008 followed by the contraction in employment in the first half of 2009 has resulted from a broad deterioration across almost all sectors. Decline has been strongest in construction (which had already been following a strong downward trend in employment growth since the first quarter of 2007) and industry, but has also been noticeable in financial services and business activities, and in the trade, transport and the communication sector.

Over the year to the second quarter of 2009, total employment decreased by 4.3 million, mostly reflecting significant drops of 1.3 million in construction and 1.9 million in non-construction-related industry (equivalent to a contraction in

Box 2: Employment declines versus falls in economic activity

The recent fall in employment in the EU has been much weaker than the fall in economic activity…

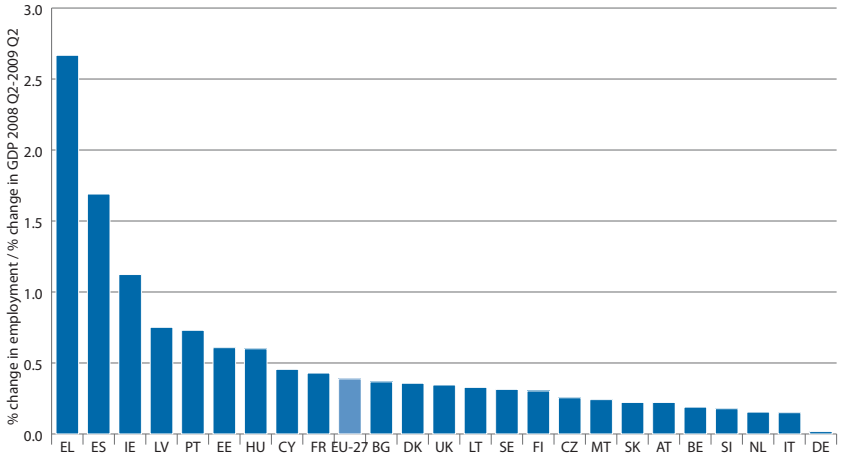
The recent fall in employment in the EU and most Member States has been significantly weaker than the fall in economic activity. This is in part due to extensive recourse to short-time working arrangements or other measures to tackle the employment impact of the crisis in some Member States, but also reflects the normal lags before the downturn in economic activity feeds through to the labour market. For the EU as a whole, compared to a year earlier, economic output had contracted by a substantial 4.9% by the second quarter of 2009, while employment had contracted by a much more limited 1.9%.

… however, in some Member States the response of employment to the decline in economic activity has been much more pronounced…

By the second quarter of 2009, GDP had declined compared to a year earlier in all Member States except Poland, while employment had declined in all except Luxembourg. However, in some Member States the response of employment to the decline in economic activity has been much more pronounced than in others. The employment decline has been strongest in the Baltic States and Ireland, in line with the sharp declines in economic activity, but also in Spain, even though the contraction in GDP has been more limited than for most other Member States. Additionally, in Greece employment contracted much more noticeably than GDP.

The elasticities of employment declines to GDP declines (i.e. the decrease in employment over the year to the second quarter of 2009 divided by the decrease in GDP over the same period) suggest a particularly strong reaction of employment to economic contraction in Greece, Ireland and Spain, but also, although to a lesser extent, in Estonia, Hungary, Latvia and Portugal (Chart 27). In contrast, the elasticity of employment to the fall in economic activity in countries such as Belgium, Italy, the Netherlands and Slovenia, and above all Germany, has been much more subdued.

Chart 27: Elasticity of employment declines to GDP contraction, 2008 Q2–2009 Q2



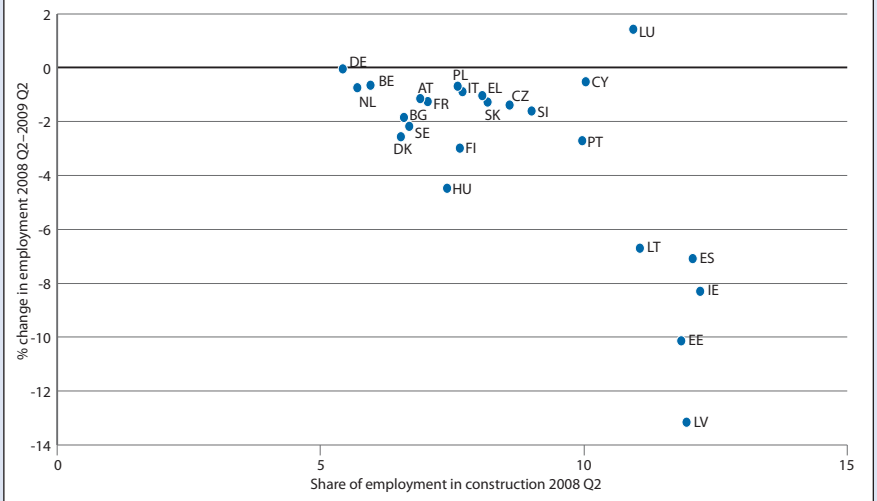
Source: Eurostat, national accounts. Data seasonally adjusted.

Note: Data for BG, CY, HU, MT, PL and SE non-seasonally adjusted.

… particularly in Member States where the construction sector accounts for a relatively high share of employment.

There are several reasons for the comparatively stronger decline in employment in certain Member States. However, one key factor appears to be the impact on and influence of the construction sector – one of the sectors hardest hit by the recent economic and financial crisis and which accounts for an especially high share of national employment in the Baltic States, Ireland and Spain compared with other Member States (Chart 28). In this context, to a certain extent the variation across countries reflects productivity levels in the sectors which have been hit hardest. For example, in Germany the manufacturing sector has been badly hit by plummeting exports but high productivity levels in this sector have led to comparatively small falls in employment relative to GDP, while in Spain the large contraction in the relatively low-productivity construction sector has led to large falls in employment relative to GDP.

Chart 28: **Employment growth 2008 Q2–2009 Q2 versus share of employment in construction in 2008 Q2**

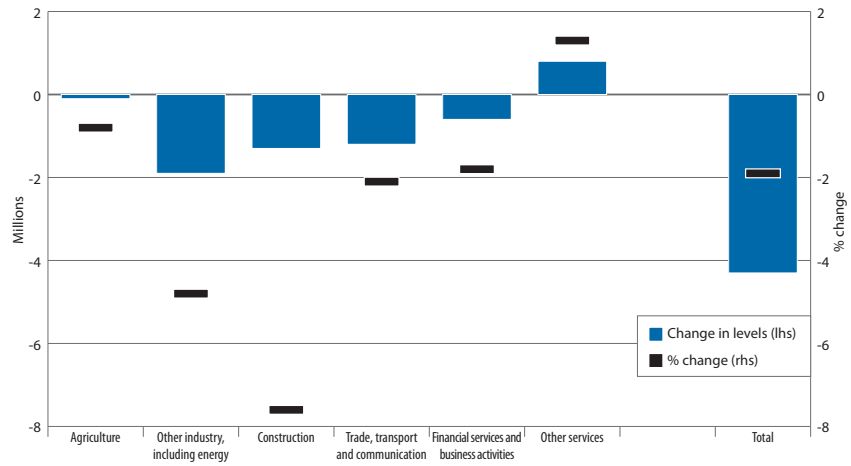


Source: Eurostat, national accounts. Data non-seasonally adjusted.

Another reason is the widespread use of internal flexibility in certain Member States such as Belgium and Germany compared with relatively limited use of such arrangements in the Baltic States, Ireland and Spain. Furthermore, in the case of Spain the high share of workers in temporary contracts, who can be relatively easily dismissed, also in part explains its stronger employment reaction to the downturn. Indeed, countries with a combination of very flexible short-term contracts and very inflexible permanent contracts may experience relatively large falls in employment.

sectoral employment of 7.6% and 4.8% respectively). Indeed, these two sectors combined account for more than 60% of all sectoral employment declines over this period. Contraction in other sectors has been more moderate, with employment declining by 0.8% (110 000) in agriculture and by 0.6% in services (1 million). Within services, falls in employment in the trade, transport and communication sector (down some 1.2 million, or 2.1%), and in financial services and business activities (down 600 000, or 1.8%) were partially compensated by employment expansion of 800 000 (or 1.3%) in other services (mainly in the public sector) (Chart 29).

Chart 29: **Sectoral employment changes for the EU, 2008 Q2–2009 Q2**



Source: Eurostat, national accounts. Data non-seasonally adjusted.

Broadly similar sectoral trends are reflected in the European Restructuring Monitor data collected by the European Monitoring Centre on Change, which gives a picture of the labour market impact of the crisis at enterprise level (Box 2). This data source has in particular recorded substantial job losses announced for the manufacturing sector, especially in auto-manufacturing and related industries.

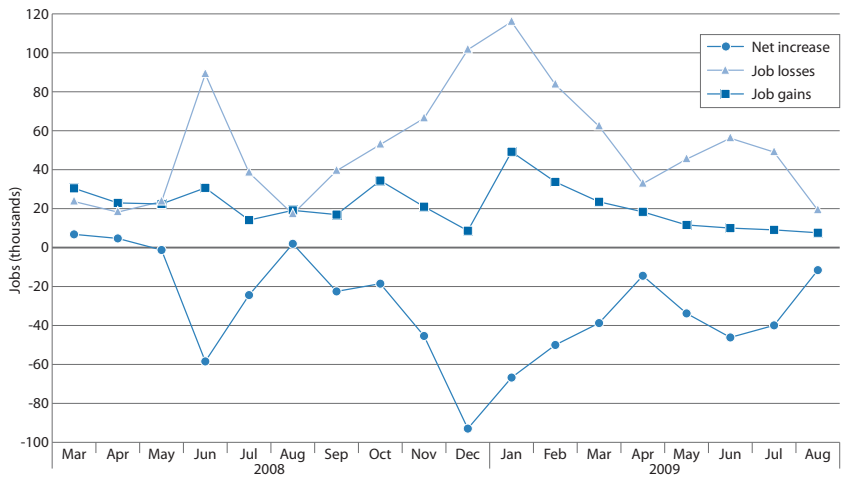
Box 3: Restructuring developments in Europe

The European Restructuring Monitor (ERM) dataset is based on news and media reports of individual cases of restructuring, generally involving over 100 announced job losses or gains, identified by a network of national correspondents in the EU-27 and Norway. The following is a summary analysis of the more than 3 000 ERM cases recorded during the 18-month period between 1 March 2008 and 30 August 2009.(1)

Announced job losses outnumbered job gains by a factor of 2.5 to 1

After recording greater announced job gains than losses in 2007 and the early months of 2008, ERM data from spring 2008 onwards clearly registers the impact of the economic crisis. There were almost three cases of announced job loss for every one of job creation during the subsequent period to August 2009. Excluding cases of transnational restructuring, total announced job losses from restructuring captured by the ERM amounted to over 935 000 jobs. Just over 385 000 new jobs were announced. The impact of the crisis was most obvious in the months of December 2008 and January 2009, in each of which over 100 000 job losses were announced. Since the turn of the year restructuring activity has moderated significantly though job losses continue to outnumber job gains (Chart 30).

Chart 30: **Announced job losses and gains for the EU**



Source: European Monitoring Centre on Change, European restructuring monitor.

Auto-manufacturing and related industries account for the highest number of job losses…

Auto-manufacturing recorded by some margin the highest number of cases of restructuring of any sector between March 2008 and August 2009 (268), together with the greatest aggregate job losses (over 100 000). There has been a marked shift in the composition of this job loss from original equipment manufacturers to motor parts and accessories producers in 2008–2009. It appears that employment in supply chain firms has proven more vulnerable to the downturn than that in core producers. Over half of car sector job losses were in supply chain firms in 2008–09 (compared with a previous average of 25%). Related sectors – manufacture of basic metals and machinery/ equipment – also figure among the sectors most affected by job losses (Table 6).

Auto-manufacturing was also notable for the geographical spread of job losses and job gains. West European Member States recorded cases of job loss almost exclusively while some Central and Eastern European Member States – notably Poland, but also Hungary and Slovakia – recorded more job gains than job losses in the sector, even during the downturn.

Table 6: **ERM announced job loss by NACE-2 sector (March 2008–August 2009)**

Sector (NACE rev 1.1)	2002-Feb 2008	Mar 2008-Aug 2009		
	% total job loss	Cases	% total job loss	Total job losses (thousands)
Manufacturing: auto	8.2	268	11.2	105
Public administration	13.3	46	8.5	79
Retail	3.0	82	7.7	72
Post and telecommunications	12.0	69	7.5	70
Financial intermediation	7.5	82	7.3	68
Manufacture: machinery / equipment	2.0	163	5.4	51
Manufacture: basic metals	2.9	88	3.7	35
Manufacture: electrical machinery	2.3	97	3.0	28
Manufacture: food products	3.3	108	3.0	28
Manufacture: other non-metallic mineral products	1.0	80	2.8	26

Source: European Monitoring Centre on Change, European restructuring monitor.

(1) Summary based on extraction from ERM on 2 September 2009.

… while discount providers in the retail and hotels/restaurant sector announced job creation…

Over the period from March 2008 to August 2009, the largest restructuring announcements, both those involving job losses (excluding world cases) and those involving job gains, were as summarised in *Table 7*.

Table 7: **Top cases of announced job losses and job gains**

Company	Thousands	Country	Restructuring type	Sector	Announced date
Job loss					
Army/National security	54	France	Internal restructuring	Public admin	June 2008
Woolworths	27	the UK	Bankruptcy/Closure	Retail	December 2008
Education Nationale	16	France	Internal restructuring	Education	June 2009
T-System	12	Germany	Internal restructuring	Post/telecoms	March 2008
TNT Post	11	the Netherlands	Internal restructuring	Post/telecoms	July 2009
Commerzbank	9	the EU	Merger/Acquisition	Financial intermediation	September 2008
PKP Cargo	9	Poland	Internal restructuring	Land transport	January 2009
Royal Bank of Scotland	6.8	the UK	Internal restructuring	Financial intermediation	February 2008
Commerzbank	6.5	Germany	Merger/Acquisition	Financial intermediation	September 2008
Unicredit	5.9	Italy	Merger/Acquisition	Financial intermediation	June 2008
Job gain					
Edeka	25	Germany		Retail	October 2008
McDonald's	12	the EU		Horeca	January 2009
Tesco	10	the UK		Retail	January 2009
Kentucky Fried Chicken	9	the UK		Horeca	February 2009
Subway	7	the UK		Horeca	January 2009
ASDA	7	the UK		Retail	January 2009

Source: European Monitoring Centre on Change, European restructuring monitor.

The retail sector has been dynamic both in terms of job creation (accounting for nearly a quarter of new jobs announced) and job destruction (the largest proportionate increase of announced job losses for any sector) in 2008–09. On the negative side, decreasing sales and profits resulted from weak consumer confidence, tighter credit conditions and rising unemployment. A number of retail businesses that were previously experiencing difficulties have been unable to withstand further weakening of trading conditions (e.g. Woolworths in the UK and Germany). On the positive side, some of the larger retail conglomerates have signalled aggressive growth plans with a view to securing market share from failing retailers. Also noteworthy has been the expansion of discount retailers (e.g. Asda) and restaurant chains (e.g. McDonalds) seeking to benefit from new 'downshifting' customers.

The share of announced job loss due to bankruptcy/closure increased while those due to offshoring and relocation decreased …

Internal restructuring – something of a catch-all restructuring category – accounted for 70% of announced job losses in ERM restructuring cases over 2008–2009. Bankruptcy/closure accounted for a sharply increased proportion of job losses over that period (up from 14% to 22% of the total) (Table 8). At country level, the increased share of bankruptcy/closure-related job losses was notable in the UK, Italy, Finland, Greece, Slovenia, Portugal and Bulgaria (>15 percentage points in each country).

Table 8: **Share of job losses by restructuring type in the EU (%)**

Restructuring type	2002-Feb 2008	Mar 2008-Aug 2009
Bankruptcy/Closure	14.1	21.8
Internal restructuring	72.9	70.0
Merger/Acquisition	4.1	3.9
Offshoring/Delocalisation	5.8	2.8
Other	0.4	0.3
Outsourcing	1.2	0.5
Relocation	1.6	0.6

Source: European Monitoring Centre on Change, European restructuring monitor.

At aggregate EU level, the increase in the share of bankruptcy/closure-related job losses was matched by a decline in the share of offshoring/relocation/outsourcing. ERM data has been extensively used both by Eurofound and by external researchers[2] as a source for analysing developments in relation to offshoring of activities and consequences for employment in the EU. One principal conclusion is that offshoring has accounted for between 5% and 8% of announced job losses arising from major restructuring events in the EU since 2002, a perhaps unexpectedly modest share given the interest of researchers and the general media in the phenomenon.

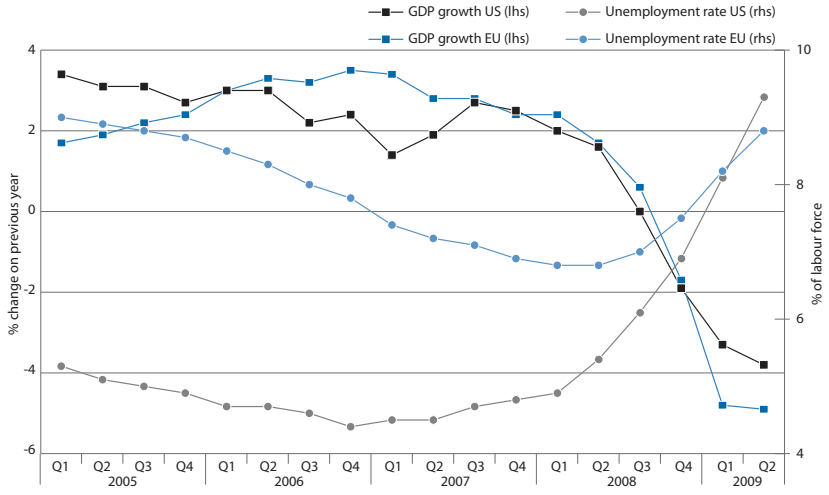
What is notable about the recent downturn is that the share of cases and of announced job losses attributable to offshoring/delocalisation – as well as to related restructuring categories of relocation and outsourcing – have declined even from these modest levels. The only countries in which offshoring represented a greater share of job losses in the most recent period were Latvia and Slovakia – countries that would previously have been considered offshoring destinations – and Austria.

(2) e.g. Auer, P., G. Besse, and P. Meda, Offshoring and the internationalisation of employment, ILO, 2005 and ERM Annual Report 2007.

3.2.3. Unemployment

At EU level, the average activity rate has changed relatively little over the last year and remains close to 71%. This indicates that so far the effects of the crisis on total labour supply have been very limited, reflecting that recent labour market reforms in many countries have strengthened the labour market attachment of the working-age population. As a consequence, the crisis appears not to be resulting in a noticeable reduction in overall activity, but is rather focused in its impact on unemployment.

Chart 31: **Unemployment rate versus GDP growth for the EU and the USA**



Source: Eurostat, national accounts and series on unemployment.
Data seasonally adjusted.

Despite clear signs of deterioration, so far the European labour market has held up relatively well overall to the economic downturn. Unemployment has risen, but by less than might have been feared given the strength of the recession and the sharp declines in confidence. For example, despite the sharper economic downturn and stronger falls in business confidence in the EU compared with the USA, increases in the EU unemployment rate have been less dramatic than in the USA (Chart 31). By August 2009 the unemployment rate in the EU had increased by 2.1 percentage points compared to one year earlier, while in the USA it had risen by a more marked 3.5 percentage points.[13]

The relative resilience of the EU labour market to date reflects in part the usual lag of 2–3 quarters before the sharp acceleration in the economic downturn in October feeds through to the labour market, but also has resulted from the increased use of internal adjustment measures (short-time working, temporary suspension of production etc.) which has allowed firms to use various means of internal adjustment rather than reduce their workforce, especially in countries such as Belgium and Germany. Indeed, while it seems that reducing staff levels has been the immediate response of US firms, EU firms have reacted by reducing working time instead where possible. For example, by May 2009 there were around 1.5 million workers in Germany in short-time working schemes.

Nevertheless, the unemployment rate in the EU has remained on an upward trend since it reached a trough in spring of last year, climbing with particular strength since last October to April in reaction to the heightening of the financial crisis. This reflects that up until the third quarter of 2008 unemployment in the EU as a whole held up well to the economic downturn, due in large part to Germany and Poland; however, it then started to rise more strongly, in part reflecting the deterioration in the German labour market as its exports began to be hit hard by the sharp slowdown in global demand. By August 2009 the unemployment rate in the EU had increased to 9.1%, a rise of 2.4 percentage points compared to March/April 2008. Total unemployment rose to a seasonally adjusted 21.9 million (21.6 million non-adjusted), an increase of 5.7 million (or more than a third) compared to March/April 2008.

Underlying the EU average are contrasting developments across individual Member States, both in terms of the onset of the rise in unemployment and its severity. The onset of the rise in unemployment varies considerably from country to country. Hungary, Ireland, Italy and Spain were the first Member States where unemployment rates started to rise, as early as in the first half of 2007, followed by Estonia, Latvia, Lithuania and Luxembourg later in 2007. All other Member States saw rates bottom out at the same time or later than the EU average. In Austria, Belgium, Denmark, Greece, Finland, France, Portugal, Romania, Sweden and the UK, rates bottomed out in the second quarter of 2008. The remaining countries, including Germany and the Netherlands, saw unemployment rates start to rise only in the second half of 2008, some one and a half years later than Spain and Italy.

Although unemployment rates have been rising over the last year or so in all Member States, the severity of the rise varies considerably across countries. The increase in unemployment has been precipitous in certain Member States (unemployment rates have roughly doubled over the last year in Ireland and Spain, and tripled in the Baltic States) while even those Member States which have been least affected so far (for example the rise has been relatively limited in Germany and Poland) have recently been reporting worsening conditions. By August all had higher

(13) Unemployment changes, rates and levels are seasonally adjusted.

unemployment rates compared with a year earlier. The most substantial rises compared with August 2008 were in the Baltic States (of the order of around 9–11 percentage points), Ireland (up 6.2 percentage points) and Spain (up 7.1 percentage points). In contrast the rise in unemployment has been only marginal (with rates rising by less than 1 percentage point) in Austria, Belgium, Germany, Italy, the Netherlands and Romania (Chart 32).

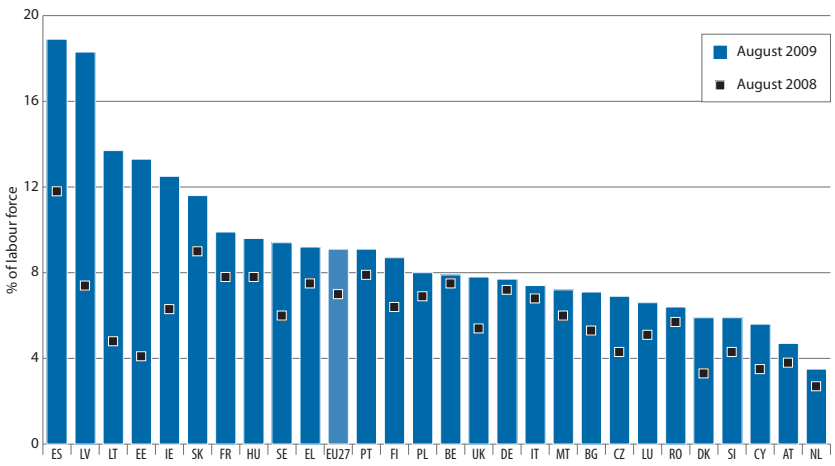
Among the larger Member States, unemployment has risen dramatically over the last year or so in Spain, accounting for more than 35% of the total rise in unemployment in the EU since April 2008 and almost a third of the rise over the last year (Chart 33).

Among the other Member States, only France (13%) and the UK (15%), accounted for contributions to the rise in unemployment over the last year of more than 10%.

Some two years after unemployment first started to rise there, Spain now accounts for almost one in four of all unemployed persons in the EU-27, with its unemployment rate reaching 18.9% in August (with underlying unemployment at 4.3 million), twice as high as the EU average and the highest in the EU. Among the remaining Member States, by mid-2009 the unemployment rate was highest in Latvia (18.3%) and Estonia, Ireland, Lithuania and Slovakia (all with rates around 11–14%), but in contrast remained remarkably low in Austria and the Netherlands (4.7% and 3.5%, respectively) (Chart 32).

The long-term unemployment rate in the EU had been decreasing up until the third quarter of 2008 (when it affected 2.5% of the labour force), but following the deterioration in the labour market over the latter part of last year, it started to rise again to reach 2.8% in the second quarter of 2009. However, this rise does not yet fully reflect the recent weakening of EU labour markets and the subsequent increase in unemployment, and it is likely that the long-term unemployment rate will move higher in the quarters ahead as elements of the large influx of recent entrants to unemployment eventually feed through to the stocks of the long-term unemployed. Indeed, compared with last year, the long-term unemployment rate has increased in several Member States, most markedly (by over 1 percentage point) in Ireland, Spain and the Baltic States.

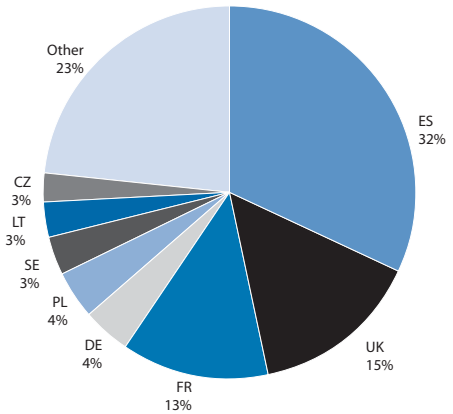
Chart 32: **Unemployment rates for EU Member States**



Source: Eurostat, series on unemployment. Data seasonally adjusted.

Note: Data for UK June 2008–June 2009, EE, EL, IT and RO 2008 Q2–2009 Q2.

Chart 33: **Contribution to unemployment increase, August 2008–August 2009**



Source: Eurostat, series on unemployment. Data seasonally adjusted.

Note: Data for UK June 2008–June 2009, EE, EL, IT and RO 2008 Q2–2009 Q2.

3.2.4. Other labour market responses to the economic downturn

Labour markets can also adjust through other mechanisms than reducing employment levels – there are many established means of adjusting production and aggregate working time to counter temporary slumps in demand. Indeed, as reported in a recent paper by the European Foundation for the Improvement of Living and Working Conditions[14], there are signs that many companies have made workers redundant only as a last resort and that a range of alternative responses have been implemented. A common feature is negotiated reduction of working time ('short-time working') balanced by increased provision of training. Other responses include addressing labour costs (through pay freezes or pay cuts, or reduced social

(14) European Foundation for the Improvement of Living and Working Conditions, *Europe in recession: Employment initiatives at company and Member State level*, Background paper.

contributions by employers), paid/unpaid career breaks and, at the aggregate level, an adjustment in the level and composition of employment in terms of temporary, part-time and self-employment.

One sector that can serve as a showcase in this regard is the automotive sector, where demand has been especially badly hit by the credit crunch, declining consumer sentiment and increasing inventory levels, despite recent initiatives taken in several Member States to support demand (e.g. through 'scrapping premiums'). A high proportion of companies in the automotive sector have resorted to collective redundancies and lay-offs in the face of the unprecedented fall-off in sales volume, but many have also implemented other measures to avoid making workers redundant. Many of the large automotive companies, especially in western European Member States, extended scheduled seasonal closures over Christmas 2008/New Year 2009. Even after the resumption of production in 2009, many firms announced temporary plant closures during the year. Reduction or elimination of overtime and nightshifts has also been a common response, as has compulsory leave-taking where workers are obliged to take annual leave entitlements in periods specified by their employer (often in conjunction with temporary plant closures). Furthermore, either in combination with or in addition to many of the above measures, obligatory periods of unpaid leave and shortened working weeks (three- and four-day weeks) have become widespread.

Adjustment by type of employment (temporary, part-time and self-employment)

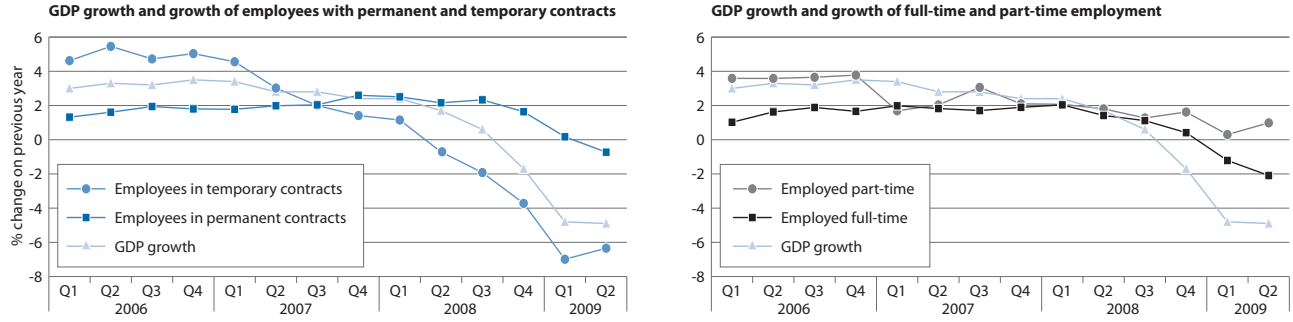
Employment has adjusted first and foremost to the economic downturn through the deceleration and subsequent contraction in temporary employment, which is the most cyclical component of employment. In line with the downturn in overall economic activity, the previous strong year-on-year growth in temporary employment of 4.5–5.5% over 2006 subsequently weakened over 2007 and turned increasingly negative over 2008 and into 2009. By the second quarter of 2009, the number of employees in the EU with temporary contracts had fallen by 1.7 million (or around 6%) compared with the second quarter of 2008, mainly driven by falls in all the larger Member States and most notably by a decrease of 1 million in Spain. Growth in permanent employment, which had remained at a relatively stable rate of around 2% over 2008, also came to a halt in the first quarter of 2009 and subsequently turned negative in the second quarter (Chart 34).

The downturn in temporary employment has led to a reduction in the share of employees in the EU with fixed-term contracts relative to total dependent employment. This share has broadly been decreasing since the second half of 2007, falling to 13.5% in the second quarter of 2009 (down by 0.7 percentage points on a year earlier) and reflecting declining shares in most of the Member States, most notably in Spain and Slovenia.

Part-time employment has also moderated in response to economic conditions. The previous strong year-on-year growth of part-time employment in the EU over 2006 and 2007 (in response to the increased economic activity in that period) weakened from the second quarter of 2008 onwards. Growth in full-time employment likewise dropped off from the second quarter of 2008. Similar growth rates for both were observed in the second and third quarters of 2008; however, from the fourth quarter of last year onwards, the economic downturn had a stronger impact on full-time employment. The rate of year-on-year growth in full-time employment had dropped to –2.1% by the second quarter of 2009, while for part-time employment year-on-year growth still remained relatively strong (at 1%). This tends to suggest that the decline in full-time employment has been partially offset by a continued increase in part-time employment, demonstrating the potential role of part-time work as a 'shock absorber' in the economic downturn.

Another area of employment where the risks from the downturn may be quite different is among the self-employed. Indeed cash-flow difficulties and the 'credit crunch' may be creating particular problems for small businesses. On the other hand, people made redundant by their employer may see it as an opportunity to set up their own business, a step encouraged by the recent proposal by the European Commission

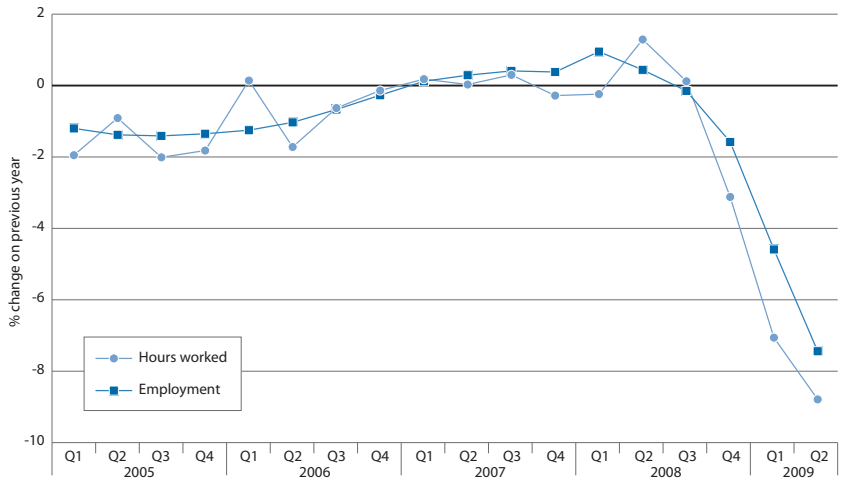
Chart 34: **Employment growth (employees) and GDP growth for the EU**



Source: Eurostat, national accounts and EU LFS, DG EMPL calculations.
Data on GDP seasonally adjusted. Data on employment non-seasonally adjusted.

to establish a new €100 million micro-finance facility, to provide credit to small businesses and to people who have lost their jobs and want to start their own small businesses. Data from the EU labour force survey, however, indicates that so far self-employment has been on the decline, with such employment dropping by close to half a million in the year to the first quarter of 2009. Underlying this was strong contraction in the third and fourth quarters of 2008, compared with much weaker contraction in the first quarter of 2009.

Chart 35: **Employment and hours worked in the industry sector in the EU**



Source: Eurostat, short term business statistics. Data non-seasonally adjusted, hours worked working day adjusted.

Note: Sector covered is industry (except construction), sewerage, waste management and remediation activities.

Working hours

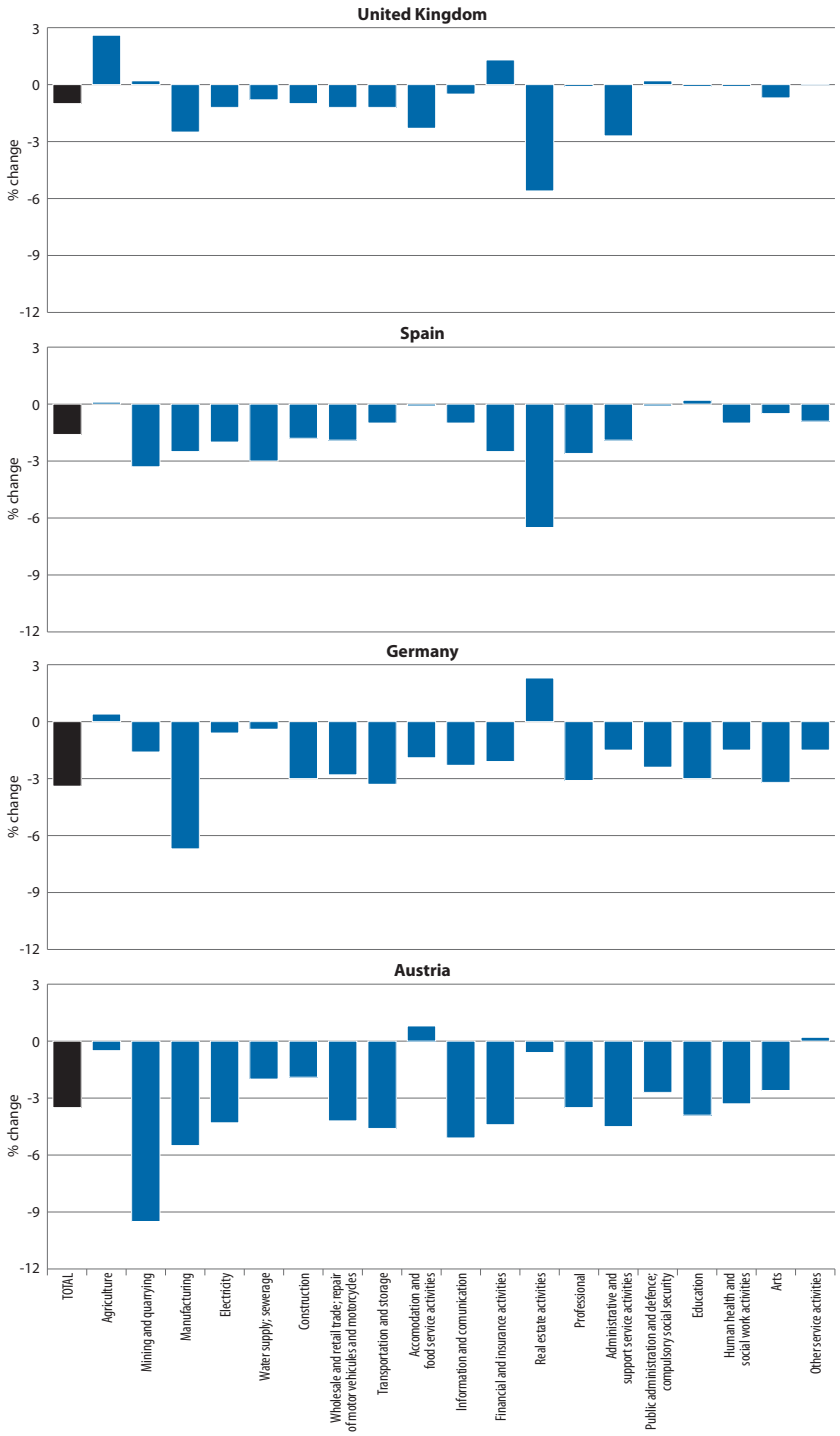
The practice of promoting reductions in working time is something that has protected European jobs from the initial impact of the recession and helped to avoid the sharp rises in unemployment seen for example in the USA. In several Member States public authorities have been involved in facilitating companies' recourse to short-time working: the Netherlands, Austria, Germany and France have in place short-time compensation programmes whereby employers can apply for temporary state assistance to top up the wages of workers working reduced hours.

For example, in France, *chomage technique* or *chomage partiel* is a publicly funded scheme that allows companies in cases of exceptional economic difficulties to have recourse to state-governed funds covering 60% of minimum hourly wages during periods when staff are temporarily laid off. In Germany, where it is common for sectoral collective agreements as well as plant/company-level agreements to include options to reduce working hours in order to maintain employment, the federal *Kurzarbeit* system provides a state-supported back-up for companies resorting to short-time working outside the provisions of collective agreements. When a company's need for working-time flexibility extends beyond – or has exhausted – what has been collectively agreed, it can have recourse to the federal *Kurzarbeitgeld* (short-time working fund). Under the scheme, employers are subsidised up to 67% of an employee's wages by the federal authorities in the case of temporary lay-off or reduced working hours occasioned by sharp declines in demand, *force majeure* or structural changes within the company. By May 2009, around 1.5 million workers in Germany were covered by the short-time working scheme.

As highlighted previously, much of the recent decline in overall employment can be attributed to the industry sector. Focusing on this sector, it is nevertheless clear that total working hours in the sector have declined at a faster rate than employment since the last quarter of 2008, implying there has been a substantial adjustment in the labour market also through reducing working hours as opposed to laying people off (Chart 35).

On a broader sectoral scale, the approach of certain Member States to favour reductions in working time rather than reductions in the level of employment is clearly visible in data from the EU labour force survey on the hours worked by those workers remaining in employment. For example, in Germany and Austria, over the year to the second quarter of 2009 there have been noticeable reductions across most sectors in the hours worked by full-time employees in their main job (Chart 36). Indeed, for those still in employment, average working hours have declined by more than 3% in these two countries, reflecting strong declines across almost all sectors (for most well above 2%) and including most service sectors. In Germany, the important manufacturing sector has undergone a decline of around 6% on average in full-time employees' working hours. In contrast, in Spain and the UK, average hours of work by full-time employees has generally decreased less significantly across sectors, other than for the real estate activities sector which declined by more than 5%, reflecting the effect of the strong downturn in the housing market in these two countries. Overall, average hours worked declined by a more limited 1.0% in the UK and 1.6% in Spain, with most sectors seeing working hours fall by less than 2% and very little change in many service sectors.

Chart 36: **Relative change in working hours by sector, 2008 Q2–2009 Q2**



Source: Eurostat, EU LFS. Data non-seasonally adjusted.

Note: Average number of actual weekly hours of work in main job for full-time employees.

Labour costs

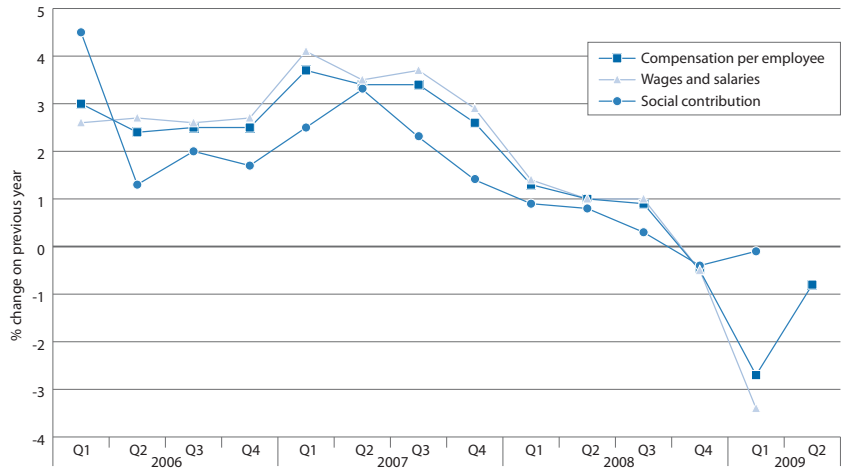
Another adjustment mechanism to the slump in demand can be through concession bargaining, where employers seek to link employment security (e.g. the withdrawal of compulsory redundancy plans) to pay freezes or pay cuts. Recent high-profile cases of this type of approach can be found in the airline industry.

On a more general level, there may be greater wage moderation in the face of the economic downturn and the heightened risk of unemployment, and moreover lower wage increases might have helped prevent potentially more significant employment reductions. The tendency towards wage moderation is supported by recent developments in the index of negotiated wages calculated by the ECB, which started to decline in 2009, falling to 2.7% for the euro area in the second quarter after picking up last year. Indeed, the economic downturn has started to affect labour markets not only through falling employment but also more recently through weakening of growth and even a decline in employee compensation, especially the wages and salaries component (Chart 37).

Year-on-year growth in nominal compensation per employee in the EU slowed down significantly over 2008 and declined sharply in the first quarter of this year (reflecting a sharp drop in the UK), before edging back up to still register a decline of –0.8% in the second quarter. Recent falls have been driven mainly by decreases in wages and salaries (which account for around 80% of compensation), while other labour costs (e.g. social contributions) declined less sharply.

In contrast, hourly nominal labour costs have continued to increase, though at a more subdued pace in the beginning of this year. After accelerating steadily in the second half of 2008, the year-on-year growth rate of hourly labour costs in the EU dropped to 1.3% in the first quarter of 2009, compared with a rate of 4.7% in the fourth quarter of 2008, but rebounded back to 3.7% in the second quarter. Since the end of last year, hourly labour costs have risen the slowest (or even declined in the first quarter of 2009) in the service sector – rising at a rate of 2.9% in the second quarter and remaining weakest (at 2.3%) in financial and insurance activities – while they grew most significantly (by 5.1%) in industry (remaining far above average growth over recent years) and by 4.1% in construction (although less than in the previous two years). The trend in total hourly labour costs mainly resulted from developments in their

Chart 37: **Growth in nominal compensation per employee and its components for the EU**



Source: Eurostat, national accounts and labour cost statistics, DG EMPL calculations. Data non-seasonally adjusted.

wage and salary component, which increased at a year-on-year rate of 3.6% in the second quarter of 2009, while the non-wage component (e.g. social contributions) grew by 3.8%.

The recent variation in the growth in hourly labour costs over the year to the first or second quarters resulted from rather different growth patterns across Member States. In the UK a sharp drop in the first quarter (down by 5.5% year on year) was followed by a subsequent rise in the second quarter (up by 0.9% year on year). More moderate average EU growth has also resulted from negligible growth in hourly labour costs in France and Italy and a slowdown in Poland, where the growth halved compared with the peak in the first quarter of 2008. On the contrary, in Germany and Spain the year-on-year rise in labour costs continued to grow in the second quarter of 2009, at a rate far above the EU average. For Germany this perhaps indicates an end to the previous period of relatively strong wage restraint.

Apart from Germany, Poland and Spain, hourly labour costs and their wage and salary component rose notably (by 6% or more year on year) in Austria, Greece, Hungary and Slovenia and most substantially in Bulgaria and Romania, indicating continued strong convergence to levels in the other Member States.

3.3. Which population subgroups have been most affected?

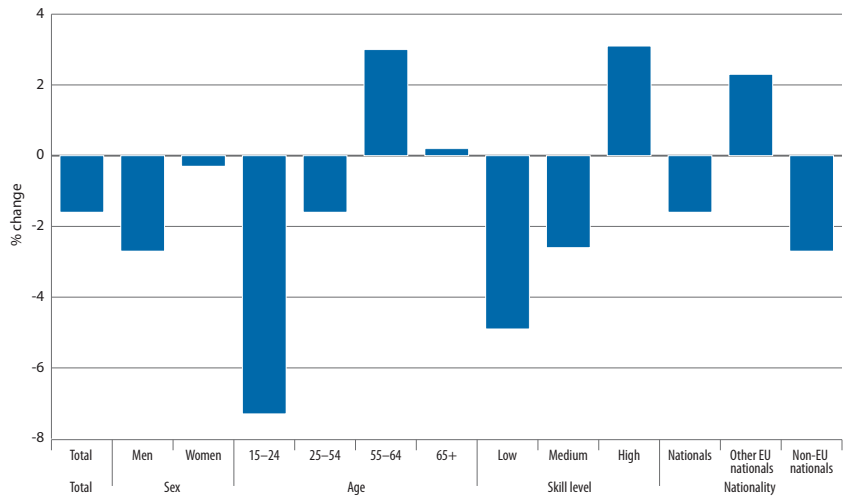
3.3.1. Impact across various population subgroups

Employment

Results from the European labour force survey highlight that certain population subgroups have clearly been affected more than others by employment contraction during the current recession (Chart 38).

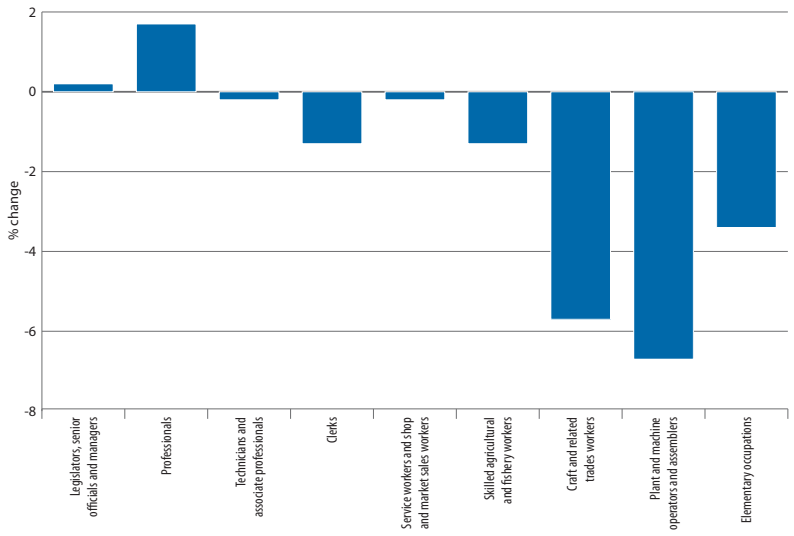
Men have suffered the brunt of the contraction in employment, with their employment falling by 2.7% (versus only a 0.3% decline for women) and accounting for more than 90% of the total net reduction over the year to the second quarter of 2009. This reflects that the economic downturn has, so far, predominantly hit male-oriented sectors in terms of employment, such as the construction sector and the automotive industry. In terms of age, youth (i.e. those aged 15–24) has been proportionately most affected, with a decline in employment of 7.3% over this period. In contrast, employment of older workers aged 55 and over has held up rather well, and had even increased compared to the second quarter of 2008. The low-skilled have undergone a much stronger reduction in employment than other skill levels: their employment dropped by around 4.9% compared with a fall of only 2.6% for the medium-skilled, while for the high-skilled employment actually expanded by 3.1%. Finally, although nationals saw their employment decline by 1.6%, third-country (i.e. non-EU) nationals experienced a stronger decline of 2.7%, but in contrast nationals of other EU countries saw their employment rise by 2.3%.

Chart 38: **Relative change in employment in the EU by sex, age, skill level and nationality, 2008 Q2–2009 Q2**



Source: Eurostat, EU LFS. Data non-seasonally adjusted.

Chart 39: **Relative change in employment in the EU by occupation group, 2008 Q2–2009 Q2**



Source: Eurostat, EU LFS. Data non-seasonally adjusted.

In line with these developments, the overall employment rate declined by 1.2 percentage points over the year to the second quarter of 2009, but the decline for men was much stronger (2.1 percentage points) than that for women (0.3 percentage points). Among different age groups, the employment rate for young people aged 15–24 declined by 2.4 percentage points over the year to the second quarter of 2009, and for those of prime working age (25–54) by 1.4 percentage points, but the rate for older workers aged 55–64 rose by 0.6 percentage points.

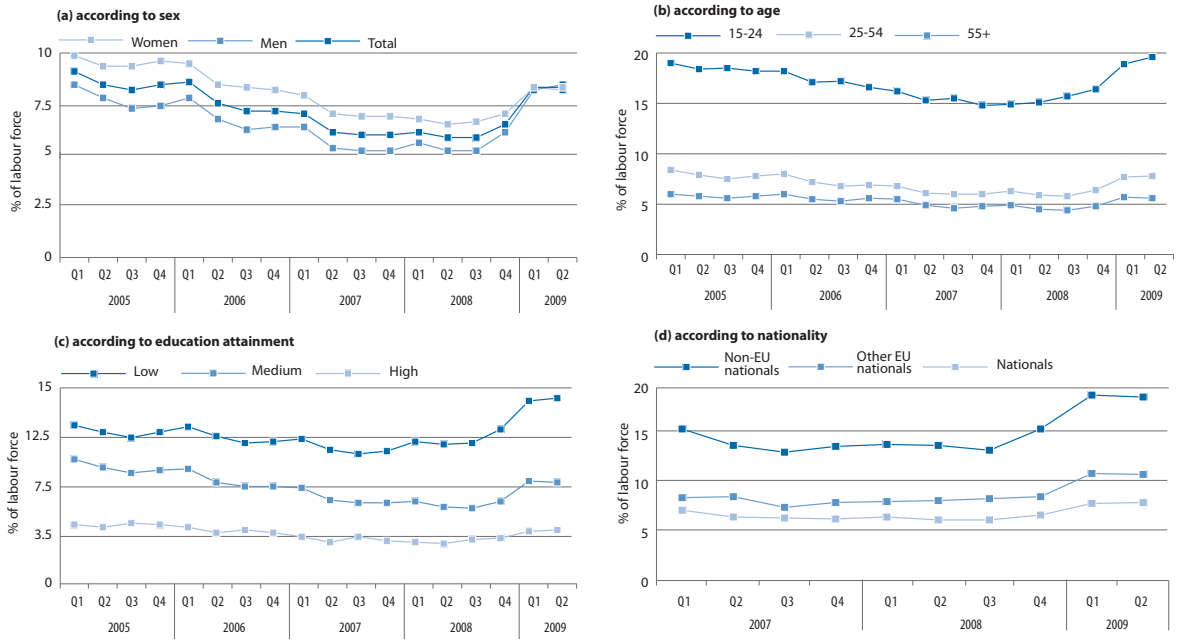
In terms of occupations, the hardest hit have been workers in manual and elementary occupations (Chart 39). Craft and related trades workers, plant and machine operators and assemblers and those in elementary occupations have seen employment levels decline by around 3.4–6.7% over the last year, reflecting the focus of the initial impact of the labour market downturn on the manufacturing and construction sectors and in particular the low-skilled. Skilled service-sector-based occupations experienced significantly lower fallout from the crisis, with continued growth in most of the high-skilled non-manual occupations – employment levels have risen over the last year for legislators, senior officials and managers and professionals.

Unemployment

The above developments are also reflected in the recent evolution of unemployment for the various population subgroups. While the overall EU unemployment rate has risen by 2.4 percentage points since the low of March/April 2008, there is significant underlying variation according to gender, age group, skill level and nationality (Chart 40).

Focusing on gender, the increase in the overall unemployment rate has been driven predominantly by the rise in the rate for men (Chart 40a). Since the average unemployment rate in the EU troughed in spring 2008, the rate for men had increased by 2.9 percentage points

Chart 40: **Unemployment rates in the EU for various groups**



Source: Eurostat, EU LFS. Data non-seasonally adjusted.

to 9.1% by August 2009, and for women by 1.7 percentage points to 9%. Consequently, the gender gap in unemployment rates, still at 1.2 percentage points in the beginning of 2008, not only disappeared, but even reversed: in June 2009, for the first time, the male unemployment rate exceeded the female one.

In terms of the absolute rise in unemployment in the EU, men account for two thirds of the rise and women one third. Clearly prime-age men (aged 25–54) have been the worse affected in the current downturn in absolute terms, accounting for almost half (47%) of the overall increase in unemployment. Furthermore, the rise in male unemployment has been more substantial than that for women across all age groups, generally being around double of the rise in female employment for all age groups (Chart 41). In terms of relative increase, the level of male unemployment rose by almost 40% over the year to the second quarter of 2009, while for women it rose by around 20%.

However, measures of unemployment may not necessarily capture the full impact of the changing economic conditions for women, especially as women are more likely than men to leave the labour market altogether. In addition, the difference in the types of job that women and men perform will be reflected in the impact of the recession on their employment and unemployment; for example women's greater concentration in part-time work, lower-paid jobs, jobs with shorter tenure and smaller firms will all have an impact on not only the relative effects of the downturn but also the extent to which policy responses benefit or disadvantage different groups. At the same time, most forecasts still expect much of the labour market adjustment to the recent crisis to lie ahead (see section 3.5). As the effects of the economic crisis broaden beyond the male-dominated sectors immediately affected, and as these in turn provoke some job losses in female-dominated services sectors, it seems likely that there may be a more significant effect on female employment in coming quarters than that observed so far.

Turning to unemployment developments for different age groups, in absolute terms two thirds (69%) of the rise in unemployment over the last year is attributable to the increase in unemployment for those of prime working age, a quarter (23%) to youth and around 8.7% to older people aged 55 and over. However, in relative terms, the picture is more even. Relative to the levels in the second quarter of 2008, unemployment for all groups had risen by around 30%: 27% for young people, 31% for prime-age workers and by 29% for older people aged 55 and over.

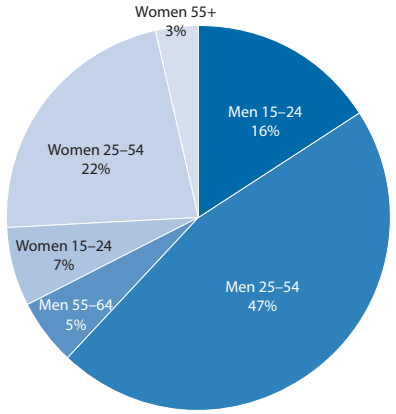
Unemployment rates have recently been rising for all age groups, but particularly strongly for young people aged 15–24 (Chart 40b). By the second quarter of 2009 the youth unemployment rate was up 4.5 percentage points compared with a year earlier, in comparison with rises of 1.8 percentage points for people of prime working age and 1.1 percentage points for older people aged 55–64. However, this partly reflects the fact that rates for young people have been rising over a longer period (they started growing in the first quarter of 2008) while for prime working-age and older people, they only clearly started to increase from the last quarter of 2008. Nevertheless, the upturn for youth has been particularly sharp over the first quarter of 2009.

As unemployment rates for young people were already substantially higher than those for other age groups, the strong deterioration for this age group is of particular concern. The increase at EU level has been driven by a sharp rise in the unemployment rate for young men, which has been much more pronounced than the rise for young women. It also mainly reflects a strong jump in youth unemployment in Spain, together with significant increases in France and Poland, although youth unemployment rates had also risen in all other Member States compared with a year earlier, and especially so in the Baltic States and Ireland.

As a consequence of the decrease in youth employment, the share of young people aged 15–24 not in employment, education or training (NEETs) increased to 13% by the first quarter of 2009, from below 12% a year earlier, and risks becoming a significant problem as the recession continues.

Focusing on skill levels (Chart 40c), in line with the strong decline in employment for the low-skilled. their unemployment rates have increased by 3.4 percentage points over the year to the second quarter of 2009, compared with rises of 1.9 percentage points for the medium-skilled and 1.1 percentage points for the high-skilled. This reflects the fact that the majority of the rise in unemployment

Chart 41: **Composition of the rise in unemployment by sex and age, 2008 Q2–2009 Q2**



Source: Eurostat, EU LFS. Data non-seasonally adjusted.

consists of low- or medium-skilled people (accounting for 40% and 44% of the rise in unemployment, respectively) and much less so of the high-skilled (less than 16%).

In terms of nationality groupings, migrants have been disproportionally affected by rising unemployment, especially those migrants originating from outside the EU – traditionally one of the most vulnerable groups on the labour market (Chart 40d). While unemployment rates for nationals rose by 1.8 percentage points over the last year, those for nationals of other EU countries rose 2.8 percentage points and for third-country nationals by an even stronger 5 percentage points. In the last quarter of 2008 and first quarter of 2009, the rise in the unemployment rate was particularly steep for non-EU nationals; their unemployment rate has been at least 7–8 percentage points higher than that of nationals over recent years, but the gap widened significantly to around 11 percentage points by the second quarter of 2009, while it remained only around 3 percentage points higher for other EU nationals. The disproportionally strong reaction of migrants' unemployment in part reflects that they are overrepresented in sectors such as construction, which has been particularly strongly affected by the economic downturn. Furthermore, in terms of occupations, a high share of migrants are employed in elementary occupations (much more so than non-migrants), and as craft and trades workers – i.e. in the low-skilled occupations which have been most at risk in the downturn.

In summary, the population subgroups that have so far been most affected by the rise in unemployment have been young people, the low-skilled, migrants (especially those originating from outside the EU), and men rather than women (Chart 42).

3.4. What measures have been taken to mitigate the impact of the crisis on labour markets?

3.4.1. EU-level initiatives to promote employment

Through several recent initiatives and by reinforcing existing activities, the EU has strengthened its efforts to promote employment and social inclusion, as part of its strategy to deal with the economic and financial crisis. The 2009 Spring European Council and the three employment workshops held in Madrid, Stockholm, and Prague in 2009 in partnership with Member States and Social Partners helped define and discuss three key priorities to address the current situation: maintaining employment, creating jobs and promoting mobility; upgrading skills and matching labour market needs; and increasing access to employment. The comprehensive initiatives which have been launched at EU level are consistent with the overall strategy aimed at addressing these three key priorities and include the following:

- The *European Economic Recovery Plan* (EERP) – a €200 billion recovery package. It represents a comprehensive, coherent and coordinated response to help mitigate the impact of the financial market crisis on the real economy, and calls for fiscal stimulus and structural reforms at both Member State and EU level

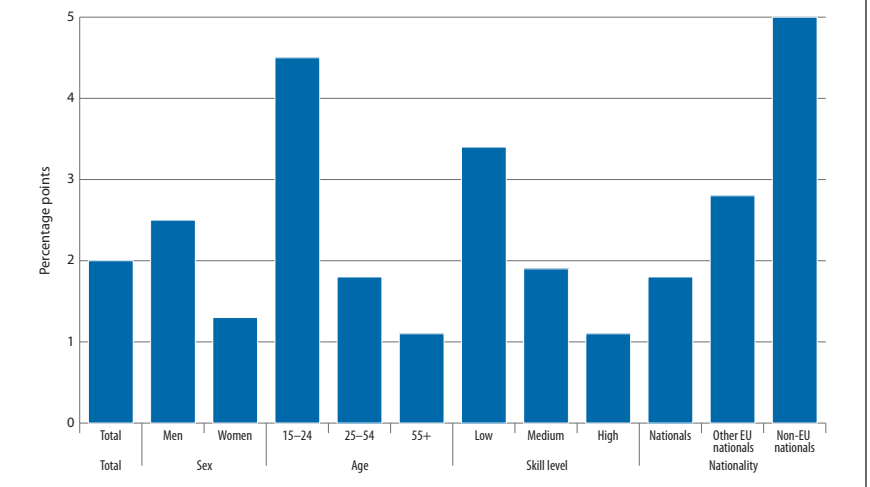
- The Employment Summit on 7 May 2009 to boost efforts to promote employment and social inclusion in the light of the financial crisis

- Proposing changes to the European Social Fund (ESF) and the European Globalisation Adjustment Fund (EGF) to ensure greater access and support to the labour market:

  – €19 billion in support is allocated through the European Social Fund for 2009-2010. Assistance is provided to Member States to put in place rapid reaction packages focussing on the three key priorities, with speeded up procedures when adoption of the ESF programmes is needed

  – Access to the EGF is being made easier and more effective to cover redundancies caused by the crisis, by co-financing training and job placements. The EU funding rate has been increased from 50% to 65% until the end of 2011 and the eligibility threshold for EGF applications has been lowered from 1 000 to 500 redundant workers. In addition, the duration of EGF support has been extended from 12 to 24 months to provide sufficient time for re-integrating particularly the most vulnerable into new jobs

Chart 42: **Rises in unemployment rates by sex, age, skill level and nationality, 2008 Q2–2009 Q2**



Source: Eurostat, EU LFS. Data non-seasonally adjusted.

- Proposing the establishment of a new micro-finance facility to provide credit to people who have lost their jobs and want to start their own small businesses. The initial budget of €100 million could leverage more than €500 million in a joint initiative with international financial institutions, in particular the European Investment Bank

- The *New skills for new jobs* initiative, improving the analysis and prediction of the future skills requirements of the European economy, thereby matching people to jobs more efficiently and providing an insight into training needs

- Stepping up monitoring of the employment and social situation, including through the publication by the European Commission of a new series of monthly monitoring reports on the rapidly changing situation

- The European Commission has adopted a "shared commitment for employment", which puts forward key priorities and actions to preserve jobs and help those facing difficulties while paving the way for recovery

- The Commission Communication 'Driving European Recovery' in March 2009 outlined a number of elements to help Member States design and implement appropriate and effective employment policies as a response to the economic crisis

- And last but not least, the European Employment Strategy, one of the pillars of the EU's Strategy for Growth and Jobs, continues to provide a framework for Member States to take coordinated action to promote employment in the context of the crisis, including through joint work in the Employment Committee and the identification of best practices under the mutual learning programme.[15]

(15) See http://www.mutual-learning-employment.net/

3.4.2. Recent employment measures undertaken by Member States to combat the employment effects of the crisis

At the current juncture, the main labour market challenge is to avoid redundancies in basically healthy firms/industries temporarily affected by the short-term disturbance to demand levels, while ensuring appropriate and necessary labour re-allocation across sectors. Employment policies therefore need more than ever to focus on implementing integrated flexicurity pathways and better skills matching and upgrading. In view of this, various measures to facilitate labour market transitions and to support employment are required. These include strengthened activation policies and better matching through effective employment services, flexibility in working-time arrangements and where appropriate, lower social charges for employers and employees, especially for low-paid jobs, together with an adequate safety net for workers made redundant.

Following the European Economic Recovery Plan, most Member States have established a National Recovery Plan including provisions for employment and social policies and, based on information collected by the Commission, almost 300 measures have been identified as being introduced across the EU. The measures set out below, organised according to the three priorities highlighted previously, demonstrate examples of targeted and productive ways forward to try to soften the impact of the crisis.

Maintaining employment, creating jobs and promoting mobility

One of the main priorities in the EU is to avoid job losses, particularly in sectors and firms that were fundamentally sound prior to the crisis. In response to the deteriorating employment situation, several Member States have introduced, or are introducing, different forms of public support to encourage businesses to use temporary short-time working arrangements (STWAs) instead of making employees redundant. These measures allow companies to temporarily reduce work levels or wages below what is stated in the contractual agreement or to momentarily suspend all, or part of, its activity. In these cases, any loss of employee salary is, in almost all cases, partly or fully compensated by the state.

It appears that in a number of Member States, job losses have indeed been contained so far, largely due to these measures. Where STWAs have been at their most effective, they include making eligibility conditional on pre-specified criteria, one of which may be the coupling of STWAs with work-related training to improve the employability of workers and ease their possible transition to new jobs, as is the case in Germany and Belgium for example. A number of Member States ensured that these measures are well targeted by minimising the risk of protecting non-viable firms in order to ensure the economy can reallocate resources to more productive uses. For example, Austria and Hungary operate STWAs which can only be used by firms that demonstrate that their long-term financial position is sufficiently sound according to minimum thresholds set by government, while the Netherlands has solved this problem by providing lending schemes to businesses instead of subsidies. Some Member States partly subsidise short-time working only if the worker is fully employed again after the STWA period is over.

Upgrading skills and matching labour market needs

Essential in the short term, skills matching and upgrading is also the best way to address structural changes and exploit new opportunities for sustainable jobs, such as those relating to the shift to a low-carbon economy, green jobs and the development of new technologies. Training and retraining

are essential to assist occupational/professional mobility in a mid- to longer-term perspective, as many people who lose their job during the current downturn may not be able to get back into their old job, occupation or industry after the crisis.

On skills upgrading, training opportunities and incentives have been expanded in most countries in the face of the crisis, with on-the-job training increasingly recognised as a key tool for improving the employability of those already in employment. Romania, for example, introduced 50% support for the costs of continuous vocational training for both employees and the unemployed, while Germany established a new programme to support further vocational training for temporary workers, through a system of training vouchers. Portugal has expanded the provision of job training to recipients of minimum income, and enhanced financial support for access to education was introduced in Sweden and Austria.

On better matching labour market needs, modernising and improving the administrative capacity of Public Employment Services (PES) has been a central focus for a number of Member States including Germany, Denmark, Greece, Spain, France, Hungary, Sweden, Slovakia and the UK. This has been in response to the growing numbers of new unemployment benefit applicants and clients in need of labour market assistance, as well as a higher skills profile for clients than before.

Some countries also focused on reinforcing the preventative arm of their active labour market policies (ALMPs). The Netherlands, for example, developed 'mobility centres', temporary public–private partnerships aimed at intensifying timely assistance to jobseekers and businesses, to prevent forced lay-offs as far as possible. Employees who are threatened by unemployment will be assisted in finding a new job, or temporarily be sent on secondment with other employers, aided if necessary through additional education and training.

Many Member States have introduced measures to improve the design and capacity of their ALMPs and training offers to respond to the new, pressing needs resulting from the widening of the crisis. The majority of interventions have been characterised by clear targeting, to adequately respond to changing needs and priorities, with measures explicitly designed to support and ease the re-integration into the labour market of recently laid-off workers being adopted in at least 10 Member States. One example of such action is that in the Netherlands, where social partners have agreed to ensure an apprenticeship place for every school-leaver who has been unemployed for at least three months. Other unemployed people aged up to 27 will, according to proposed legislation, receive a work/learning offer from their municipality.

Increasing access to employment

Rebates on social security contributions to boost labour demand during the crisis have been introduced in Belgium, Spain, France, Hungary, Portugal, Sweden and Slovakia and are typically made conditional upon job creation. However, rebates can have an eroding effect on the long-term sustainability of social security systems, meaning that it is critical therefore to ensure that any such rebates are temporary. Other measures that have been introduced by Member States are often targeted at those most difficult to employ, sometimes to SMEs (France and Portugal) or to the self-employed (Slovakia and Slovenia). In a few cases, the fiscal boost has been directed towards sustaining employment in specific sectors, such as household-related employment services and building maintenance, or strategic activities, or sectors such as research and development and investment and renewable energies.

Lowering labour costs for both employers and employees gained additional relevance in the framework of the crisis, notably in Germany, Belgium, France and Sweden. In the Netherlands, wage moderation over the medium term was traded against cuts in social security contributions for both employers and employees, whilst Hungary froze minimum wages in an attempt to preserve employment.

Improving incentives to work which are embedded in tax and benefit systems has also been high on policy agendas, especially for low-wage earners. Income supplements and targeted in-work tax credits were reinforced in some Member States, and in others the design of unemployment insurance was modified so as to increase work attractiveness.

3.5. Outlook

Since developments in the labour market tend to follow those in economic activity with a certain lag, the main reaction to the sharp downturn in economic activity in autumn last year only started to take effect in the course of 2009. Indeed, the relatively limited impact the economic downturn has had so far on the labour markets in the EU may worsen once the sharp acceleration in the economic downturn in October fully feeds through to the labour market following the usual lag of about 2–3 quarters.

Furthermore, the difficulties in finding people with the appropriate skills have encouraged employers in the EU to try to hold on to the experienced workers they have; however, the longer the downturn continues, the harder this will be to maintain. The relative resilience of the EU labour market, resulting from a combination of factors including widespread application of internal adjustment measures aimed at increasing flexibility to adjust to the drop in demand (e.g. short-time working, temporary suspension of production), skill shortages and longer-term concerns over a shrink-

ing labour force, may weaken if the economy continues to contract and no signs of an improvement are forthcoming in the near future.

In this context, although the latest data available shows that the EU labour market continues to deteriorate, there are increasing signs that the pace of deterioration is moderating. In particular, economic sentiment, firm's employment expectations and consumers' unemployment expectations, although remaining pessimistic, show clear signs of improving. However, the unemployment rate continues to increase in line with the prior worsening expectations; moreover, it can be expected to deteriorate further before the lagged effect of the turnaround in economic sentiment and consumers' expectations takes hold, alongside any associated upturn in economic activity. Indeed, a recent Eurobarometer Survey[16] published in July shows that 61% of Europeans think further impacts of the economic crisis on jobs are to be expected, with close to a third (32%) of those in work concerned that they may lose their jobs in the crisis. According to the survey, around 9% of those polled had already personally experienced job loss due to the crisis, although some had since found a new job resulting in an overall net rate of job loss of 6%. Furthermore, 24% of European citizens know a colleague who has lost their job and 36% know someone from among their friends or family who has been affected, confirming the widespread social impact of the crisis. The expectations of further deterioration in the labour market are confirmed by recent business surveys, which indicate that overall firms' employment expectations for the months ahead generally remain unfavourable.

(16) Special Eurobarometer 316, European Employment and Social Policy (see the website http://ec.europa.eu/public_opinion/archives/ebs/ebs_316_sum_en.pdf)

3.5.1. Forecasts for the outlook to 2010

Most forecasts available in early 2009 painted a rather gloomy picture for economic and employment prospects in the near future and pointed towards a sharp economic downturn in 2009 and a long path to recovery (Table 9). All suggested that economic activity in the EU would only recover slowly, and that much of the adjustment in the labour market still lay ahead. Member States with stronger exposure to the effects of the housing and financial market corrections and those facing challenges in terms of external competitiveness were expected to perform particularly weakly.

In the Commission's spring economic forecast[17], EU GDP was projected to fall by 4% this year and to broadly stabilise in 2010 as the impact of fiscal and monetary stimulus measures kick in. The economic downturn was expected to be broad-based across Member States, but particularly severe in Ireland and in the Baltic States. Among larger Member States, Germany and Italy faced the strongest contraction in 2009 (of 5.4% and 4.4% respectively), while for France, Spain and the UK it was expected to be slightly more moderate (around 3–4%).

The forecast projected that labour markets would be severely affected by the downturn. Employment growth in the EU (and in all Member States except Luxembourg) was expected to turn negative this year, with overall employment contracting by 2.6% in 2009 and by a further 1.4% in 2010. This equates to about 8.5 million job losses for the two years, in contrast with the net job creation of 9.7 million between 2005 and 2008. All larger Member States were projected to experience declining employment in 2009, especially Spain (where employment was expected to contract by more than 5%), while particularly strong falls (of around 7–9%) were foreseen for the Baltic States and Ireland. Even countries with a traditionally strong labour market performance such as Denmark, the Netherlands and Sweden faced noticeable employment contraction in 2009 and 2010.

(17) The Commission's spring economic forecast was finalised in April 2009 (available at http://ec.europa.eu/economy_finance/publications/publication_summary15046_en.htm). A new forecast will be released in November.

The unemployment rate was expected to increase substantially in the EU, rising by about 4 percentage points on 2008 levels to around 11% in 2010. Furthermore, rates were projected to increase in all Member States between 2008 and 2010, the most marked rises being in the Baltic States, Ireland and Spain (all up 8–10 percentage points), which all faced substantial downturns in (construction) activity. The strong increase in unemployment in Spain was projected to lead to an unemployment rate in excess of 20% by 2010, while rises were also foreseen to be fairly substantial (2–5 percentage points) in all the other larger Member States.

In its June Economic Outlook the OECD also warned that the impact of the crisis on labour markets will be felt for a long time. Unemployment in the USA was expected to surpass 10% by the end of this year and to remain at that elevated level throughout 2010, while the unemployment rate in the euro area was projected to soar to around 11% by the end of this year and continue to rise to 12.3% by the end of 2010.

However, more positive signs that the global downturn might be bottoming out started to be reported in the second half of the year. In its September interim forecast, the European Commission highlights that signs for an imminent economic recovery are apparent, with fears of a prolonged and deep recession fading, although the sustainability of the recovery remains to be tested. GDP growth is set to turn positive in the second half of the year. However, the forecast for 2009 as a whole remains unchanged, with GDP expected to fall by 4% in both

Table 9: **Comparison of recent European Commission, OECD and IMF forecasts**

	European Commission Economic Forecasts (Spring 2009)						OECD Economic Outlook No 85, June 2009						IMF World Economic Outlook April 2009					
	GDP		Employment		UR		GDP		Employment		UR		GDP		Employment		UR	
	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010
Belgium	-3.5	-0.2	-1.2	-1.5	8.5	10.3	-4.1	-0.5	-0.6	-1.8	8.3	10.6	–3.8	0.3			9.5	10.5
Germany	-5.4	0.3	-1.5	-2.2	8.6	10.4	-6.1	0.2	-1.9	-3.2	8.7	11.6	–5.6	–1.0	–0.4	–2.0	9.0	10.8
Ireland	-9.0	-2.6	-9.0	-4.0	13.3	16.0	-9.8	-1.5	-8.4	-3.7	12.2	14.8	–8.0	–3.0			12.0	13.0
Greece	-0.9	0.1	-1.1	-0.1	9.1	9.7	-1.3	0.3	-1.6	-0.4	9.5	10.3	–0.2	–0.6			9.0	10.5
Spain	-3.2	-1.0	-5.3	-2.7	17.3	20.5	-4.2	-0.9	-7.0	-3.2	18.1	19.6	–3.0	–0.7	–3.5	–1.0	17.7	19.3
France	-3.0	-0.2	-2.2	-1.2	9.6	10.7	-3.0	0.2	-1.3	-1.2	9.7	11.2	–3.0	0.4	–1.8	–0.6	9.6	10.3
Italy	-4.4	0.1	-3.3	-0.6	8.8	9.4	-5.5	0.4	-1.5	-2.0	8.4	10.2	–4.4	–0.4	–1.7	–1.5	8.9	10.5
Cyprus	0.3	0.7	-0.4	0.1	4.7	6.0							0.3	2.1			4.6	4.3
Luxembourg	-3.0	0.1	0.5	-0.8	5.9	7.0	-4.0	-0.4	0.8	-1.0	6.0	7.2	–4.8	–0.2			6.8	6.0
Malta	-0.9	0.2	-0.5	0.2	7.1	7.6							–1.5	1.1			6.9	7.6
Netherlands	-3.5	-0.4	-1.0	-2.8	3.9	6.2	-4.9	-0.4	-1.0	-3.5	4.0	7.0	–4.8	–0.7			4.1	5.0
Austria	-4.0	-0.1	-2.7	-0.9	6.0	7.1	-4.3	-0.1	-1.4	-1.8	6.1	7.9	–3.0	0.2			5.4	6.2
Portugal	-3.7	-0.8	-1.4	-0.6	9.1	9.8	-4.5	-0.5	-2.8	-1.9	9.6	11.2	–4.1	–0.5			9.6	11.0
Slovenia	-3.4	0.7	-4.7	-0.6	6.6	7.4							–2.7	1.4			6.2	6.1
Slovakia	-2.6	0.7	-1.7	0.4	12.0	12.1	-5.0	3.1	-2.5	-2.2	11.8	13.6	–2.1	1.9			11.5	11.7
Finland	-4.7	0.2	-2.9	-0.8	8.9	9.3	-4.7	0.8	-3.2	-3.3	8.7	10.8	–5.2	–1.2			8.5	9.3
Euro area	-4.0	-0.1	-2.6	-1.5	9.9	11.5	-4.8	0.0	-2.5	-2.4	10.0	12.0	–4.2	–0.4	–1.6	–1.3	10.1	11.5
Bulgaria	-1.6	-0.1	-2.2	-1.0	7.3	7.8												
Czech Republic	-2.7	0.3	-1.7	-1.3	6.1	7.4	-4.2	1.4	-2.1	-2.4	6.9	9.2	–3.5	0.1			5.5	5.7
Denmark	-3.3	0.3	-2.2	-2.0	5.2	6.6	-4.0	0.1	-3.1	-3.5	6.0	7.9	–4.0	0.4			3.2	4.5
Estonia	-10.3	-0.8	-7.3	-3.3	11.3	14.1												
Latvia	-13.1	-3.2	-8.9	-3.3	15.7	16.0												
Lithuania	-11.0	-4.7	-7.7	-2.4	13.8	15.9												
Hungary	-6.3	-0.3	-3.0	-2.0	9.5	11.2	-6.1	-2.2	-3.4	-1.5	10.7	11.7						
Poland	-1.4	0.8	-2.3	-1.4	9.9	12.1	-0.4	0.6	-1.5	-2.9	9.0	11.6						
Romania	-4.0	0.0	-2.2	0.6	8.0	7.7												
Sweden	-4.0	0.8	-2.4	-2.3	8.4	10.4	-5.5	0.2	-3.1	-3.9	8.7	11.4	–4.3	0.2			8.4	9.6
United Kingdom	-3.8	0.1	-2.4	-0.9	8.2	9.4	-4.3	0.0	-2.3	-2.6	8.2	9.7	–4.1	–0.4	–1.7	–1.4	7.4	9.2
EU	-4.0	-0.1	-2.6	-1.4	9.4	10.9												
USA	-2.9	0.9	-3.5	-0.9	8.9	10.2	-2.8	0.9	-3.2	0.1	9.3	10.1	–2.8	0.0	–2.6	0.1	8.9	10.1
Japan	-5.3	0.1	-3.0	-1.2	5.8	6.3	-6.8	0.7	-1.5	-1.1	5.2	5.7	–6.2	0.5	–1.2	–1.6	4.6	5.6

Source: European Commission spring forecasts, OECD Economic Outlook No 85 (June 2009) and IMF World Economic Outlook (April 2009).

the EU and the euro area this year. Despite the encouraging recent economic signals, the labour market situation is expected to deteriorate further in the second half of 2009. The full impact of the economic crisis on labour markets is, at least partly, still to be faced.

In its September Interim Assessment of the Economic Outlook, the OECD confirms that recovery from the global recession is likely to be earlier than had been expected a few months ago, but that the pace of recovery is likely to remain weak well into next year. Compared with the June forecast, the latest GDP forecasts for 2009 provided a slightly improved outlook for Japan and an unchanged one for the USA, and revised up the projection for the euro area (up from –4.8% to –3.9%). The OECD forecast for the EU reflects an improved outlook for France, Italy and especially Germany, but points to a gloomier situation in the UK. As a consequence, the unprecedented rate of deterioration in labour market conditions witnessed in the EU over the past year should ease, but the pace of labour market as well as economic recovery will likely be limited for some time to come.

4. SUMMARY AND CONCLUSIONS

The unprecedented crisis in global financial markets which gathered pace in autumn last year has led to the most severe recession since the Second World War, affecting the wider economy and increasingly impacting labour markets in the EU. After many years of relatively high growth and job creation, the global financial crisis and its repercussions on the real economy have brought about a sudden reversal of the previous period of positive employment

growth. This has set new challenges for policy-making and research, and as unemployment continues to rise, the spotlight has fallen more and more on limiting the effect of the crisis on jobs and addressing the social impact.

Although the economic crisis has had a major impact on economic growth in the EU, the effect on the labour market was rather limited in 2008. This is in part due to the usual lags of six or more months before output changes affect employment levels, together with the fact that labour demand started to adjust through flexible working arrangements (e.g. short-time working schemes and shorter working hours, temporary closures etc.) together with nominal wage concessions in return for employment stability in some sectors, rather than through a reduction in employment. Signs point to substantial labour hoarding, given that most of the adjustment so far seems to have been in terms of productivity declines rather than employment losses, and there is a risk that unless the economy picks up soon firms may start to shed jobs at a faster pace. The negative impact on employment has become more manifest in 2009, and policies to assist economic recovery and mitigate the loss of employment have gained in importance, remembering, however, that any pick-up in employment will also lag behind any recovery in output.

Although already on the rise since March 2008, unemployment has been growing more strongly since last October in reaction to the heightening of the economic crisis, before showing some signs of slowing over mid-2009. Although felt in all Member States, the onset of the increase and its severity vary widely across countries. At the same time, the crisis appears to be affecting some groups of workers more deeply than others. Although men still have higher employment rates than women, to date the former have been more affected by the downturn than the latter, reflecting that many of the sectors hit hardest by the crisis are predominantly male-oriented in terms of employment. There has also been a continued strong rise in unemployment among young people, with young men being particularly affected, highlighting a rising need for support to tackle youth unemployment.

The top employment challenge for the EU must be to minimise job losses, prevent unemployment from becoming entrenched (i.e. becoming long-term unemployment), favour transitions back into employment and boost job creation, and pave the way for economic renewal and for sustainable recovery and growth. In this context, acting in concert, the EU and Member States have already taken important steps to limit the impact of the crisis on labour markets and create the conditions for recovery.

The 'Employment in Europe 2009' report reflects two key factors influencing the policy work of the European Commission this year: first, the current context of the economic crisis and the need to respond to the expected rapid rise in unemployment, and, second, the fact that the current Lisbon cycle is coming to an end, requiring assessment of its achievements and shortfalls, and an adequate reformulation of policy priorities for post-2010.

Europe must not only tackle the recession but it must also turn it into an opportunity to create a more productive, more innovative, better skilled and greener economy – one with open and inclusive labour markets offering a more cohesive society, better opportunities for all, and jobs that are responsive to age, gender equality and work/life balance concerns. This cannot be a one-off effort but rather a continuous collective process.

European labour markets will be changed profoundly by the crisis and workers and companies must be given the necessary means to successfully adjust to these changing realities: to retain sound jobs, enhance skills at all levels, get people back to work and set the conditions for new job creation. Flexicurity remains the right approach to both modernise labour markets and ensure a successful recovery.

In this context this year's report focuses on the themes of 'Labour flows, transitions and unemployment duration' and of 'Climate change and labour market outcomes'. With regard to the former, the current recession and the sharp increase in unemployment have highlighted the importance of implementing measures to facilitate transitions into and back to work and have increased the potential pay-off of strengthening the effectiveness of existing labour market policies. In particular it underscores the importance of activation and job search assistance services delivered through Public Employment Services, to reduce the labour market impact of the recession.

In light of this, assessment of policies targeted at reducing the incidence and duration of unemployment and fostering future job creation should receive added attention at the present juncture. This should be particularly the case for those that increase moves from unemployment or inactivity back to employment and strengthen attachment to the labour market of groups at the margin. Moreover, the focus on unemployment and its duration not only helps to better inform the public debate and underpin policy action, but also represents an indispensable step in the reassessment of the Lisbon Strategy in order to prepare the post-2010 agenda. In line with flexicurity policies, the analysis focuses on conditions that favour 'good' transitions (e.g. from unemployment/inactivity to employment) and limit the rise and effect of long-term unemployment. In the current recession, it is crucial to assess the conditions (both structural and policies) that can favour the speed and quality of labour market transitions (e.g. job

creation) in order to support a rapid economic recovery and minimise time spent in unemployment, because of its lasting negative effects on human capital and employability.

Regarding the second major theme – 'Climate change and labour market outcomes' – by now there is a general consensus that a shift towards a competitive low-carbon economy is a pressing priority requiring immediate action and that the current economic crisis should not hinder this shift. This is particularly pertinent if one takes into consideration that tackling climate change and other environmental challenges can be combined with major opportunities to develop new technologies, create new jobs, enhance energy security, increase international competitiveness and improve public health. The scope for the creation of new 'green jobs' and the greening of existing jobs is significant and covers all types of worker. Nevertheless, in order to exploit these opportunities effectively, adequate policies are required as markets may not necessarily tackle these problems because of market failures. An adequate policy response should be driven by an integrated approach. Coordination should ensure that economic, employment, social, energy, transportation and environmental policies are mutually reinforcing and in line with the EU Lisbon Strategy for Growth and Jobs. It is important that short-term actions should reinforce long-term strategic goals. Overall, there is a strong case to be made for promoting labour market policies along flexicurity principles so that workers can be smoothly reallocated towards less polluting activities and labour markets and workplaces can become more receptive to experimental innovations. Special attention should also be paid to adequate training and education schemes in order to avoid the emergence of skill gaps and shortages. In addition, such policies should be complemented by social spending focused on items that accommodate the transition process in an active way. As is the case with climate change, long-term care also constitutes a structural challenge for European labour markets, and is likely to have a substantial impact in the years to come. For this reason, it is given a brief special focus in chapter 3.

Chapter 2

Labour flows, transitions and unemployment duration

1. Introduction

The European Union (EU) Common Principles of Flexicurity[1], agreed among all Member States and supported by social partners, have been endorsed by the European Council.[2] Recently, EU leaders have further underlined the importance of those principles in terms of helping manage the employment effects and social impact of the current recession, and preparing for the economic upturn.[3]

The severity of the current recession and the risks associated with protracted periods of high unemployment have heightened the need to monitor movements in the labour market in ways that enable timely public policy response. In particular, measures are required to foster re-employment and avoid a rise in long-term unemployment, which could eventually lead to a permanent loss in welfare associated with the deterioration in human capital and the reduced employability of jobless people.

A successful flexicurity[4] strategy essentially aims to balance the income insurance function of unemployment benefit systems with appropriate labour market 'activation' mechanisms. Such mechanisms are designed to facilitate the transition of displaced or mobile workers into employment, and foster career development and upward mobility generally, rather than protecting existing non-profitable jobs through high dismissal costs. Measures for activation include, inter alia, more and better spending on active labour market policies, access to quality placement and counselling services for the unemployed, a reduction in the disincentives of tax-benefit systems, and policies promoting labour market attachment, particularly for those at the margin of the labour market or at risk of becoming prematurely inactive (e.g. early retirees).

The EU flexicurity agenda calls for an effective monitoring of the situation and of progress based on detailed analysis. Labour market dynamics can be characterised by various indicators, such as flows, transitions and (unemployment) duration. All these indicators measure some aspect of adjustment in the labour market. The calculation of flow indicators, comprising both job and labour indicators, has a long tradition. They measure the number of jobs being created and destroyed or the number of workers being hired and undergoing separations, respectively. Transition indicators have been developed more recently in close connection with the EU employment policy debate, essentially to capture the likelihood of an individual moving between different labour market statuses, contractual types and income levels. Thus, they also provide vital information on the quality of labour market dynamics. Unemployment duration indicators have also a long-established tradition as dynamic indicators, particularly to measure duration dependence[5] in unemployment and the effects of policies and institutions on the duration of unemployment.

It can be shown that there is an equilibrium relation between the unemployment rate, the job reallocation rate and unemployment duration, although it also depends on other factors, such as institutional aspects of the labour market. This provides a strong argument for jointly analysing labour market flows and unemployment duration in this chapter. All other things being equal, job reallocation is inversely related to unemployment duration (and long-term unemployment). In fact, low unemployment outflows resulting from factors, such as inadequate job matching or high dismissal costs, are likely to be associated with high unemployment duration.

(1) COM(2007)359 of 27 June 2007.

(2) Council Conclusions (16201/07), as adopted at the Council (EPSCO) on 5/6 December 2007.
European Council Conclusions (16616/1/07) of 14 December 2007.

(3) 'Flexicurity in times of crisis', Council Conclusions (10388/09), as adopted at the Council (EPSCO) on 8/9 June 2009. It calls for measures supporting the adjustment of European labour markets, emphasising investments in human capital, such as retraining, skills-upgrading and improved matching of labour market needs.

(4) DG EMPL (2007), 'Towards Common Principles of Flexicurity: More and better jobs through flexibility and security'.

(5) Duration dependence measures how the likelihood of leaving unemployment varies with time already spent unemployed.

In addition to the general concerns that motivate flexicurity principles, the severity of the current recession implies the risk of a prolonged rise in the average duration of unemployment, and of a greater incidence of long-term unemployment. As illustrated by the literature on unemployment hysteresis,[6] these developments may in turn trigger an increase in the structural unemployment rate (NAIRU[7]), preventing a timely return to pre-crisis levels. This illustrates the need to closely monitor unemployment duration, alongside flows and transitions, in order to timely propose evidence-based corrective action, such as better public employment services (PES), or the right investments in human capital.

This chapter is divided into three sections. The first section mainly uses data from the EU Labour Force Survey (LFS) to calculate indicators of labour flows, with results presented for EU aggregates and by country, as well as for workers with different characteristics. An analysis of variance is carried out for differences in the rate of hiring, in an attempt to disentangle the effects of different sectors and country institutions. Detailed calendar information from the longitudinal[8] component of the EU Survey on Income and Living Conditions (SILC) is also used to calculate indicators of labour flows.

The second section calculates time series for indicators of labour market transitions based on the EU LFS. Using the Hodrick-Prescott (HP) filter, a statistical technique to decompose a time series in trend and cycle, an attempt is also made to distinguish the effects of cyclical and structural changes on the transition indicators. In addition, results are presented for EU aggregates and by country, as well as for different categories of workers.

The third section calculates various indicators of unemployment duration, using both EU LFS and EU SILC data. Based on the former, it calculates indicators on the average duration of incomplete and completed spells of unemployment, recognising that the former tends to overestimate the length of time spent in unemployment. It also goes beyond the use of cross-sectional data, using the EU SILC longitudinal component to evaluate the incidence of long-term unemployment and the recurrence of unemployment spells based on alternative reference periods.

In addition, the third section provides a brief overview of the literature on the relationship between levels and duration of unemployment compensation and the length of unemployment spells, as well as the relationship between labour market institutional arrangements, notably in terms of employment protection legislation and labour market policies, and the incidence of long-term unemployment. The chapter ends with estimates of long-term unemployment up to 2010 based on recent macro-economic projections.

2. LABOUR FLOWS

2.1. Labour flows and transitions in the labour market

The performance of labour markets is normally assessed by looking at static variables, such as the share of the working-age population or of the labour force who are employed or unemployed at a specific point in time (i.e. the employment and unemployment rates), or changes in those shares over time. However, the literature shows that such figures of net employment growth or job creation can give a misleading impression of the underlying dynamics of the labour market, given that the gross flows into and out of employment are much higher than the net results.[9]

The causes of gross flows can be roughly classified in terms of demand and supply. The former reflects the need of firms to adjust labour inputs to changes in final demand, competitiveness or technology requirements. This leads to the destruction of jobs that are no longer productive and to the creation of jobs in expanding firms and sectors. In contrast, labour supply factors reflect movements of workers from one job to another, as well as between employment and non-employment, in their search for better pay, working conditions, and an overall improved work–life balance.

Models that incorporate both demand and supply factors (e.g. Mortensen and Pissarides, 1994) highlight the central role of such dynamics/transitions in the functioning of labour markets, in which job separations – both quits and dismissals - job vacancies, and job matching occur simultaneously. However, due to the wide range of differences in the capabilities and needs of both firms and workers, as well as differences in their knowledge about conditions and possibilities open to them, there are significant mismatches and imbalances in the labour market. As a result, it is prevented from reaching an instantaneous equilibrium without adjustment costs.

In practice, the matching process between persons who are unemployed and the job vacancies available in firms is lengthy and costly, with considerable resources being devoted by firms, individuals and public agencies with the aim of forming productive matches. In this context of job matching, it is clearly important to fully assess the characteristics of both job and worker or labour flows if the 'allocative efficiency' of our labour markets is to be improved – i.e. their ability to adequately match people with available jobs as efficiently and as cheaply as possible.

It is against this background that this section of the report studies in detail what is known, or can be inferred, about the nature of labour market flows and transitions in order to achieve a better understanding of the functioning of labour markets, which can lead to more effective policies.

(6) In the 1970s–1980s, the experience of persistent high unemployment in Europe led to the development of theories of unemployment centred on the notion that the equilibrium unemployment rate depends on past unemployment rates (i.e. unemployment hysteresis).

(7) Non-accelerating inflation rate of unemployment (NAIRU).

(8) Longitudinal data track individuals over time.

(9) These movements may take several forms, such as the simultaneous creation and destruction of a large number of jobs or significant flows of workers between jobs or in and out of employment.

But beforehand, it might be useful to present more formalised analytical accounts of the relation in equilibrium between the unemployment rate, the job reallocation rate and unemployment duration, providing the basic rationale for jointly analysing in this chapter labour market flows and unemployment duration (Box 1).

Box 1: Job flows, the unemployment rate and unemployment duration

In equilibrium, the relation between the unemployment rate, job flows and unemployment duration can be expressed using the following identity (Layard et al., 1991, pp. 220-221).

$$\frac{U}{L} \equiv \frac{I}{N} * \frac{U}{O} * \frac{N}{L} \Rightarrow \frac{u}{1-u} \equiv \frac{i}{o} = i * d$$

Where, U: unemployment; N: employment; L ≡ N + U: labour force
O: unemployment outflows; I: unemployment inflows;

(Equation 1)

$u \equiv \frac{U}{L}$: unemployment rate; $o \equiv \frac{O}{U}$: unemployment outflows rate;

$i \equiv \frac{I}{N}$: unemployment inflows rate; $d \equiv \frac{1}{o} = \frac{U}{O}$: unemployment duration

Equation 1 assumes that the labour force is constant, and thereby in equilibrium labour inflows equal outflows (I=O).

According to Equation 1, the unemployment rate is directly related to the inflow rate and inversely related to the outflow rate, or equivalently directly related to the product between the inflow rate and the duration of unemployment.

After straightforward manipulation of some basic identities, Garibaldi et al. (1997) derive the following equilibrium relation between job reallocation/turnover, the unemployment rate, and unemployment duration. Equation 2 is more general than Equation 1, because it does not require in equilibrium that the labour force be constant, allowing instead for the labour force to grow at an exogenous rate *n*.

$$jr = 2 * \frac{\frac{u}{1-u}}{d} - 2 * q - n$$

Where, JR ≡ JC + JD: Job reallocation; JC: Job creation;

JD: Job destruction; $jr \equiv \frac{JR}{N}$: Job reallocation rate; d: unemployment duration

(Equation 2)

U: unemployment; N: employment; L ≡ N + U: labour force;

Q: Job quits; $q \equiv \frac{Q}{N}$: Job quits rate; $u \equiv \frac{U}{L}$: unemployment rate;

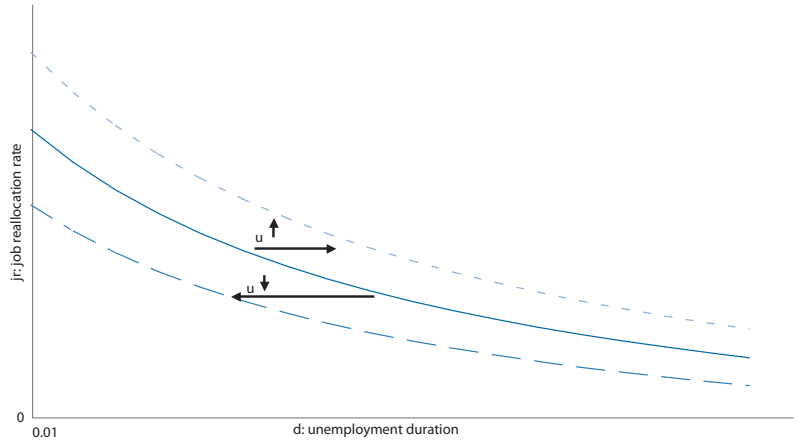
$n \equiv \frac{L - L_{-1}}{L_{-1}}$: labour force growth rate

Equation 2 gives the equilibrium relation between job reallocation, the unemployment rate, and unemployment duration, providing a strong argument for jointly addressing in this chapter issues of labour flows and unemployment duration.

However, Equation 2 should not be interpreted as a reduced form equation from which it would be possible to infer causal relations. In fact, institutional settings and policies, such as tax-benefit policies, employment protection legislation, active labour market policies, retirement policies are likely to simultaneously influence all the 5 variables in Equation 2: *jr, u, d, q, n.*

According to Equation 2, in a steady state equilibrium and all other things being equal, job reallocation is inversed related to unemployment duration. For a given unemployment rate, Equation 2 identifies the existence of an apparent trade-off between job reallocation and unemployment duration (mediated by the unemployment rate). A(n) (exogenous) lowering (rise) of the equilibrium unemployment rate tends to alleviate (worsen) that trade-off, shifting to the left (right) the locus of Equation 2 drawn in *jr* and *d* (Chart 1a).

Chart 1a: How changes in the equilibrium unemployment rate affect the 'apparent' trade-off between job reallocation and unemployment duration



2.2. Job and labour flows - definitional and measurement issues

A number of indicators have been used in order to measure job and labour market flows. They are generally classified in terms of job flows, and flows of workers or labour.

Job flows are essentially associated with developments in labour demand. They include indicators of job creation (JC), job destruction (JD) and job turnover (JT, or job reallocation). JC measures the number of jobs created in a given period by opening and expanding firms, while JD indicates the number of jobs destroyed by contracting or closing firms. JT, in this context, is the sum of JC and JD and provides an overall quantitative measure of total job flows. Indicators of job flows are usually calculated using business surveys or administrative data.

On the other hand, Labour flows are associated with developments in labour supply. The labour turnover (LT, or labour reallocation) indicator measures the number of workers who either change employment status (e.g. from employment to unemployment) or move between jobs. LT is the sum of the two components – the number of hirings (H) and the number of separations (S) – and is the conceptual equivalent of JT above. Indicators of labour flows are usually calculated using labour force surveys or administrative data.

Comparisons between job and labour turnover indicators can shed light on the relative importance of supply versus demand factors in driving labour market dynamics. Each job that is created or destroyed corresponds to a hiring or a separation. However, the reverse does not necessarily hold since hirings and separations may also occur because of independent decisions by workers without affecting the overall number and distribution of available jobs.

JT corresponds to the share of LT that is driven by labour demand factors or, in other words, the labour flows that are needed in order to accommodate changes in the total amount and distribution of jobs. On the other hand, the difference between LT and JT is called the Churning Flow (Dale-Olsen, 2006), and represents the share of LT that is due to labour supply factors. Box 2 provides more formal and detailed information on how these indicators are defined.

Box 2: Definition of job and labour flow indicators

This box explains some standard job and labour flow indicators common in the literature, together with their relationships. It largely follows Davis and Haltiwanger (1995) and Bertola et al. (1999).

Job flows

JC is the sum of two components:

1. The number of jobs created in opening (O) establishments – i.e. establishments with zero employment in period t and positive employment in t+1
2. The number of new jobs created in expanding (E) establishments – i.e. establishments existing both in period t and t+1 but with larger employment in t+1

(1) Hence, $JC = O + E$

Symmetrically, JD is the sum of two components:

1. The number of jobs destroyed in closing (CL) establishments – i.e. establishments which are shut down between period t–1 and t.
2. The number of jobs destroyed in contracting (CO) establishments – i.e. continuing establishment registering a decline in employment between period t–1 and t.

(2) Hence, $JD = CL + CO$

JT or gross job reallocation is the sum of JC and JD; therefore it adds all employment gains and losses which have occurred at establishment level between period t–1 and t:

(3) $JT = JC + JD$

The difference between JC and JD equals net employment growth (NEG):

(4) $NEG = JC - JD$

Excess job turnover (EJT, or excess job reallocation) is the difference between JT and the absolute value of NEG. EJT represents the amount of job flows over and above what is needed to accommodate net job growth.

(5) $EJT = JT - |NEG|$

Labour flows

LT gives the number of persons who have changed labour status (e.g. from employment to unemployment) or moved between jobs between period t–1 and t.

It is the sum of two components:

1. Hirings (H): the number of recruitments.
2. Separations (S): the number of dismissals/quits.

(6) $LT = H + S$

In this chapter, EU LFS data are used to calculate LT[10]. H is calculated as the sum of three components:

1. The number of workers who moved from unemployment to employment (U_E)[11]
2. The number of workers who moved from inactivity to employment (I_E)
3. Job-to-job mobility – i.e. the number of workers who were employed both at time t and t–1, but with tenure lower than 1 year with their employer in period t ($E\_E_{<1y}$)[12].

(7) $H = U\_E + I\_E + E\_E_{<1y}$

In this chapter, S are calculated as the sum of two components:

1. The number of workers who moved from employment to unemployment (E_U)
2. The number of workers who moved from employment to inactivity (E_I)

(8a) $S = E\_U + E\_I$

(8b) $LT = U\_E + I\_E + E\_E_{<1y} + E\_U + E\_I$

Similar to EJT, excess labour turnover (ELT) is the difference between total LT and the absolute value of NEG. It gives the number of job matches created or destroyed in excess of what is needed to accommodate net employment growth.

(9) $ELT = LT - |NEG|$

Indicators described above are normally presented as rates. The base is average employment in periods t–1 and t (Davis and Haltiwanger, 1996).

What is the relationship between labour and job turnover?

As stated in the main text, JT comprises all changes in the level and spatial distribution of employment deriving from firms' labour input decisions. In contrast, LT measures flows from the perspective of workers, thereby including both workers' flows which are initiated by firms (i.e. creation and destruction of jobs as well as dismissals followed by worker's replacement in continuing jobs) and those resulting from workers' decisions to move to different jobs, or in and out of employment. Hence by definition, JT is smaller than LT, because to each job created (destroyed) there corresponds one hire (separation), whereas the opposite does not necessarily hold, as there are many separations and hires which are not associated with changes in the existing stock of jobs. In conclusion, JT is equivalent to the number of workers changing job or employment status as a result of firms' decisions to change the level and distribution of employment opportunities within the economy.

The Churning Flow (CF, Dale-Olsen, 2006) is defined as the difference between LT and JT, representing the share of labour flows that *do not* occur to accommodate firms' job destruction/creation decisions or, in other words, the amount of workers' reallocations which would take place even in the absence of any change in the distribution of jobs across firms.

(10) $CF = LT - JT$

(10) LT and JT indicators can be calculated using different time units, such as a month, a quarter or the year. Indicators calculated using different frequencies are not directly comparable as both jobs and workers' flows can be reversed within a given period (i.e. between observations). A worker may, for instance, go through a repeated sequence of short jobs, with unemployment spells in between, within a year. Such intra-annual flows are not accounted for when using annual data. This implies that annual turnover rates systematically under-estimate the actual number of job/labour flows/transitions. LT figures presented in this chapter are mainly based on EU LFS annual data, because quarterly EU LFS data do not permit the calculation of LT indicators as the retrospective question on labour market status during the previous period is not collected quarterly. This chapter includes also some preliminary calculations of LT indicators using EU SILC (and of the factors determining some transitions) using the calendar information of labour market status.

(11) This is calculated by comparing the self-defined employment status in the current year (variable MAINSTAT in the EU LFS) with the self-defined status in the previous year (WSTATY1). MAINSTAT is preferred to current employment status following the ILO definition (i.e. ILOSTAT) in order to maximise comparability with WSTATY1. The same methodology is applied for EU LFS-based indicators of labour market transitions (see section 3).

(12) This excludes workers changing jobs *while remaining with the same employer*, as this information is not available from the EU LFS. However, this is not a major omission, because the focus of the chapter (as in the turnover literature) is on external, rather than within-firm, employment flexibility.

There is extensive empirical literature, containing calculations regarding these indicators for developed economies, together with analyses of the main determinants of job and labour flows.

There is a considerable variation between the detailed experiences of different countries. However, a common characteristic is that gross flows, or movements, of employment regularly and significantly exceed net flows. Moreover, high gross job and labour flows are present at all phases of the economic cycle, which is indicative of their structural – as opposed to cyclical – nature (Davis et al., 2006). In other words, this literature on labour market flows emphasises the 'fluid' nature of labour markets, going far beyond what might otherwise be inferred by simply looking at the net results – i.e. changes in the level of employment or unemployment.

In a study of 11 Organisation for Economic Co-operation and Development (OECD) countries, the OECD Secretariat (OECD, 2009) found average annual job turnover rates of some 22% (of total employment) over the period 1997–2004, and annual average labour turnover rates of 33% (of total employment) between 2000 and 2005. Likewise, Haltiwanger et al. (2006) reported an average job turnover rate of 25% for a group of OECD countries during the 1990s[13], and Davis and Haltiwanger (1995) calculated that, in the USA, the average number of workers changing job or employment status represented more than a third of total employment (36.8%), whereas annual job turnover rates ranged from 20% to 30% of total employment. The use of quarterly data has confirmed and strengthened the results obtained using annual data. For instance using quarterly data Davis et al. (2006) found average job creation and destruction rates of nearly 8% of employment in the USA private sector, with more than 8% of the US working-age population changing job or their employment status every month.

As regards European countries, empirical analyses have also found large-scale gross job and labour flows (Davis and Haltiwanger, 1999; Dale-Olsen, 2006). These results concern not only countries such as the UK, which is often considered to have a particularly 'flexible' (external) labour market, but also Germany, France or Italy. Abowd et al. (1999) estimated that, in France, over one year, the creation of one job corresponds to the hiring of three persons and the separation of two, while Burda and Wiplosz (1994) report similar figures for Germany, Spain and the UK. [14]

However, comparisons of the results of different cross-country studies of gross job and labour flows statistics need to be made with care, given possible differences in the data sources used and the methodologies applied to them. Davis et al. (2006) identify three main problems affecting international comparisons:

- Flows occurring between two periods may be measured using data with a different frequency, e.g. annual, quarterly, or monthly. Annual data captures a smaller fraction of transitory employment changes (i.e. missing those that occur but are reversed within the time period considered) compared with quarterly or monthly data. As a result, annual flow rates tend to underestimate the actual amount of turnover.

- The unit of analysis can vary, as flows may have been measured, for other statistical purposes, at the level of an establishment, firm or notional tax-paying entity.

- The datasets used may differ in the quality of their longitudinal links – i.e. the extent to which they make appropriate adjustments for changes or breaks in the data series due to definitional changes. This leads to varying degrees of reliability in the corresponding measurement of flows.

Recent work from the OECD (OECD, 2009) has sought to overcome these comparability issues by using new, internationally harmonised, data sources. The results of these analyses suggest that the size of both job and labour turnover rates vary quite substantially across countries. Job turnover rates range from 25% or more in the USA and the UK to less than 15% in Germany, Slovenia and Sweden, whereas labour turnover rates vary from more than 40% in the USA, the UK, Denmark and Spain to less than 30% in Hungary, Italy, Austria and Greece. Overall, labour and job turnover rates are correlated across countries.

2.3. The impact of cycle, firms' and workers' characteristics

Extensive empirical research has also been undertaken regarding the impact of a number of variables and factors on the magnitude and 'cyclical profiles' of job and labour flows indicators.

As regards the effects of the business cycle, Davis and Haltiwanger (1995), Gomez-Salvador et al. (2004) and Dale-Olsen (2006) present results that suggest a complex and sometimes counterintuitive picture, in which job turnover and labour turnover behave somewhat differently. Job turnover tends to exhibit a counter-cyclical pattern in the USA and the UK, and an acyclical pattern in Continental Europe. As expected, however, job destruction is counter-cyclical – i.e. job losses increase in economic downturns, while job creation is less sensitive to the economic cycle.

(13) OECD (2009) and Haltiwanger et al. (2006), unlike previous studies, are based on internationally harmonised data sources, thereby providing more reliable cross-country estimates of job and labour flows.

(14) Burda and Wiplosz (1994) argue that: "Even when compared with the US and Japan, labour markets in Europe are far from stagnant. They are characterised by large flows between employment, unemployment and nonparticipation."

Labour turnover is generally procyclical, in that hirings are particularly procyclical, although separations appear much less sensitive to cyclical conditions. The latter result reflects the outcome of two contrasting forces: dismissals tend to increase during downturns, while voluntary quits tend to increase in more buoyant economic conditions.

Against this overall background, patterns of job and labour flows are seen to vary considerably between firms (in terms of their sector, size and age) and between workers (in terms of their gender, age and education).

Overall, job flows appear to be larger in younger and smaller firms, as well as in the service sector, compared with manufacturing (Gomez-Salvador et al., 2004). Labour flows tend to decrease with the age of the workers concerned (Haltiwanger and Vodopicec, 2003), while the turnover of skilled workers tends to be higher than that of unskilled workers, mainly due to more frequent job-to-job moves by skilled workers (Dale-Olsen, 2006). Furthermore, levels of educational attainment affect the 'quality' of workers' moves by significantly boosting the chances for 'upward' mobility in the labour market – i.e. mobility to more stable or better paid jobs (Muffels and Fouarge, 2006).

OECD (2009) carried out a comprehensive analysis of these issues using a common methodology and a harmonised dataset. Results show that job flows vary significantly across sectors, and confirm previous findings that they are higher in construction and services (with a few exceptions, such as financial intermediation) than in manufacturing. Cross-sector variations in rates of labour turnover are even greater, ranging from a high of 62% in hotels, restaurants, etc. (horeca) to 14% in electricity, gas and water supplies.

Despite differences in national labour market institutional arrangements, variations in job and labour flows across economic sectors tends to be similar across countries, suggesting the importance of sector-specific technological, organisational and demand factors. The OECD (2009) also estimates that most of the total job and labour reallocation that takes place occurs within sectors, rather than between sectors.[15]

Using a number of US data sources, Davis et al. (2006) found substantial cross-sector variations in both job and labour flows in line with the results of the OECD (2009) analysis – i.e. with construction and leisure/hospitality registering much larger job and labour flows than manufacturing. Moreover, they underlined the fact that the share of dismissals relative to quits in total separations also varies across sectors, with construction and manufacturing having a larger proportion of dismissals compared with the retail and hospitality-leisure sectors.

As regards the impact of firms' characteristics (apart from sectoral composition effects), the OECD (2009) results build on previous research by also identifying significant effects resulting from the age and size of the firms. The analysis concludes that a firm's age plays a much larger role in explaining job flow variations than its size, with younger firms tending to create more jobs. And, while older firms do tend to destroy more jobs than younger ones, this relationship between the age of the firm and job destruction is generally weaker, and only valid for some countries, such as the USA, the UK and Denmark.

As with OECD (2009), Haltiwanger et al. (2006) analysed job flows in 16 developed and developing economies based on a harmonised dataset and found that the combined effect of a firm size and its sector explain more than half of the overall variability in job turnover between OECD countries. In addition, this sectoral classification is highly correlated across countries. However, their findings do differ from those of OECD (1999) insofar as they argue that the firm's size alone accounts for a much larger share of job turnover variance than the sector, with job turnover tending to decline with firm size, although more so in the USA than in EU Member States.

Notwithstanding the importance of a firm's characteristics, such as its size and economic sector, both the OECD (2009) and Haltiwanger et al.'s (2006) analyses leave a significant amount of the total variability in turnover indicators unexplained, implying that country-specific characteristics, such as national institutions and regulations, could play a significant role.

In particular, OECD (2009) suggests that countries with less stringent employment protection legislation (EPL), such as the USA, the UK and Denmark, or countries with a particularly large share of temporary employment (e.g. Spain), tend to be characterised by higher job and labour turnover rates.[16] Haltiwanger et al. (2006) ran regressions on the effects of EPL on turnover rates which suggested that, after taking account of sector and firm size effects, stringent regulations reduce job turnover in general, particularly in sectors requiring more considerable labour adjustments. Within sectors, turnover in large firms is reduced to a greater extent than in small firms, possibly because small businesses are often exempt from EU or national legislation on dismissals. Garibaldi et al. (1997) also find a negative correlation between an index of dismissal costs for firms (encompassing rules on notice and severance payments) and job reallocation for a sample of 10 OECD countries in the period 1982–89. The correlation is particularly strong when the sample is restricted to continuing firms, i.e. excluding entry and exit firms. As continuing firms tend to be larger on average, this finding suggests, again, that smaller firms can more easily circumvent employment protection regulations.

(15) On average within-industry job and labour turnover rates are equal to 18% and 30% of employment, respectively, against overall job and labour turnover rates of 22% and 33%, respectively.

(16) This is consistent with recent findings in Kugler and Pica (2003) and Gomez-Salvador et al. (2004), which have used harmonised cross-country datasets to reassess previous research by Bertola and Rogerson (1997) and OECD (1999), which was inconclusive, on the impact of EPL on job flows.

Overall, this literature suggests that regulations that raise labour adjustment costs reduce both job creation and destruction rates, thereby reducing turnover. This could adversely affect the allocative efficiency of labour markets, at least in the short run, and potentially lower long-run productivity growth rates (see 2.3.2). Nonetheless, these are ultimately determined by a wide range of economic, technological and organisational factors, which are not taken into account in these analyses.

As regards the effects of worker characteristics, the OECD (2009) analysis confirms that they significantly affect potential labour mobility. In practice, labour turnover appears to be higher for women than for men in most countries, particularly with respect to hirings. A strong negative correlation is found between age and hiring rates, reflecting factors such the entry of young people into the labour market and the accumulation of firm-specific human capital. However, no significant relationship is observed between age and separation rates, except in a few countries like Denmark, Finland, France and Germany, where it is actually negative. Finally, separation rates tend to be higher for low-skilled workers, while hiring rates vary to a lesser extent by skill level. Labour turnover also appears to be larger at the opposite ends of the skill distribution, except in countries such as the USA and Denmark, with high overall mobility, where the relationship between labour reallocation and skill level is negative.

2.3.1. Other features of labour turnover: concentration, persistence, role of dismissals

Interesting findings have also been highlighted in recent research with regards to the relationship between job and labour flows, on the one hand, and the degree of 'spatial concentration' and 'time persistence' of job flows, on the other hand.

With respect to the relationship between job and labour flows, job reallocation appears to account for a large proportion of labour flows – e.g. between one third and two thirds in the USA, according to Davis and Haltiwanger (1995), and two thirds on average across the 11 countries considered in OECD (2009). This suggests that, from the perspective of workers, labour dynamics are often involuntary, and result from a process of reallocation of employment opportunities initiated by the firms themselves, as a reaction to their market conditions, perceived opportunities or the initiatives of other competing firms.

With respect to 'spatial concentration' and 'time persistence' of job flows, a considerable share of overall job creation and destruction appears to be the result of major contractions or expansions of employment in a limited number of establishments (Davis and Haltiwanger, 1996; Davis et al., 2006), rather than being spread evenly across a large number of establishments. In the USA, in the third quarter of 2001, Davis et al. (2006) found that 68% of total job destruction occurred in establishments reducing their employment by at least 10%, and 63% of job creation took place in establishments expanding their employment by 10% or more.[17] Furthermore, the decision to create or to destroy certain jobs at a particular point in time seemed to reflect non-reversible – i.e. permanent – decisions at the level of the establishment.

Davis et al. (2006) found that the relationship between the share of separations due to dismissals, and changes in the level of employment at the establishment level, was not linear. Specifically, establishments tend to accommodate moderate declines in employment through quits, while relying more on dismissals in the case of large employment contractions. Overall, this implies that severe macroeconomic recessions (like the current one) differ from milder ones not only in terms of the total number of 'separations', but also in terms of the higher share of dismissals over quits. Given the evidence that dismissed workers are more likely to experience longer unemployment spells than quitters (see section 4.4), the high proportion of dismissals in sharp downturns signals a medium-term increase in unemployment duration. Moreover, given that labour flows often seem to be associated with large-scale, spatially concentrated job reallocations, the potentially adverse consequences for workers and local communities tend to be more long-lasting.

(17) The degree of concentration appears to be lower for labour than for job flows.

2.3.2. The link between turnover and productivity

As mentioned in section 2.1, labour market theory underlines the contribution of job and labour reallocation to the overall level of allocative efficiency in an economy, by ensuring that both jobs and workers move to those firms/sectors where they are most productive.

The empirical literature on the impact of job reallocation on total factor productivity (TFP) is rather small. However, a number of papers (Foster et al., 2001; Bartelsman et al., 2004; Brown and Earle, 2008) rely on firm-level datasets (e.g. business registers) available for several countries (both developed and emerging economies) to investigate the microeconomic determinants of aggregate productivity performance at country or industry level. Accordingly, changes in aggregate TFP can be decomposed into a within-firm component, linked to efficiency gains in the production process, and a component deriving from the reallocation of production factors (including labour) between firms. The latter can involve the entry of new firms and the exit of existing ones or the employment expansion and contraction of continuing firms.

A consistent finding is that, while efficiency gains within firms often account for most changes in aggregate productivity, a significant pro-

portion of the latter comes from job reallocation from contracting to expanding firms, with a significant role being played by entering and exiting firms. This evidence signals that job reallocation tends to be associated with substantial 'creative destruction' forces, whereby new and more productive firms replace less productive ones and jobs move from less efficient to more efficient firms and sectors.

The economic literature highlights the variability in the contribution of job reallocation to TFP growth (Bartelsman et al., 2004). However, several papers have found that productivity-enhancing reallocation has been particularly important in the transition economies of Central and Eastern Europe (Brown and Earle, 2008; De Loecker and Konings, 2005; Masso et al., 2004). Initially, these economies were characterised by both low job reallocation and TFP growth rates. However, following the opening up of markets during the 1990s, state-owned firms registered large-scale job destruction, whereas net entry of new private firms rose significantly, accounting for a large share of total job creation. Both developments were associated with substantial productivity gains, illustrating the critical role played by job reallocation in successful transitions towards a market economy.[18]

2.4. The size and characteristics of labour market flows in the EU

Using the methodology presented in Box 2, this section undertakes a review of the empirical evidence on labour turnover[19] in Europe based on the EU LFS and the EU SILC. Indicators are calculated for the EU as a whole and for a number of categories. Time series for the indicators based on the EU LFS are presented, and an attempt is made to distinguish between cyclical variations and long-term trends.

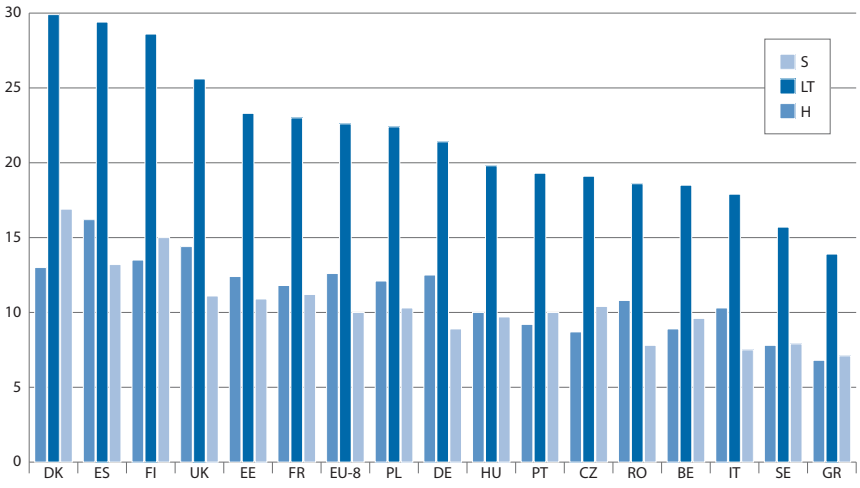
Table 1: **Labour flow indicators by country (%)**

	H	S	LT	NEG	ELT
DK	13.0	16.9	29.9	0.5	28.9
ES	16.2	13.2	29.4	4.0	25.4
FI	13.5	15.0	28.6	0.5	27.8
UK	14.4	11.1	25.6	0.8	24.8
EE	12.4	10.9	23.3	2.1	21.2
FR	11.8	11.2	23.0	0.8	22.2
EU-8	12.6	10.0	22.6	1.4	21.3
PL	12.1	10.3	22.4	1.3	19.9
DE	12.5	8.9	21.4	0.7	19.7
HU	10.0	9.7	19.8	0.2	19.2
PT	9.2	10.0	19.3	0.2	18.8
CZ	8.7	10.4	19.1	0.8	17.9
RO	10.8	7.8	18.6	-1.4	16.3
BE	8.9	9.6	18.5	1.3	17.1
IT	10.3	7.5	17.9	1.4	16.5
SE	7.8	7.9	15.7	-0.2	15.3
GR	6.8	7.1	13.9	1.6	12.3

Source: DG EMPL calculations using EU LFS.

Notes: H = Hirings, S = Separations, LT = Labour Turnover, NEG = Net Employment Growth, ELT = Excess Labour Turnover. All figures are expressed as percentages of employment in the previous year (see Box 2 for the methodology). Averages for the period 2002–07, except for France (2002) and Sweden (2002–04).

Chart 1b: **Hirings, separations and labour turnover (% of employment)**



Source: DG EMPL calculations using EU LFS.

Notes: Annual averages across 2002–07 period. 2002–04 for Sweden and 2002 only for France.

Table 1 presents indicators for hiring, separation and labour turnover rates, as well as, for NEG and excess labour turnover. These calculations confirm, for the EU, the three key findings of the literature reviewed in section 2.3:

- EU labour markets are very dynamic. In the period 2002–07, the labour turnover rate for the EU-8[20]

(18) According to De Loecker and Konings (2006), the net entry of firms accounted for 17% of growth in aggregate productivity of the manufacturing sector in Slovenia between 1994 and 2000. Using a dataset covering six transition economies in Central and Eastern Europe, Brown and Earle (2008) find that after market reforms the contribution of job reallocation to productivity growth reached much higher levels than those reported for developed economies, such as the USA or the UK.

(19) At EU level, job turnover indicators could not be calculated using harmonised business surveys or matched employer-employee data sources, because data is not available.

(20) Belgium, Germany, Denmark, Greece, Spain, Italy, Portugal and the UK.

averaged 22.8%, ranging from a maximum close to 30% in Denmark to a minimum of 14% in Greece.

- In all countries, labour turnover rates exceed NEG by a significant margin. In the EU-8, 'excess'[21] labour turnover averaged around 21% of initial employment.

- Labour turnover indicators vary greatly across the EU (Chart 1b). Denmark, Spain, Finland and the UK have the highest values, while Greece, Sweden and Italy have the lowest.

Across the panel of data, a significant positive correlation exists between hiring and separation rates (Table 2). This is in line with findings in OECD (2009), where hiring and separations are highly correlated across industries and countries[22], as they are with respect to job creation and destruction rates.

Table 2: Correlation between the hiring and separation rates

Pearson correlation coefficient	0.638 ***

*** significant at 1% level
Source: DG EMPL calculations using EU LFS.

Box 3: Labour turnover indicators based on the EU SILC – the impact of the periodicity of observations on measurement

The users' database of the EU SILC provides an opportunity to measure the effect of using data with different frequency (for example, annual versus monthly) for calculating labour turnover indicators, in a framework that in principle controls for other sources of variation. The longitudinal component of the EU SILC includes both an annual variable on (the self-declared current) economic status (PL030) and a calendar of activity variable (PL0210A-L), reporting the monthly economic status.

As mentioned earlier in the text, there is a strong presumption that annual data captures only part of all labour market transitions, ignoring those that occur between the observations dates, and which are reversed in the meantime. As a result, flow rates based on annual data tend to systematically underestimate the actual values.

Using longitudinal data for 2005–06, covering 24 European countries[1], hiring, separation and turnover rates are calculated based on economic status variables having either an annual or monthly frequency.

The results are as expected. Higher frequency observations 'count' more transitions (i.e. both hirings and separations), although the results should be viewed as preliminary, taken with caution, and may be subject to revision. On average, moving from annual observations to a monthly calendar virtually 'doubles' the calculated values of the three labour turnover indicators (Charts 2 to 4). [2]

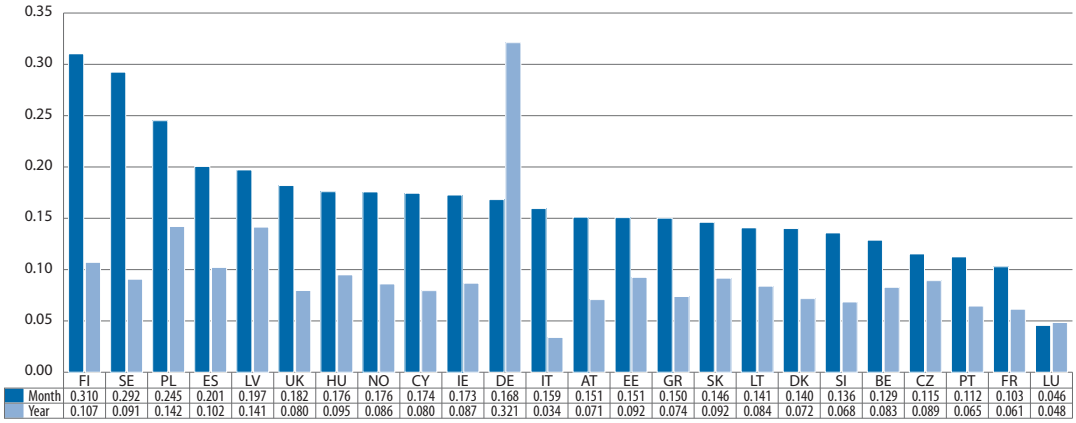
(1) Austria, Belgium, the Czech Republic, Germany, Denmark, Estonia, Spain, Finland, France, Greece, Hungary, Ireland, Italy, Lithuania, Luxembourg, Latvia, Norway, Poland, Portugal, Sweden, Slovenia, Slovakia and the UK.

(2) The major exception to this general rule seems to be Germany, particularly for the hiring rate. At present, the reason for this is unclear. In the cases of Sweden, Italy and Finland, the ratio between the two labour turnover measures averages about 3.

(21) The number of workers who have changed job or employment status in excess of what is needed to accommodate net employment growth.

(22) After controlling for sectoral composition.

Chart 2: Hiring rates based on the longitudinal component of the EU SILC calculated using either annual or monthly calendar variables for the economic status, 2005–06 (% of employment)

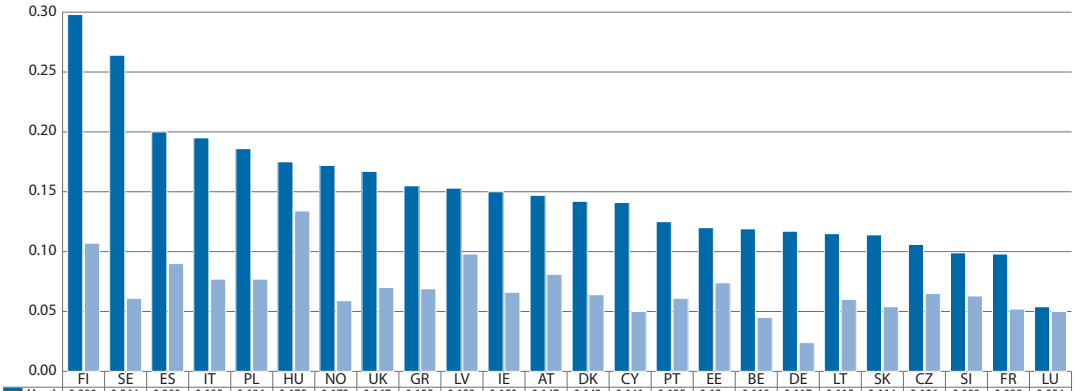


	FI	SE	PL	ES	LV	UK	HU	NO	CY	IE	DE	IT	AT	EE	GR	SK	LT	DK	SI	BE	CZ	PT	FR	LU
Month	0.310	0.292	0.245	0.201	0.197	0.182	0.176	0.176	0.174	0.173	0.168	0.159	0.151	0.151	0.150	0.146	0.141	0.140	0.136	0.129	0.115	0.112	0.103	0.046
Year	0.107	0.091	0.142	0.102	0.141	0.080	0.095	0.086	0.080	0.087	0.321	0.034	0.071	0.092	0.074	0.092	0.084	0.072	0.068	0.083	0.089	0.065	0.061	0.048

Source: DG EMPL calculations using the user's database of EU SILC.

Note: Ranked in descending order of the indicator based on monthly observations.

Chart 3: Separation rates based on the longitudinal component of the EU SILC calculated using either annual or monthly calendar variables for the economic status, 2005–06 (% of employment)

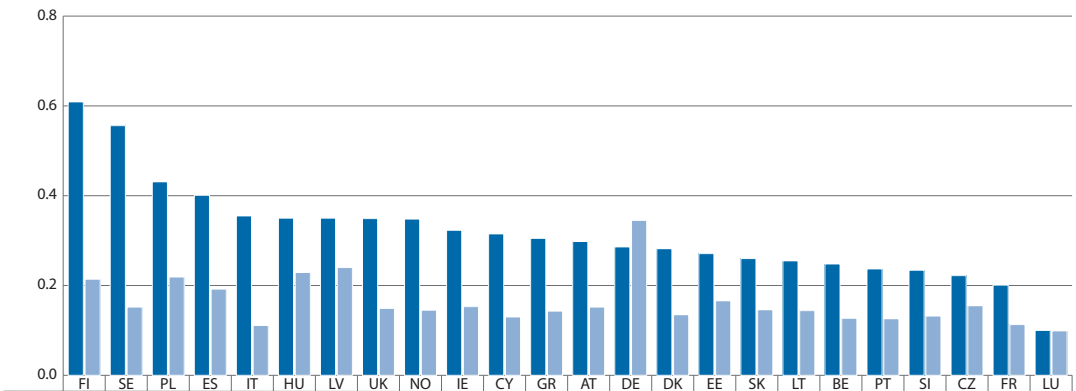


	FI	SE	ES	IT	PL	HU	NO	UK	GR	LV	IE	AT	DK	CY	PT	EE	BE	DE	LT	SK	CZ	SI	FR	LU
Month	0.298	0.264	0.200	0.195	0.186	0.175	0.172	0.167	0.155	0.153	0.150	0.147	0.142	0.141	0.125	0.12	0.119	0.117	0.115	0.114	0.106	0.099	0.098	0.054
Year	0.107	0.061	0.090	0.077	0.077	0.134	0.059	0.07	0.069	0.098	0.066	0.081	0.064	0.050	0.061	0.074	0.045	0.024	0.060	0.054	0.065	0.063	0.052	0.050

Source: DG EMPL calculations using the user's database of EU SILC.

Note: Ranked in descending order of the indicator based on monthly observations.

Chart 4: Labour turnover rates based on the longitudinal component of the EU SILC calculated using either annual or monthly calendar variables for the economic status, 2005–06 (% of employment)

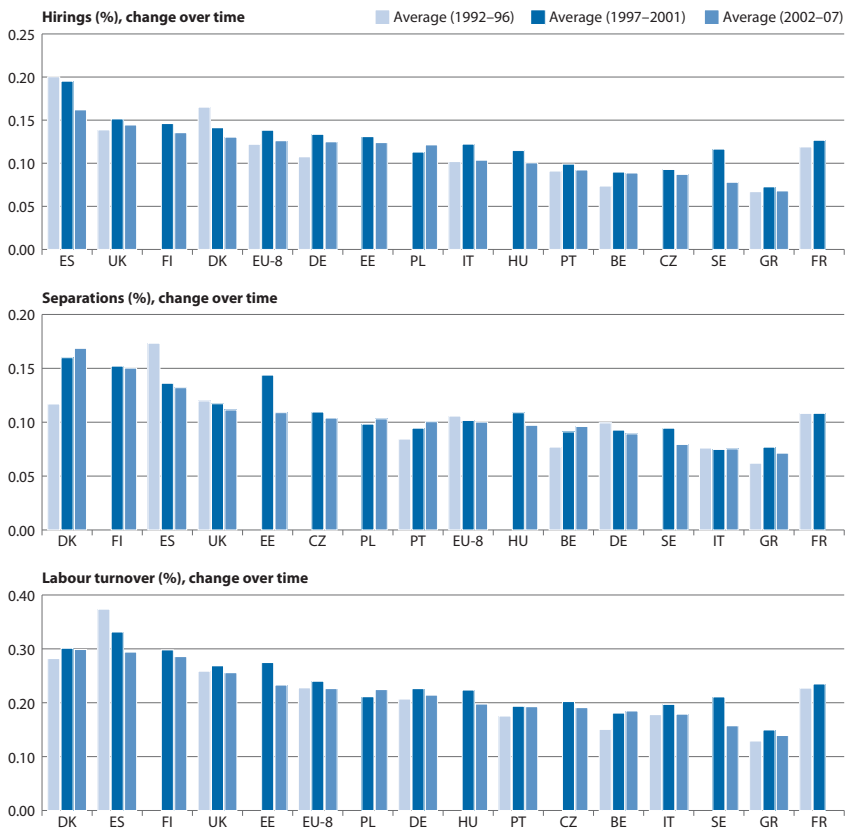


	FI	SE	PL	ES	IT	HU	LV	UK	NO	IE	CY	GR	AT	DE	DK	EE	SK	LT	BE	PT	SI	CZ	FR	LU
Month	0.609	0.556	0.431	0.401	0.355	0.350	0.350	0.349	0.348	0.323	0.315	0.305	0.298	0.286	0.282	0.271	0.260	0.255	0.248	0.237	0.234	0.222	0.201	0.100
Year	0.214	0.152	0.219	0.192	0.111	0.229	0.240	0.149	0.145	0.153	0.130	0.143	0.152	0.345	0.135	0.166	0.146	0.144	0.127	0.126	0.132	0.155	0.113	0.099

Source: DG EMPL calculations using the user's database of EU SILC.

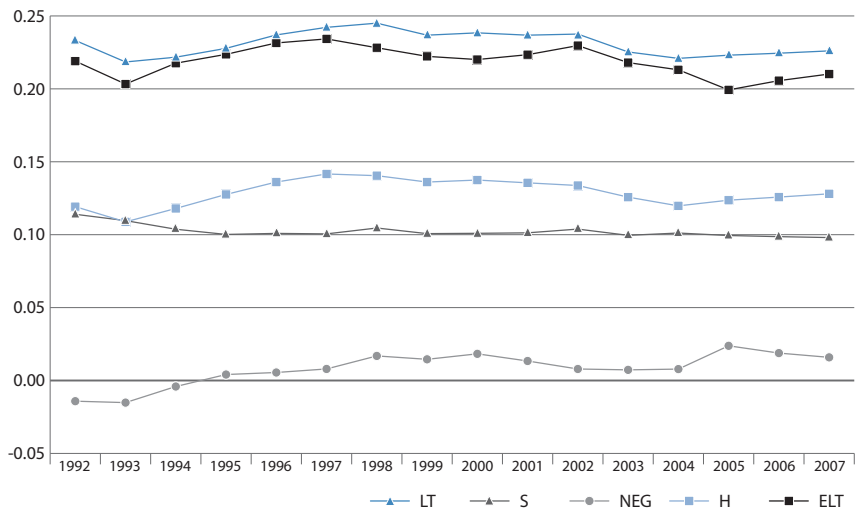
Note: Ranked in descending order of the indicator based on monthly observations.

Chart 5: **Hirings, separations and labour turnover, change over time (%)**



Source: DG EMPL calculations using EU LFS.

Chart 6: **Labour flows, change over time, EU-8 (%)**



Source: DG EMPL calculations using EU LFS.

2.4.1. Time trends

Using EU LFS data, Chart 5 plots three period averages for labour turnover indicators (1992–96, 1997–2001 and 2002–07). The most notable developments over these periods are as follows:

- Overall, labour turnover appears to have peaked in the second period (1997–2001).
- In Spain, turnover fell with both hiring and separation rates having decreased substantially since the early 1990s.
- In Denmark, labour turnover increased as a result of a rising separation rate, being only partly offset by a decreasing hiring rate.

In the period 1992–2007[23] and for the EU-8[24], Chart 6 plots time series for various labour turnover indicators. It suggests the following comments:

- There is no evidence of significant time trends in the period.
- Some indicators behave procyclically, particularly the hiring and labour turnover rates, as both register increases in the late 1990s and reductions in the early 2000s, followed by a slight increase between 2004 and 2007. The separation rate shows a much more flat trajectory, suggesting a lower sensitivity to the economic cycle.
- Except during the 1992–93 economic recession, the EU-8 hiring rate has always been significantly higher than the separation rate.
- Labour turnover regularly exceeds NEG by a large margin.

2.4.2. Breakdowns by gender, age and education level

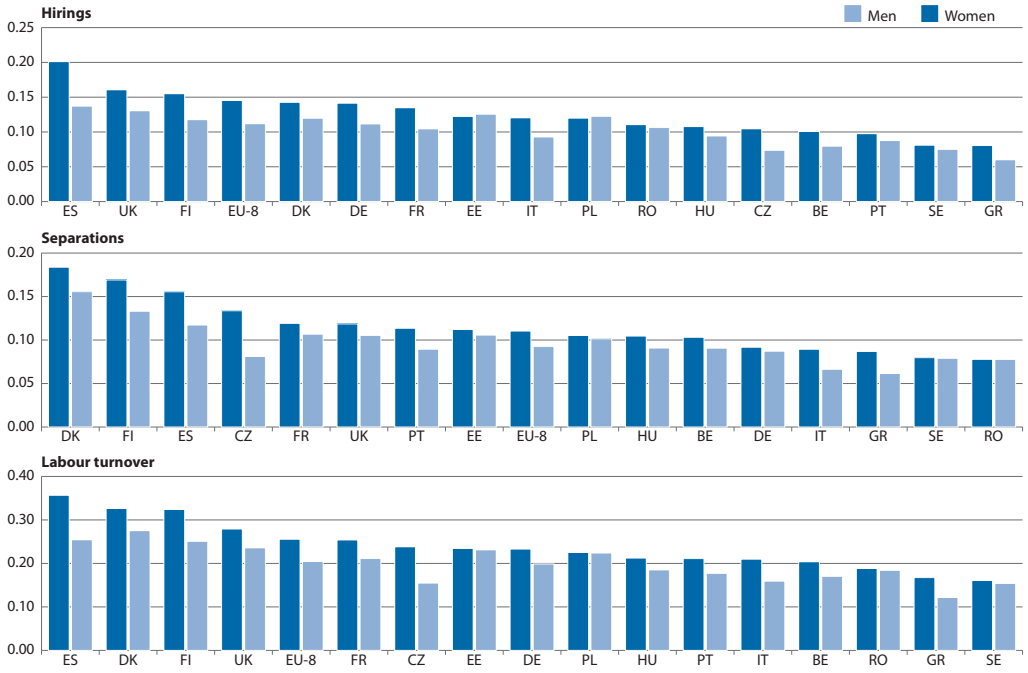
The following three charts present figures on hiring, separation and labour turnover rates by gender, age, and education level for those EU Member States for which data is available.

Chart 7 shows that labour turnover rates tend to be higher for women than men, and that this is also the case for hiring and separation rates if taken separately. However, the extent of this gender gap varies considerably across countries, being particularly large in Spain, the Czech Republic, Greece, and Finland and very small in

(23) Using the EU LFS, labour flows can only be calculated since 1992 for the EU-8 aggregate.

(24) Belgium, Germany, Denmark, Greece, Spain, Italy, Portugal and the UK.

Chart 7: **Hirings, separations and labour turnover by gender (%)**



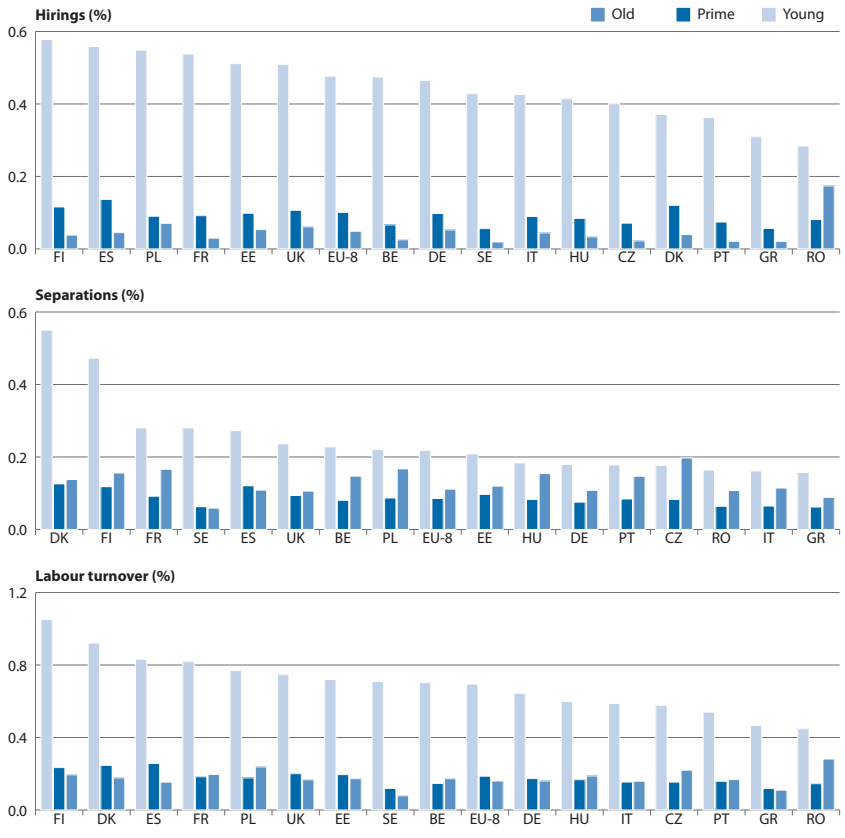
Source: DG EMPL calculations using EU LFS.

Notes: Figures are six-year averages for the 2002–07 period, except for Sweden (2002–04) and France (2002).

Estonia, Poland, Romania and Sweden. Only in Estonia and Poland are the hiring rates for men marginally greater than they are for women.

Chart 8 provides evidence of the large gap in labour turnover rates that exists between younger workers (16–24 years old) on the one hand, and prime-age workers (25–54 years old) and older workers (55–64 years old) on the other.[25] The turnover rate for young workers is very high, above 60% in all but five Member States. The high rates of mobility of younger workers is due to many factors, such as first entries into work, the widespread use of temporary contracts, the way firms screen newly recruited workers, leading to frequent terminations of employment, as well as voluntary quits by young people themselves in search of better or more suitable jobs. In the third part of this chapter, dealing with unemployment duration, it will be shown that the high turnover rates of young workers are associated with high unemployment rates, but low unemployment duration.

Chart 8: **Hirings, separations and labour turnover by age (%)**

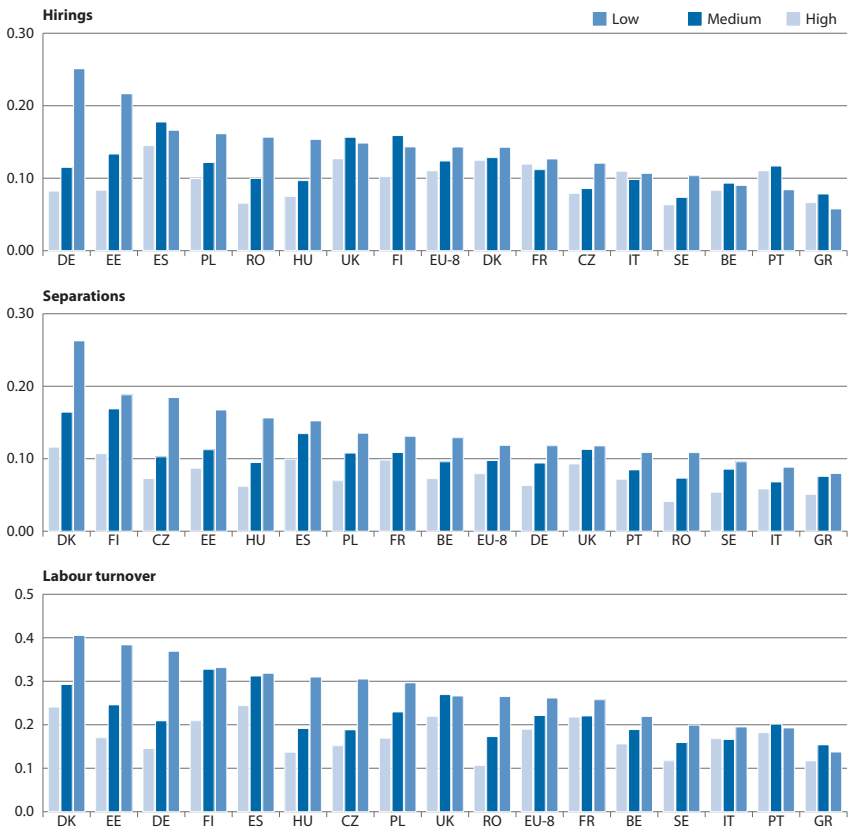


Source: DG EMPL calculations using EU LFS.

Notes: Figures are six-year averages for the 2002–07 period, except for Sweden (2002–04) and France (2002).

(25) Excluding Romania.

Chart 9: **Hirings, separations and labour turnover by education level (%)**



Source: DG EMPL calculations using EU LFS.

Notes: Figures are six-year averages for the 2002–07 period, except for Sweden (2002–04) and France (2002).

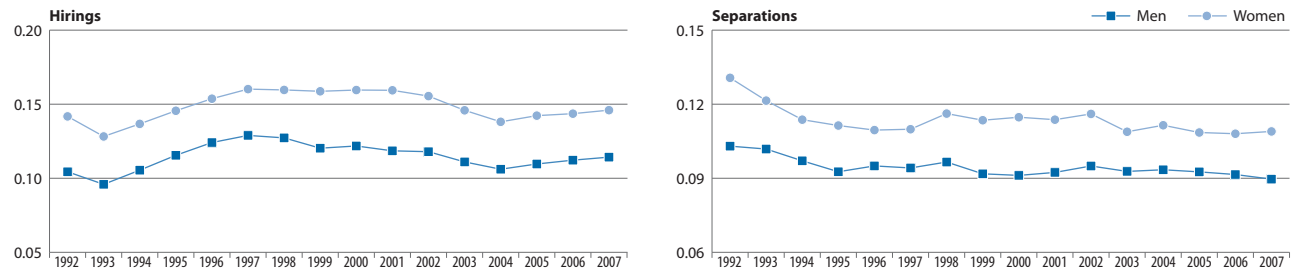
Chart 9 suggests that labour turnover tends to decrease with the level of education, although there is a significant and striking variation in this relationship between countries. The turnover rate of medium/high-skilled workers is much lower than for low-skilled workers in Germany, Estonia, Denmark and Hungary. It is more similar in Spain, France and Italy, and the position is reversed in the UK, Portugal and Greece, where labour turnover of the more highly skilled is greater than for the less skilled.

Charts 10 to 12 present data for the EU-8 from 1992 to 2007 for hiring and separation rates, broken down by gender, age and skill levels.

- The breakdown by *gender* shows quite similar time profiles for both hiring and separation rates – i.e. the gender gap in both indicators stays fairly constant.

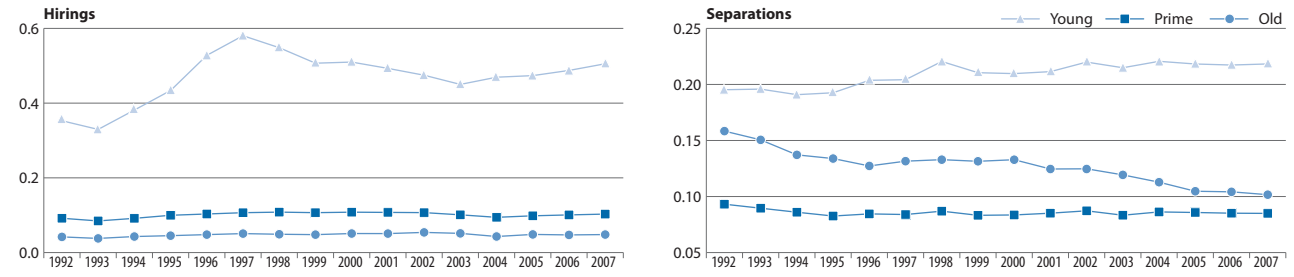
- The breakdown by *age* illustrates a significant increase in hiring rates for younger workers, which contrasts with the relative stability for prime-age and older

Chart 10: **Hirings and separations, change over time, by gender, EU-8 (%)**



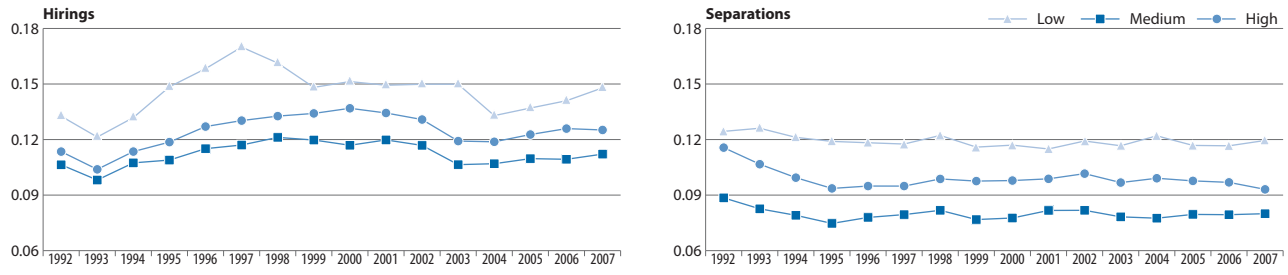
Source: EU LFS, DG EMPL calculations.

Chart 11: **Hirings and separations, change over time, by age, EU-8 (%)**



Source: EU LFS, DG EMPL calculations

Chart 12: **Hirings and separations, change over time, by skill level, EU-8 (%)**



Source: EU LFS, DG EMPL calculations.

workers. As regards separation rates, younger workers show some increase overall, albeit much lower than for hiring rates, while a substantial reduction has occurred for older workers.

- The breakdown by *education level* suggests that the hiring rates of low-skilled[26] workers fluctuate more over the economic cycle, while the variability of separation rates appear to be fairly similar across education levels.
- For separation rates, the time series evidence does not suggest that the business cycle has a disproportionate effect on more vulnerable groups, such as women, young people or low-skilled workers.

Box 4: **Analysis of variance of hiring rates using EU LFS data**

The evidence presented so far focuses on the variation of labour flow indicators by major labour force characteristics. As previously mentioned, the analytical literature also suggests that labour flows vary significantly across economic sectors, and that such patterns are quite stable across countries. In order to illustrate this point, an analysis of variance is carried out for hiring rates only, because separation rates cannot be calculated by sector.[1] The total variance of hiring rates is broken down using three variables: time (2000–07), country (25 Member States[2]), and sector (16 sectors, Table 3).[3]

These three explanatory variables account for 43% of the total variation in hiring rates. This result confirms for the EU, one of the key conclusions drawn in OECD (2009) – namely that hiring rates vary substantially across sector, and that this factor tends to explain a larger fraction of overall variability compared with country variability, respectively, almost one third against about 10%.

Table 3: **ANOVA (analysis of variance) of hiring rates in the EU**

Dependent variable: hiring rates			
Explanatory variables	**% overall variance**	**Significance (F-test)**	**R squared**
Sector (NACE 2D)	0.31	***	
Country	0.10	***	
Year	0.01	***	0.428

*** coefficient significant at 1% level

Source: DG EMPL calculations using EU LFS.

Given that hiring and separations rates tend to be highly correlated (Table 2), it is reasonable to hypothesise that the general pattern of variation in labour turnover rates closely follows that of hiring rates.

(1) The LFS includes a retrospective question on the sector of work in the previous year only for those workers employed at the time of the survey, and no such question is asked of people being currently unemployed or inactive, which makes it impossible to calculate separation rates by sector.

(2) EU-27 excluding Bulgaria and Ireland.

(3) NACE at two-digit level. The panel built for this analysis is unbalanced, presenting a significant number of empty cells, as the time coverage of available data is partial for a number of countries.

(26) The terms 'education' and 'skills' are used as synonymous throughout the chapter.

2.4.3. Institutions and labour turnover

Although sectoral composition plays a major role in explaining the overall variability in labour flows, country effects still account for a significant part of total variability, which is seemingly consistent with research findings pointing to the important role of country-specific institutional arrangements.

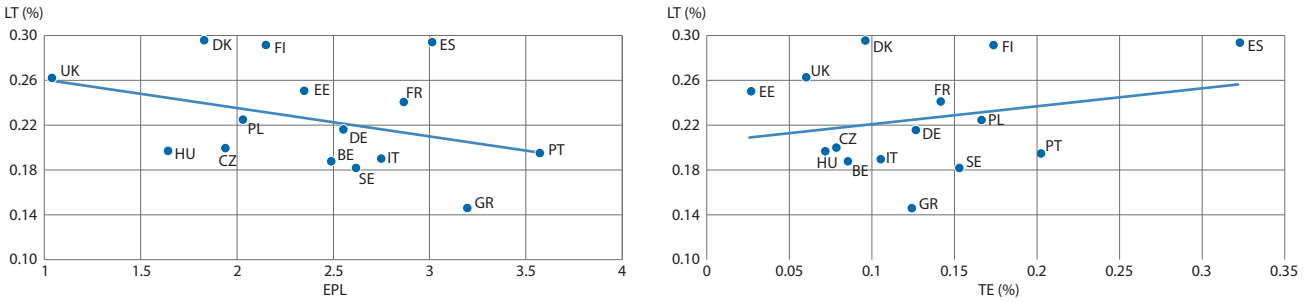
Chart 13 provides a graphical illustration of the partial correlations of EPL and the incidence of temporary employment (TE) on labour turnover rates. The left panel suggests that countries with more stringent EPL[27] tend to have lower turnover rates, while the right panel points to a positive relationship between the relative importance of temporary employment contracts and labour turnover rates.

Table 4 presents a cross-country regression of labour turnover rates on EPL and the share of temporary employment, covering 15 EU Member States for which data is available.[28] Albeit not controlling for

(27) The EPL indicator is calculated by the OECD (OECD, 2004 and 2009). It ranges from 0 to 6, increasing with the level of rigidity of legislation on hirings and dismissals.

(28) Belgium, the Czech Republic, Germany, Denmark, Estonia, Spain, Finland, France, Greece, Hungary, Italy, Poland, Portugal, Sweden and the UK.

Chart 13: **Labour turnover, employment protection legislation and temporary employment**



Source: DG EMPL calculations using EU LFS and OECD data.

Notes: Averages for 2000–05. EPL: average of 1998 and 2003 figures.

Table 4: **OLS of labour turnover rates**

Explanatory variables:	Coefficient	Significance	R squared
Constant	0.295		
EPL	-0.724	**	
TE	0.655	**	0.413

** coefficient significant at 5% level

Source: DG EMPL calculations using EU LFS and OECD data.

Notes: Dependent variable: labour turnover rate. Explanatory variables: EPL = OECD index of strictness of EPL. TE in percentage of dependent employment. Figures for turnover and temporary employment are five-year averages from 2000 to 2005. Figures for EPL are averages of 1998 and 2003. The cross-country regression includes 15 Member States.

cross-country differences in sectoral composition and workforce characteristics, results confirm the initial impression from the scatter plots. The regression coefficients are significant and with the expected signs: negative for EPL, and positive for TE.

3. LABOUR MARKET TRANSITIONS IN THE EU

3.1. From flows to transitions

Alternative approaches have been developed to monitor labour market dynamics in which the transition of individuals are followed – across different types of employment status (employed, unemployed or inactive); between work, education/training, private responsibilities and retirement; and across different types of employment (e.g. from fixed-term to permanent contracts or across jobs with different pay levels) – as an alternative to measuring the overall amount of mobility in the system.

The underlying assumption, according to the Transitional Labour Markets theory (Schmidt and Gazier, 2002), is that the traditional pattern of holding the same job throughout one's working life is increasingly giving way to more diversified work histories, which are characterised by more frequent moves between employment, non-employment and private and family responsibilities, as well as by intermediate states with shorter working hours (e.g. part-time) or phased transitions from a state to another (e.g. phased retirement). These developments are considered to be natural consequences of, on the one hand, the need for firms to respond quickly to changes in their economic environment and, on the other, the more varied needs and preferences of workers and their families and dependants.

In this context, a perspective on the frequency, type and time sequence of any individual's transitions in the labour market sheds light, not only on the extent – but also on the overall quality – of mobility, including whether 'good' moves, aimed at improving labour market attachment/career progress, prevail over 'bad' moves, namely those involving worsening working conditions. This is illustrated, for instance, by the work of Muffels and Fouarge (2008) who, based on European Community Households Panel (ECHP)[29] data, distinguish between upward and downward transitions, calculating 'dynamic employment security' indicators to measure the prevailing direction of total labour market transitions.

The Commission services have reviewed the evidence on labour market transitions in the past. Based on the ECHP, the Directorate General for Employment and Social Affairs (DG EMPL) has monitored transitions by activity status, type of employment contract and pay level for a number of EU Member States (EiE 2004, chapter 4), and the Directorate-General for Economic and Financial Affairs (DG ECFIN) has also presented evidence on transition rates by main employment statuses (DG ECFIN, 2008). Such indicators point to a structural improvement in EU labour market outcomes since the late 1990s, mainly due to the increased propensity

(29) Use of longer longitudinal datasets enables researchers to assess employment dynamics and individual mobility choices within a lifecycle perspective.

of women to leave inactivity and seek paid employment. They also confirm that worker characteristics, such as age and skills, have a significant impact on transition probabilities – i.e. the way different people progress both inside and outside the labour force.

3.2. An empirical analysis of labour market transitions in the EU

This section presents some empirical evidence on labour market transitions at both the aggregate level and a number of breakdowns, such as by gender, age and education levels, based on the EU LFS. The analysis is basically descriptive, including the calculation of indicators, cross-tabulations and charts. Descriptive analyses can be misleading, however, because they do not identify the relative importance of the different factors affecting labour market transitions. Such identification would require the use of multivariate regression techniques, such as the estimation of probit models, which lies outside the scope of this chapter. In future, the Commission services are planning to carry out work, assisted by experts, using microdata from the users' EU LFS and EU SILC databases in order to better assess labour market transitions.

Table 5: **The transition matrix by activity status, EU-8, 2006–07 (%)**

	State in 2007		
State in 2006	E	U	I
E	94.7	2.5	2.8
U	32.5	54.2	13.3
I	10.5	4.4	85.2

Source: DG EMPL calculations using EU LFS.

Notes: E = Employed, U = Unemployed, I = Inactive.
Each cell represents the percentage of workers that moved from an initial state (row) to a final state (column) between two periods/years. Transition rates sum to 1 across rows. They are calculated using the retrospective question included in the EU LFS on the labour market status in the previous year.

Table 6: **Transition rates in the EU, by country and over time (%)**

	U_E				I_E			
	2002–07	1996–01	1990-95	change	2002–07	1996–01	1990-95	change
UK	47.4	40.7	35.0	12.4	15.9	15.8	15.3	0.6
ES	44.3	37.7	31.6	12.7	8.6	5.6	5.0	3.6
PT	40.7	40.3	38.8	1.9	6.7	6.9	6.1	0.6
DK	39.3	36.3	37.6	1.7	15.4	20.7	23.2	-7.8
CZ	37.4	41.0	NA	-3.6	6.2	9.9	NA	-3.6
EE	36.7	31.4	NA	5.2	8.7	9.3	NA	-0.7
EU-8	31.5	31.2	28.8	2.7	9.8	9.4	7.7	2.1
HU	30.7	31.5	NA	-0.8	5.5	6.0	NA	-0.5
SE	29.4	35.4	NA	-6.0	16.3	18.5	NA	-2.2
IT	26.7	28.3	25.2	1.5	4.5	5.2	4.8	-0.4
FI	26.6	26.7	28.2	-1.6	14.0	13.9	15.0	-1.0
DE	25.2	26.1	25.1	0.1	13.1	13.2	8.9	4.2
RO	25.05	NA	NA	NA	8.04	NA	NA	NA
GR	24.4	23.6	29.2	-4.8	3.0	3.2	3.5	-0.5
PL	23.0	28.5	NA	-5.5	5.6	7.3	NA	-1.7
BE	16.9	17.4	26.1	-9.2	6.3	5.0	3.9	2.4
FR	NA	33.1	33.6	-1.7	NA	8.4	17.6	-9.3

Source: DG EMPL calculations using EU LFS.

Notes: The column 'Change' measures the difference between the averages of 2002–07 and 1990–95, or the difference between 2002–07 and 1996–2001 for those countries for which data for the latter period is not available. Only for France, the difference between 1996–2001 and 1990–95 is displayed.

One-year[30] indicators are calculated for transitions between the statuses of employment, unemployment and inactivity, with calculations presented in a 3-by-3 matrix. Table 5 provides an example for the EU-8 aggregate for transitions between 2006 and 2007. However, the table also highlights a methodological limitation of such indicators – i.e. transition rates in a given year are calculated as shares relative to individuals' labour market status in the previous year, which implies that they are not comparable across different initial statuses[31] or with turnover rates calculated in section 2, because the latter use total employment as the denominator.[32] This caveat needs to be kept in mind when looking at the empirical findings of this section and when comparing them with results obtained for turnover. The use of net flows, at the end of the section (see 3.2.4), will partly address these comparability issues.

In the remainder of this section, the focus will be on two 'good' transition rates - from unemployment to employment (U_E), and from inactivity to employment (I_E) – representing a favourable transition for those concerned, and a successful mobilisation of under or unused labour/human resources for the economy as a whole.

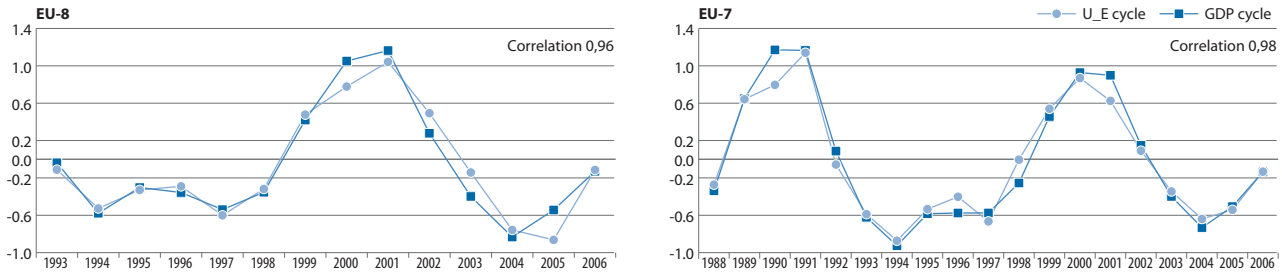
Table 6 presents transition rates (U_E and I_E) for EU Member States for which data is available and the EU-8 aggregate (annual averages for the periods: 1990–95, 1996–01 and 2002–07).

(30) Calculation of transition rates over longer time horizons require longitudinal data sources following individuals for several years. Such sources are currently available only to a very limited extent at the EU level (e.g. the EU SILC). However, the reader should be aware that long-term transitions are indispensable to reach a full understanding of lifecycle effects of initial employment conditions and changes in status for individual earnings and labour market prospects.

(31) As regards Table 5, comparisons can be made across columns but not across rows.

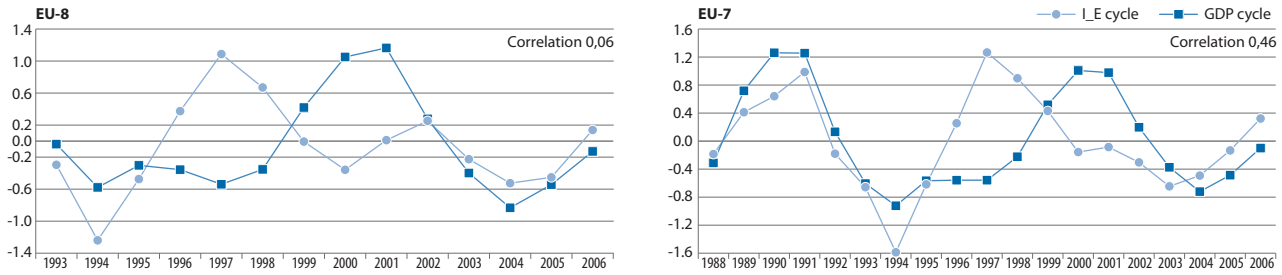
(32) The only exceptions are transition rates from employment as they have the same denominator as turnover.

Chart 14: **U_E and the economic cycle (%)**



Source: DG EMPL calculations using EU LFS.

Chart 15: **I_E and the economic cycle (%)**



Source: DG EMPL calculations using EU LFS.

Table 7: **Correlations between cyclical components of transitions and GDP**

	U_E_cycle	I_E_cycle	E_U_cycle	E_I_cycle
GDP_cycle	0.307 ***	0.160 ***	-0.304 ***	0.026

Pearson correlation coefficients; *** coefficient significant at 1% level

Source: DG EMPL calculations using EU LFS.

These figures show considerable differences in country experiences. In the period 2002–07, the UK, Spain, Portugal and Denmark registered annual U_E transition rates around or above 40%, while at the lower end of the scale, the rates for Belgium, Poland, Greece and Germany did not exceed 25%. The country ranking for I_E movements is quite different, however: in particular, Sweden, Finland and Germany join the UK and Denmark at the upper end of the scale, with rates at around or above 13%, while Spain and Portugal lose several positions.

3.2.1. Trend versus cyclical components of transition rates

After briefly describing cross-country differences, this section focuses on time trends for both U_E and I_E transition rates for two EU aggregates. As discussed in the context of labour and job flows in section 2.3, such transition rates are also affected by the business cycle and, using the Hodrick-Prescott (HP) filter, an attempt is made to identify cyclical versus structural changes in transition indicators.(33)

Charts 14 and 15 plot the HP cyclical component of, respectively, the U_E and I_E transition rates, against an indicator of GDP cyclical volatility for two EU aggregates.(34)

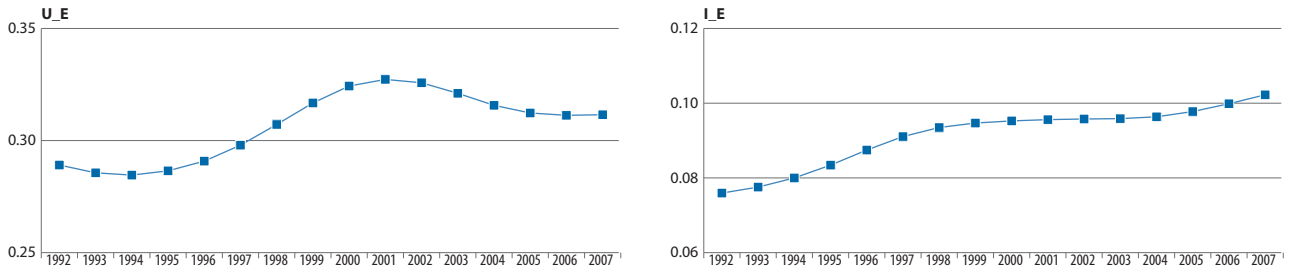
Chart 14 and Table 7 show a positive correlation between the cyclical component of the U_E transition and GDP(35), while Chart 15 and Table 7 suggest that the I_E transition rate is a leading and procyclical variable; this possibly indicates a larger impact

(33) The HP filter is a mathematical tool, particularly used in macroeconomics to obtain a smoothed non-linear representation of a time series, one that is more sensitive to long-term than to short-term fluctuations. The adjustment of the sensitivity of the trend to short-term fluctuations is achieved by modifying a parameter λ. For annual data, the parameter λ used in the HP method was 10. Maraval and del Rio (2001) suggest 6<λ<14 for annual data.

(34) For ease of graphical comparability, indicators in both charts are standardised and expressed as moving averages over three consecutive years. However, values in Table 7 are based on comparisons of non-standardised variables, which explain differences with correlation coefficients displayed in Charts 14 and 15.
EU-8: Belgium, Germany, Denmark, Greece, Spain, Italy, Portugal and the UK.
EU-7: Belgium, Germany, Denmark, Greece, Spain, Portugal and the UK.

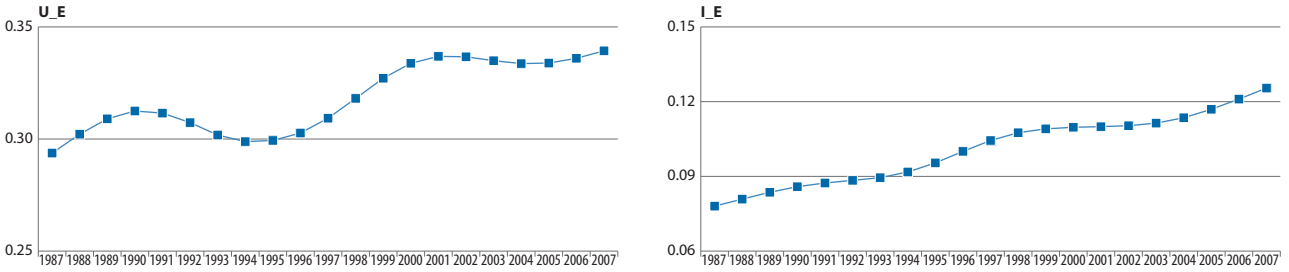
(35) This is in line with discussion in section 2.3 above underlining the overall procyclicality of hiring rates, U_E transitions being an important component thereof.

Chart 16: **Trends in transition rates, EU-8 (%)**



Source: DG EMPL calculations using EU LFS.

Chart 17: **Trends in transition rates, EU-7 (%)**



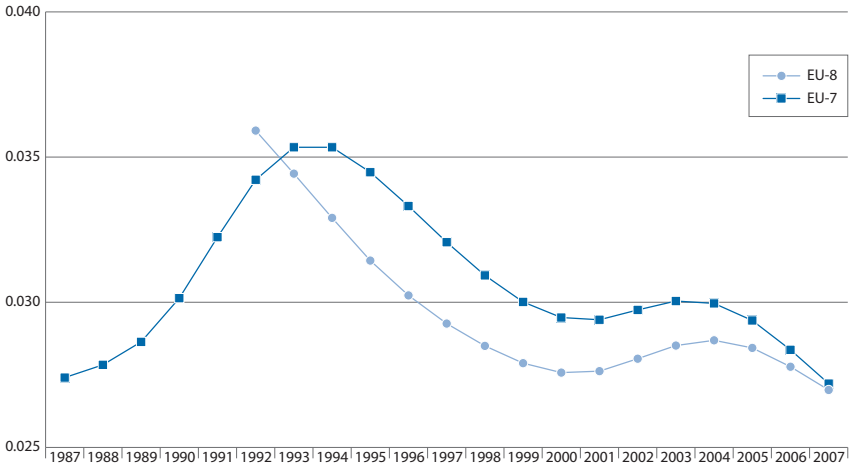
Source: DG EMPL calculations using EU LFS.

of other 'structural' factors, including policy changes, on these transitions relative to those affecting the unemployed. Table 7 confirms this finding for the two reverse transition rates – i.e. those from employment-to-unemployment (E_U) and from employment-to-inactivity (I_E) – as the former is negatively correlated with GDP, while the latter appears to be acyclical.

Overall, the empirical evidence points to significant business cycle effects for transitions between unemployment and employment, while transitions between inactivity and employment appear to be much less responsive to the business cycle.

Charts 16 and 17 present the HP trend components of both U_E and I_E transitions, respectively, for the EU-8 and EU-7 aggregates. These charts suggest that EU labour markets have substantially increased their capacity to attract people into employment, as reflected in the trend increase in transition rates over the period. However, the improvement is more pronounced in the I_E transition rate[36], and appears to have been concentrated in the second half of the 1990s.

Chart 17b: **Trends in employment to unemployment (E_U) transition rates, EU-8 and EU-7 (%)**



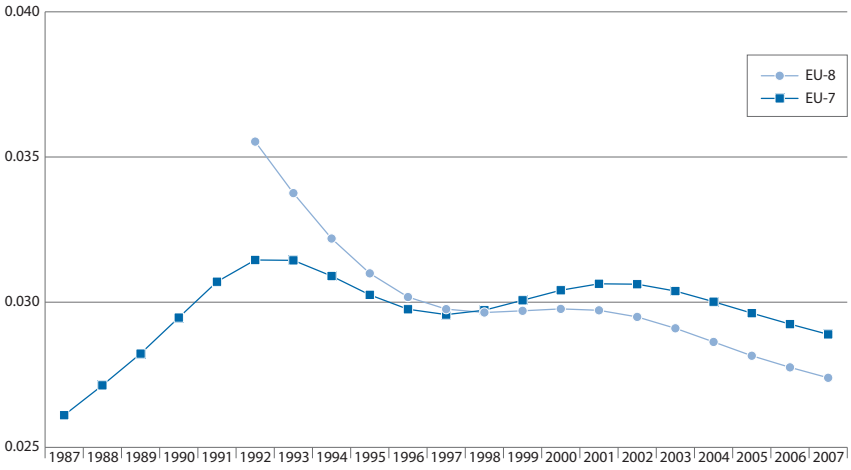
Source: DG EMPL calculations using EU LFS.

Although the main focus of this section is on 'good' transitions, Charts 17b and 17c plot the timeseries trends corresponding to the 'bad' transitions from employment to unemployment (E_U) and from employment to inactivity (E_I) for both the EU-8 and the EU-7. Scale differences prevent a direct comparison between 'good' and 'bad' transitions.

Chart 17b suggests a sizeable reduction in trend E_U transition rates since the early 1990s, although results should be interpreted with some care

(36) For the EU-7.

Chart 17c: **Trends in employment to inactivity (E_I) transition rates, EU-8 and EU-7 (%)**



Source: DG EMPL calculations using EU LFS.

Table 8: **Correlations between the HP trend transitions, NAIRU, employment and participation rates, 1997–2007**

	U_E_trend	I_E_trend	E_U_trend	E_I_trend
NAIRU	-0.311 ***	-0.304 ***	0.553 ***	-0.162 ***
ER_trend	0.501 ***	0.863 ***	-0.112 **	0.491 ***
PR_trend	0.502 ***	0.801 ***	0.106 *	0.534 ***

Pearson correlation coefficients; ***, **, * coefficient significant at 1%, 5% and 10% level

Notes: NAIRU, non-accelerating inflation rate of unemployment.
Source: DG EMPL calculations using EU LFS.

because the HP filter seems to have been only partly successful in separating cyclical from trend components. In the EU-8, the E_U rate declined from 3.6% in 1993 to 2.7% in 2007. As regards E_I trend rates, Chart 17c shows a more moderate decline, especially for the EU-7.

Overall, the evidence shows that increases in the trend components of 'good' transitions (U_E and I_E) have been broadly accompanied by reductions in the corresponding 'bad' transitions. This signals that trend flows in both directions (from and to employment) have developed in a way which is favourable to overall labour market performance in the EU. In particular, the recent evolution of E_I rates suggests that population ageing has not resulted in a trend rise in E_I transitions, partly reflecting the implementation of pension reforms and a reduced reliance on early retirement schemes.

Improvements in trend developments for the 'good' transition rates (i.e. U_E and I_E) are likely to be associated with a reduction in structural unemployment and a rise in trend participation rates, contributing to the significant growth of employment registered in the EU since the mid-1990s. As expected the trend components of the U_E and I_E transitions are negatively correlated with the structural unemployment rate, as measured by DG ECFIN[37], and positively correlated with both the employment and participation rates. Structural reductions in unemployment rates seem to go hand in hand with trend rises in the probability of 'good' transitions. Likewise, the trend component of E_U transition is positively correlated with structural unemployment and negatively (albeit weakly) correlated with the employment rate.[38] However, findings for the trend component of E_I transition rates are somewhat surprising as the latter is negatively correlated with structural unemployment and positively correlated with employment and participation rates.

3.2.2. Country-by-country trend developments

Developments at EU level mask considerable diversity across Member States.[39] Chart 18 shows a large trend increase in U_E transition rates in Spain and the UK with, in the latter case, the proportion of the unemployed who find a job within a year nearly doubling, between 1983 and 2007 – from about 28% to almost 50%. Conversely, in Italy, U_E rates first improved then declined, while in Greece they have registered a continuous deterioration over recent decades.

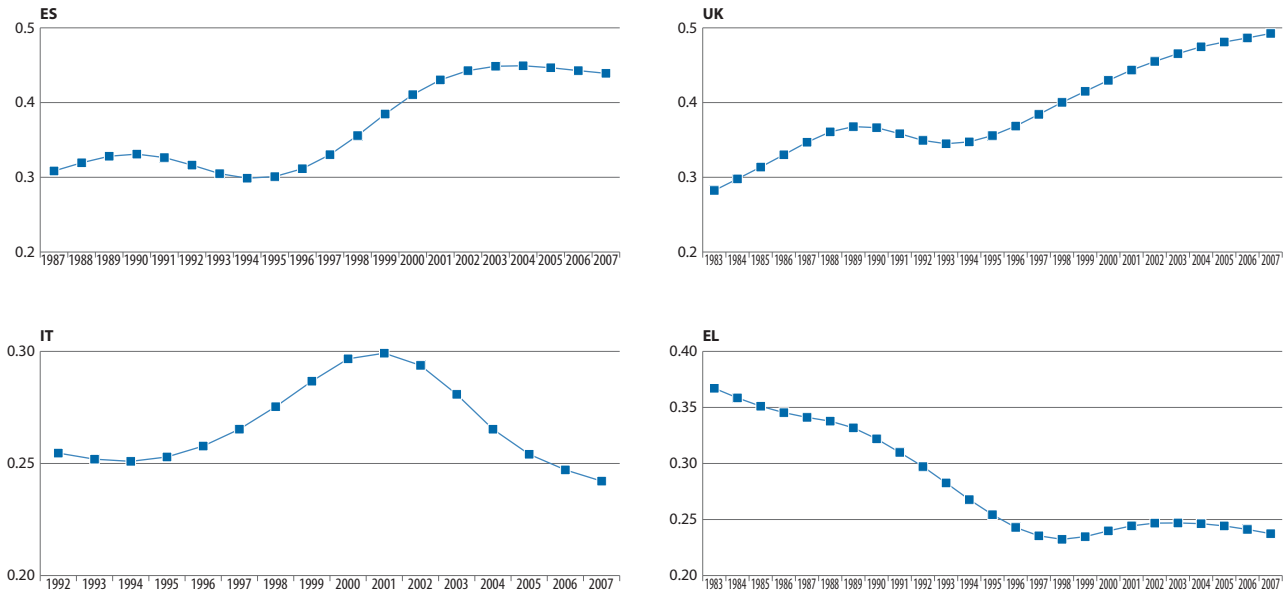
Variety between Member States is also evident with regard to I_E trends (Chart 19). Major improvements have been recorded in Germany and Spain, with the share of inactive people moving to employment within a year having almost tripled in Germany, from about 5% to 15%, over a 20-year period, while in Italy and Greece trend declines have been registered.

(37) DG ECFIN's NAIRU.

(38) However, correlation with participation rate is, surprisingly, positive.

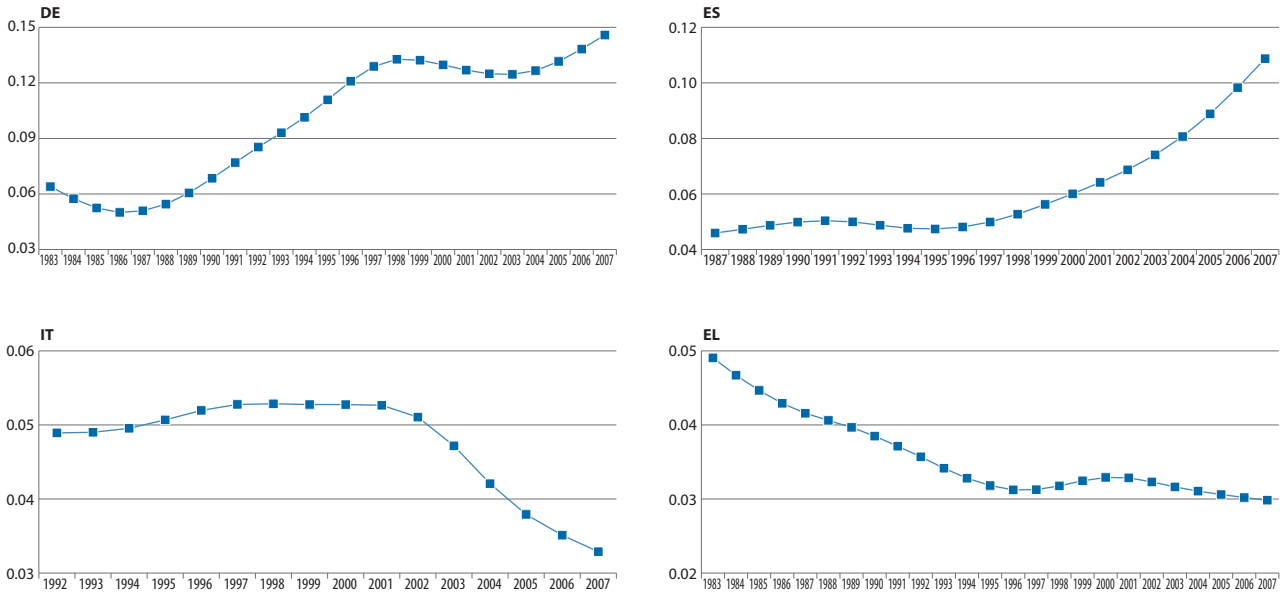
(39) This was to some extent illustrated already in Table 6 above.

Chart 18: **Trends in U_E rates, selected Member States (%)**



Source: DG EMPL calculations using EU LFS.

Chart 19: **Trends in I_E rates, selected Member States (%)**



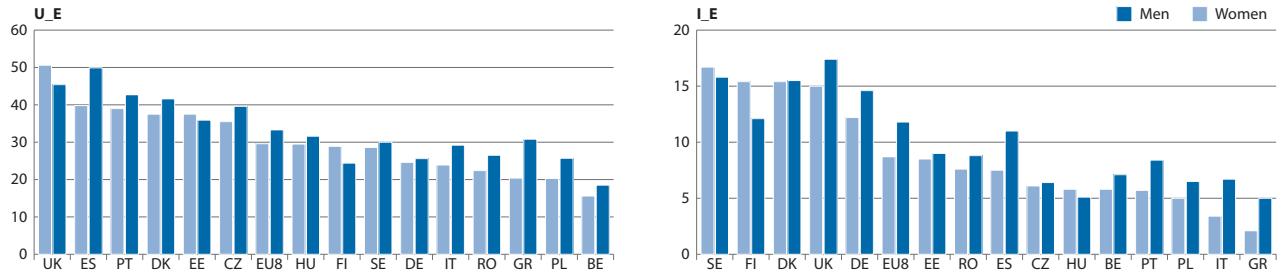
Source: DG EMPL calculations using EU LFS.

3.2.3. Breakdowns by gender, age and education level

This section presents breakdowns of U_E and I_E transition rates by gender, age and education level (averages for the period 2002–07). The main findings are:

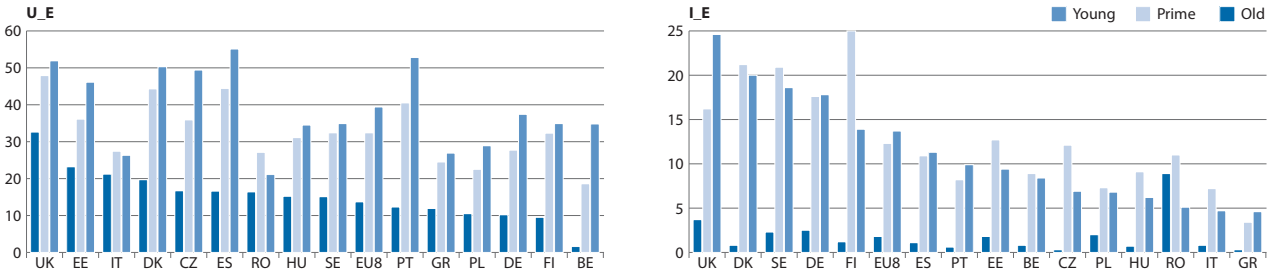
- Overall U_E and I_E transition rates tend to be higher for men than for women (Chart 20), unlike overall labour turnover and hiring rates (see Chart 7 above).
- However, the extent of the gender gap varies substantially across countries. Spain, Greece and Italy register large gender gaps, especially as regards I_E transition rates. In contrast, transition rates are higher for women for U_E rates in the UK, Estonia and Finland, and for I_E rates in Sweden, Finland and Hungary.

Chart 20: **Transitions by gender (%)**



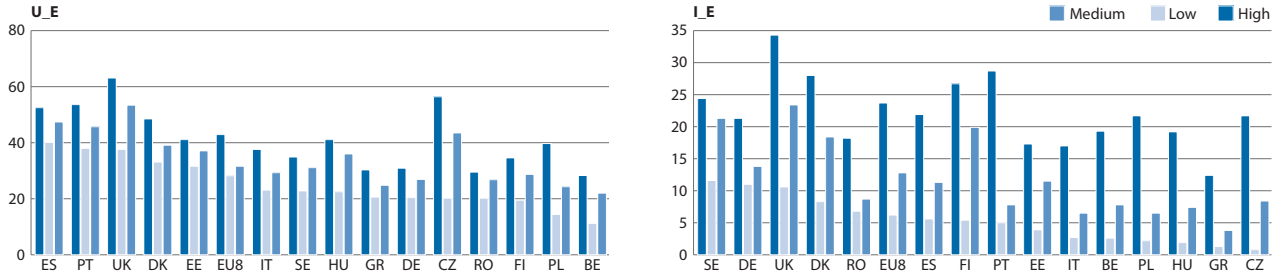
Source: DG EMPL calculations using EU LFS.
Note: Six-year averages for 2002–07.

Chart 21:**Transitions by age (%)**



Source: DG EMPL calculations using EU LFS.
Note: Six-year averages for 2002–07.

Chart 22: **Transitions by education level (%)**



Source: DG EMPL calculations using EU LFS.
Note: Six-year averages for 2002–07.

- Older workers (55–64) tend to have considerably lower transition rates than young workers (15–24) and prime-age workers (25–54) (Chart 21), especially with respect to I_E movers. The proportion of unemployed older workers finding a job within a year is less than 20% in most Member States, with the notable exceptions of the UK, Estonia and Italy. The largest 'age gaps' in this respect are registered in Portugal, Spain, the Czech Republic and Denmark.

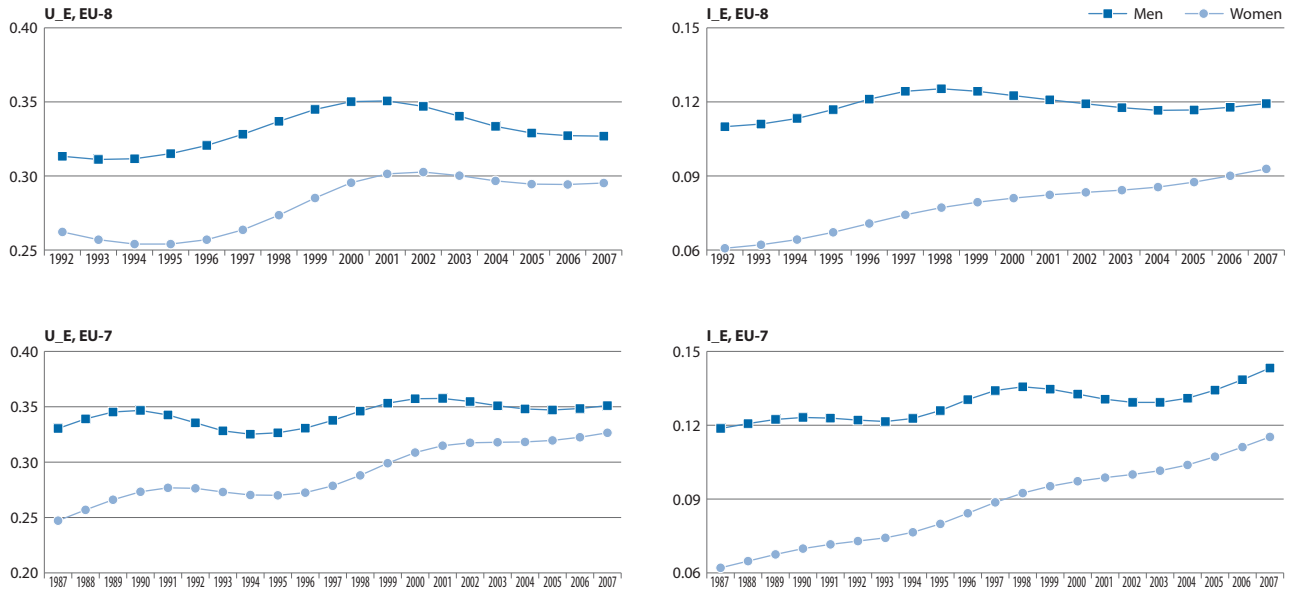
- Young workers tend to have higher U_E transition rates than prime-age workers, although this gap is reversed for I_E transitions in most Member States, possibly due to more of the younger worker age group being in education.

- As expected, higher education is associated with higher transition rates, particularly I_E, where it appears to be particularly critical in helping inactive persons find a job. The widest 'education gaps' occur in the Czech Republic, the UK and Poland, and the narrowest in Estonia, Greece and Germany.

While Charts 20–22 present average U_E and I_E transitions over 2002–07, by country, Charts 23–25 apply the HP filter to obtain time trends of U_E and I_E transitions broken down by personal characteristics since the late 1980s or early 1990s for, respectively, the EU-7 and EU-8. The major findings are:

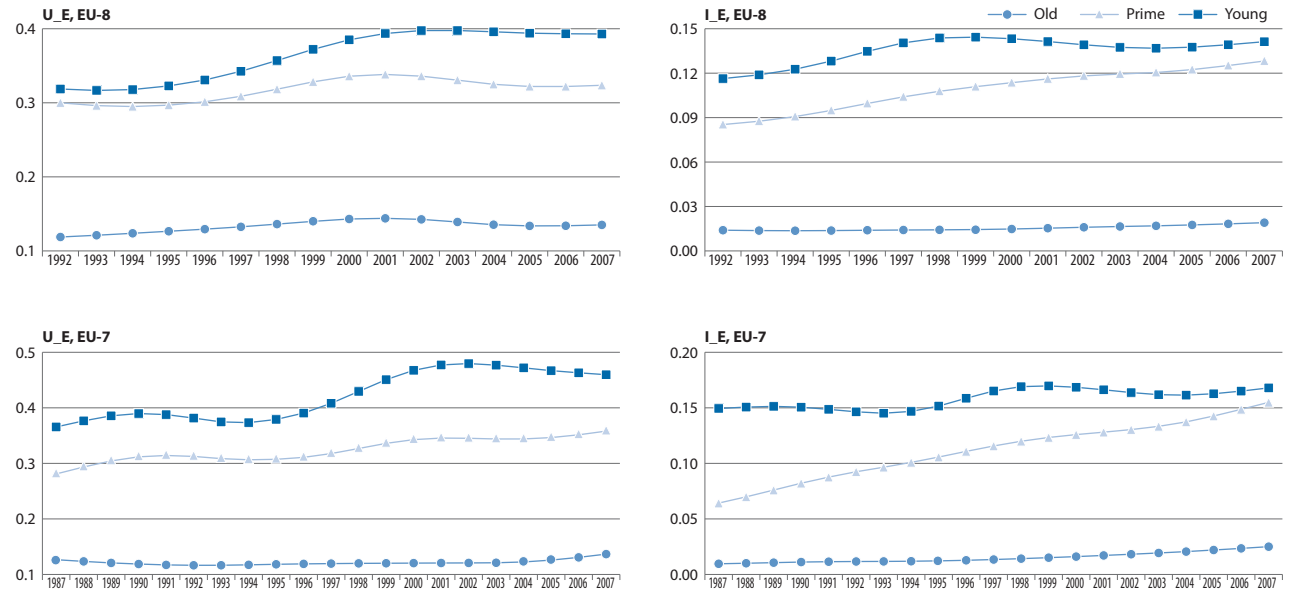
- By *gender* (Chart 23), the trend rise in transition rates basically reflects gains made by women, leading to a substantial narrowing in the gender gap.

Chart 23: U_E and I_E by gender, EU aggregates (%)



Source: DG EMPL calculations using EU LFS.

Chart 24: U_E and I_E by age, EU aggregates (%)



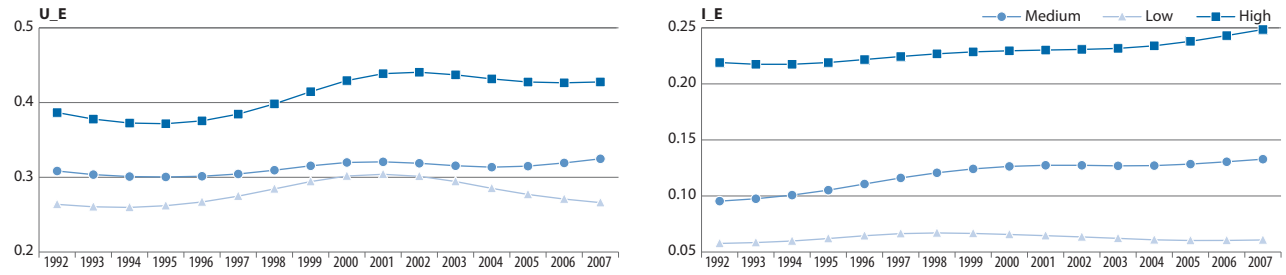
Source: DG EMPL calculations using EU LFS.

- By *age groups* (Chart 24), the trend increase in the total U_E transition rate largely reflects strong improvements for young workers, while the rise in the total I_E transition rate basically reflects increases for prime-age workers, which in the case of the EU-7 aggregate almost tripled in the past 20 years. Given the gains for young and prime-age workers, the large negative gap for older workers which existed at the start of the period has widened further.

- By *education level* (Chart 25), the trend increase in the total U_E transition rate is concentrated in the experiences of workers with high education levels, while those with low education levels have experienced declining rates since 2001. As regards the I_E transition rate, the rise reflects both developments in high and medium levels of education. For both types of transition, the gap between high and low levels of education has widened throughout the period.[40]

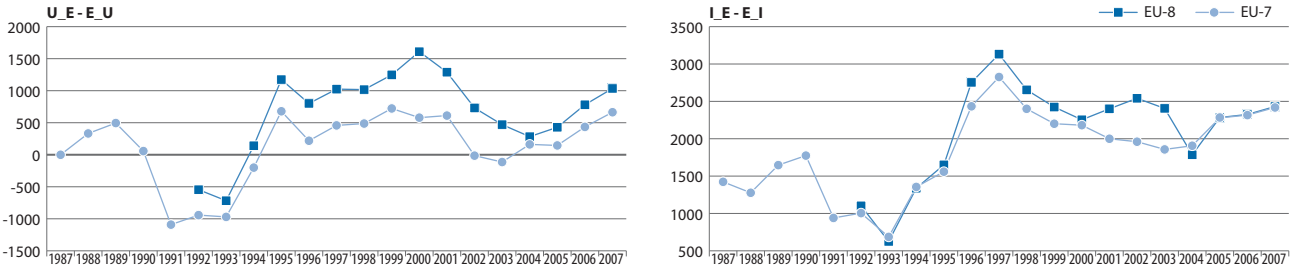
(40) It is interesting to note that the gap between medium and low levels of education is substantially lower than that between high and medium levels of education.

Chart 25: **Trends in transitions by education level, EU-8 (%)**



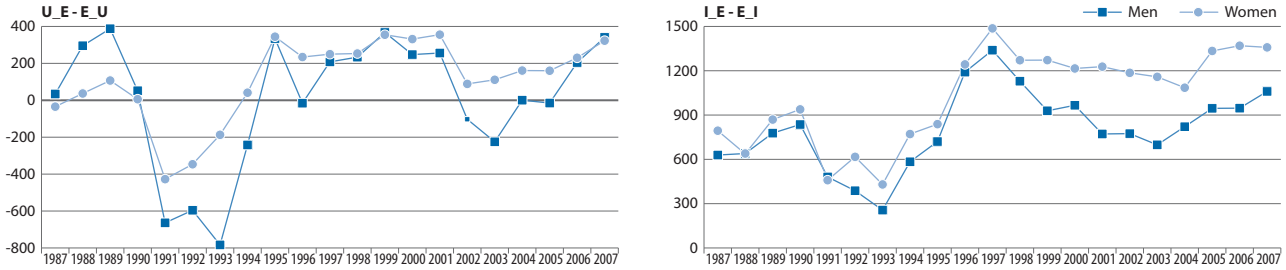
Source: DG EMPL calculations using EU LFS.

Chart 26: **Net flows between unemployment/inactivity and employment, EU aggregates (in thousands)**



Source: DG EMPL calculations using EU LFS.

Chart 27: **Net flows by activity status, by gender, EU-7 (in thousands)**



Source: DG EMPL calculations using EU LFS.

3.2.4. A brief analysis of all labour market transitions, based on net flows

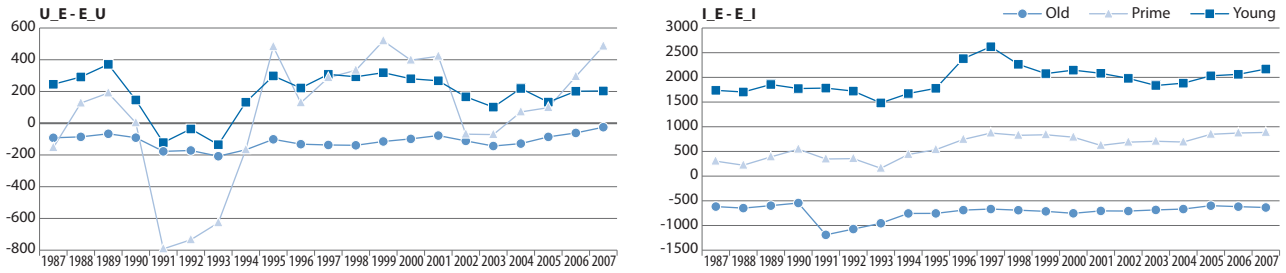
The analysis has largely focused on 'good' labour market transitions (i.e. U_E or I_E). However, it is also necessary to consider whether bad transitions (i.e. from employment to unemployment or inactivity, E_U or I_U) may affect our overall conclusions.

One basic way to assess both 'good' and 'bad' transitions is to calculate net flows.[41] However, there are caveats to such exercises since variables expressed in absolute numbers, unlike rates, do not take account of the effect of changes in the overall size of the relevant pool of workers. This implies that it is, a priori, difficult if not impossible to disentangle changes due to labour market efficiency from those that are simply associated with demographic, such as ageing.

Chart 26 shows the evolution of net flows between unemployment and employment (U_E minus E_U) and between inactivity and employment (I_E minus E_I) for two EU aggregates (EU-7 and EU-8). Consideration of net flows largely confirms the overall positive developments based only on the 'good' transitions. In particular, improvements previously highlighted with respect to I_E transitions as well as female workers are qualitatively confirmed using net flows. The main conclusions of this analysis are that:

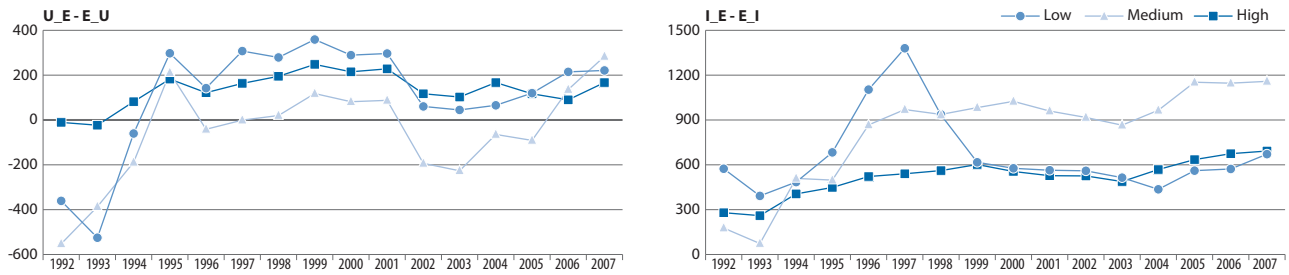
(41) Comparing transition rates (e.g. U_E and E_U) would be incorrect because they are calculated using different denominators.

Chart 28: **Net flows by activity status, by age, EU-7 (in thousands)**



Source: DG EMPL calculations using EU LFS.

Chart 29: **Net flows by activity status, by skill level, EU-8 (in thousands)**



Source: DG EMPL calculations using EU LFS.

- For both types of transition (Chart 26), net flows moved in a positive direction, especially during the mid-1990s, and showed considerable resilience to the economic downturn of the early 2000s.

- By gender (Chart 27), changes in net flows are more favourable for women than men, particularly for I_E net flows, corroborating previous conclusions (e.g. Chart 23).

- By age (Chart 28), net flows have been positive for both young and prime-age workers, since 1995[42], while registering negative values for older workers throughout the period. The latter finding is clearly explained by demographic factors (i.e. retirements) as far as I_E flows are concerned, whereas it confirms the severe disadvantage of unemployed older workers in terms of re-employment chances, as reflected in U_E flows.

- Although it is commonly thought that younger workers have the greatest difficulty in moving out of unemployment into employment when there is a cyclical downturn in the economy, the data shows that prime-age workers are actually more adversely affected.

- By skill level (Chart 29), the variability in terms of U_E net flows is largest for medium-skilled workers, while I_E net flows show trend improvements for high and, more markedly, medium skills.

4. Unemployment duration and long-term unemployment

Although the European Employment Strategy (EES) has shifted the focus to employment, the study of unemployment data remains important, especially during periods of recession. In particular, it can help throw some light on the factors determining its duration and the way employability is affected, and better target policies that facilitate re-employment.

To summarise the information content of an economic variable, it is usually necessary to calculate at least two statistics: one of 'location' and another of 'dispersion'. In the context of the EES, and with respect to unemployment, the unemployment rate can be seen as the 'location' statistic, and the long-term unemployment (LTU) rate (unemployment duration of 12 months and more) can be seen as playing the role of the 'dispersion' statistic.

(42) With the only exception of 2002 and 2003 for U_E net flows for prime-age workers.

A simple example illustrates the need for unemployment statistics in relation to both 'location' and 'dispersion'. A 10% unemployment rate can represent two entirely different realities in terms of their implications for the (long-term) welfare of those affected: one where every individual in the labour force experiences unemployment during 5 weeks per year, and another where 10% of the population are unemployed during the whole year. Provided adequate income support is available, unemployment in the former situation is a temporary state that is unlikely to leave enduring 'scars' on the people concerned in terms of their employability. In the latter case, however, the consequences are likely to be more significant and long-lasting.

In order to distinguish between these two situations it is necessary to calculate a measure of unemployment 'dispersion', such as unemployment duration. To this end, this section uses both EU LFS and EU SILC data to calculate various statistics of unemployment duration and LTU. [43]

The relationship between unemployment duration and employability is central to our concerns. Some strands of economic theory suggest that hysteresis effects play an important role in labour market dynamics – i.e. that the long-run equilibrium level of unemployment depends on past levels of unemployment.[44] Two basic mechanisms have been put forward in support of this argument (Cahuc and Zylberberg, 2004):

- first, that the bargaining power of insiders ensures that, even when faced by a reduction in the demand for labour, they are nevertheless able to maintain or increase wages
- second, the reduced bargaining power and expectations of the long-term unemployed, whose employability has fallen as a result of their long absence from the labour market (Topel, 1990).

As regards the latter hypothesis, a number of studies find a negative correlation between the duration of unemployment and the rate of exit from unemployment even after controlling for 'intrinsic' characteristics of workers – i.e. personal factors affecting their employability (Machin and Manning, 1999).

It is also commonly argued that the structure of unemployment duration (or the incidence of LTU) is an important determinant of 'search effectiveness' (Layard et al., 1991). This is because, as the long-term unemployed become more and more detached from the labour market, they play less and less of a role in competing for jobs and determining wage levels. This would be the case if variations in nominal wages depended solely on short-term unemployment, and not on the total stock of the unemployed. Demand-side policies then have a potential impact on the structural unemployment rate even in the long term, because of hysteresis effects. In this way, the long-term unemployed become a major force creating high levels of unemployment.

Ball (2009) finds empirical evidence suggesting that structural unemployment is influenced by aggregate demand, reflecting the presence of hysteresis mechanisms. Since aggregate demand influences actual unemployment, hysteresis means that demand also influences structural unemployment. Although some form of hysteresis seems to exist, it is not clear either what are the precise mechanisms at work or the policy implications. Further

Table 9: **Incidence of LTU in OECD countries, 2007 (%)**

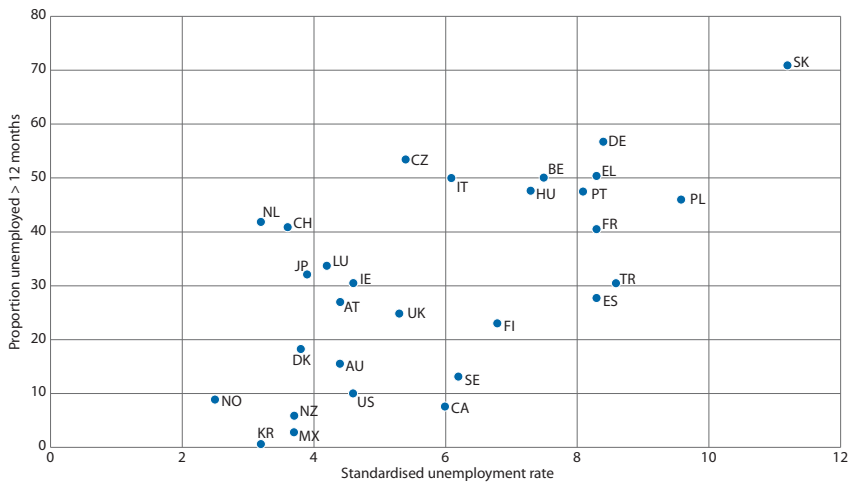
	Proportion unemployed more than 6 months	Proportion unemployed more than 12 months	Standardised unemployment rate
AU	27.1	15.5	4.4
AT	44.2	26.8	4.4
BE	68.1	50.0	7.5
CA	14.8	7.5	6.0
CZ	71.6	53.4	5.4
DK	29.5	18.2	3.8
FI	37.9	23.0	6.8
FR	58.5	40.4	8.3
DE	71.3	56.6	8.4
EL	68.2	50.3	8.3
HU	64.0	47.6	7.3
IE	50.1	30.3	4.6
IT	65.4	49.9	6.1
JP	48.2	32.0	3.9
KR	11.7	0.6	3.2
LU	54.7	33.5	4.2
MX	5.4	2.7	3.7
NL	59.1	41.8	3.2
NZ	16.7	5.7	3.7
NO	25.8	8.8	2.5
PL	64.3	45.9	9.6
PT	67.6	47.3	8.1
ES	42.6	27.6	8.3
SK	82.3	70.8	11.2
SE	27.3	13.0	6.2
CH	56.6	40.8	3.6
TR	46.3	30.4	8.6
UK	41.5	24.7	5.3
US	17.6	10.0	4.6

Source: OECD.

(43) EU LFS group averages, and micro data from the users' database (USB) of EU SILC.

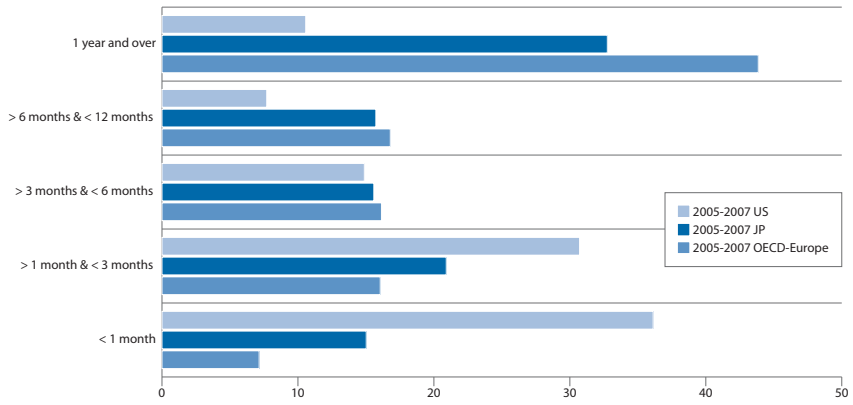
(44) Related to this is the idea that a transitory shock has permanent effects and that demand policies produce long-term effects.

Chart 30: **Incidence of LTU and the unemployment rate**



Source: OECD.

Chart 31: **Distribution of unemployment spells in progress by duration (%)**



Source: OECD.

research on the topic is necessary, which has been neglected in recent years, especially given the risks posed by the current recession.

Table 9 presents some data on the proportion of the unemployed who have been unemployed for more than 6 and 12 months in OECD countries, the latter being the official measure of the incidence of LTU used for policy analysis in the EU. In international comparisons, a distinctive feature of EU labour markets is seen to be the high incidence of LTU – a factor that is cause for concern for both equity and efficiency reasons.

A high concentration of LTU among households of working age is a particular cause of concern given extensive evidence (European Commission, 2007) that unemployment is closely associated with the risk of poverty and higher levels of income inequality.

Chart 30 suggests a positive correlation between total unemployment and the incidence of LTU, although some countries seem to be outliers.[45]

Overall, European countries score poorly in comparisons with the USA and Japan regarding the distribution of unemployment spells by duration (Chart 31). In Europe, close to 45% of all incomplete unemployment spells (or spells in progress) last for longer than 1 year compared with only about 10% in the USA. Japan is in an intermediate position, but closer to the EU than the USA.

On average over the economic cycle, institutional labour market factors, such as net replacement rates[46] and EPL, are generally considered to play an important role in explaining differences in the incidence of LTU (Box 8).[47]

4.1. Measurement issues with regard to LTU

4.1.1. Administrative versus survey data

There are two main sources of information on the duration of unemployment: survey and administrative data. The latter is generally country-specific – i.e. the data is obtained from social security or public employment agencies information systems, and is sensitive to national idiosyncrasies, hampering international comparisons. It is also subject to frequent breaks in series caused by changes in administrative procedures, rendering timeseries analysis difficult even within countries.

Given these problems, researchers generally prefer to use survey-based statistics, both cross-sectional and longitudinal. In this respect, national labour force surveys, and the EU's LFS, have adopted the International Labour Organisation's (ILO) definition of unemployment, ensuring that data on the duration of unemployment

(45) For countries with unemployment rates ranging between 3 and 5%, the proportion of long-term unemployed varies between less than 10% (New Zeeland, Mexico, Korea, the USA) and more than 40% (the Netherlands and Switzerland).

(46) These indicators are obtained by calculating the ratio of net income when not working (mainly unemployment benefits if unemployed or means-tested benefits if on social assistance) to net income in work. A lower replacement rate is associated with a greater incentive to search for and take up a job when unemployed.

(47) In the USA, net replacement rates are lower and EPL less stringent than on average across the EU.

is comparable across countries.[48] However, in contrast to administrative data, survey questions on the duration of unemployment are seen to be subject to 'recall bias' in that individuals appear to under-report short spells in unemployment. Moreover, longitudinal data (e.g. the ECHP) can suffer from 'seam effects' – i.e. the tendency for changes in reported labour market status to occur between the last month covered by one interview and the first month covered by the next interview (OECD, 2002).

4.1.2. Duration of incomplete versus completed unemployment spells

In terms of official data, the statistic usually quoted in relation to unemployment duration is actually the 'average duration of unemployment spells currently in progress (or interrupted/incomplete spells)' based on cross-sectional labour surveys. Unfortunately, this measure tends to overestimate the average duration of completed unemployment spells – a statistic that would be a more appropriate indicator for assessing the welfare implications of unemployment.[49] In fact, the mean average length of 'unemployment in progress' spells exceeds the mean average length of 'completed spells of unemployment' if the exit rate from unemployment declines with duration (Salant, 1997).[50]

EU official statistics on the incidence of LTU, measuring the proportion of the current unemployed who have been unemployed for more than a given time, are based on EU LFS information on the duration of unemployment spells in progress. The period normally used for LTU is 12 months, with 24 months used for the very LTU. A period of 6 months has also been used occasionally in the past.

The decision to publish unemployment duration statistics based on 'in progress' unemployment spells is basically a matter of convenience. Established methods are available (both parametric and non-parametric) to calculate statistics of average length of completed spells of unemployment using the information on the spells in progress (Corak and Heisz, 1995). Box 5 and section 4.3 present and apply, respectively, a non-parametric method to calculate statistics on the average duration of *completed* unemployment spells using quarterly EU LFS data. Results will then be compared with average duration of *incomplete* unemployment spells, highlighting the main differences.

4.1.3. Longitudinal data: the importance of using detailed calendar information

Statistics based on cross-sectional survey data (either for *incomplete* or *completed* unemployment spells) suffer from two major drawbacks. First, they are very sensitive to short breaks in unemployment – e.g. in principle a single day's employment during a period of unemployment will automatically reset the clock to zero (OECD, 2002). Other definitions/statistics of unemployment duration have been proposed which are more robust in terms of taking account of short interruptions to periods of unemployment, such as the fraction of the year that an individual spends unemployed. The OECD (2002) has also used detailed calendar information on labour market status to calculate measures of incidence and duration of LTU for 11 EU Member States using ECHP data.

Second, Akerlof and Main (1980) develop the following argument regarding the use of longitudinal data in assessing the incidence and duration of LTU – namely that average statistics on the duration of unemployment (either completed or in progress) based on LFS/cross-sectional data are meaningful measures only if a large majority of individuals experience only one spell of unemployment during the period of observation. In practice, however, they find that multiple unemployment spells are a relatively common experience, at least in the USA. Consequently, statistics based on average duration of (completed) unemployment spells seriously misrepresent the unemployment experience of all groups: people with single spells because on average single spells are longer than multiple spells; and people with multiple spells because, on average, individual spells are shorter than for persons with a single spell overall, although total time spent in unemployment might be longer for persons with multiple spells, and because the unemployment experience of these persons includes the multiplicity of their spells which is not considered in the analysis.

In order to address issues related to the multiplicity of unemployment spells, detailed calendar information on labour market status is used in section 4.9 to calculate the incidence and duration of LTU for 14 European countries using EU SILC. The results of this empirical analysis confirm Akerlof and Main's (1980) main insight – namely that the use of cross-sectional (EU LFS) versus longitudinal (ECHP, EU SILC) data to measure the incidence/duration of LTU implies a major drawback, because the group average nature of the former does not capture

(48) Eurostat uses the following statistical definitions/concepts.
Unemployed persons are all persons aged 15–74 who were not employed during the reference week, had actively sought work during the past four weeks and were ready to begin working immediately or within two weeks.
Employed persons are all persons who worked at least one hour for pay or profit during the reference week or were temporarily absent from such work.
The **unemployment rate** is the number of people unemployed as a percentage of the labour force.
The **labour force** is the total number of people employed and unemployed.

(49) In this regard, an analogy with population data might be helpful (Akerlof and Main, 1980). The difference between measures of average duration of complete and in progress unemployment spells is analogous to the difference between mean life span (equivalent to the average length of completed life) and the mean age of the population (equivalent to the average length of lives currently in progress).

(50) Empirical analysis find that exit rates from unemployment decline with unemployment duration, regardless of the cause for this decline being either unobserved heterogeneity or pure duration dependence. For more on the relations between statistics on average complete and in progress unemployment spells see Box 5.

important information on the distribution of unemployment duration by number of spells in unemployment.

4.1.4. Consideration of a broader concept of 'joblessness'

In seeking to better assess the overall attachment to the labour force of the working-age population, an exclusive focus on the unemployed, or the long-term unemployed, can be seen as unduly restrictive as it ignores those who are not working for a variety of reasons – notably because they are 'discouraged' from looking for work because they believe no work is available. For that reason, the OECD (2002) has calculated a broader concept of 'long-term joblessness', which goes beyond the standard ILO definition, and is defined as the working-age population who were not in employment at the time of the labour force interview and have not worked within the last one or two years.

Comparison between data for the long-term unemployed, as traditionally defined, and this measure of long-term joblessness/non-employment are potentially more significant for prime-age men (25–54), who are generally expected to be in employment unless there are special circumstances, such as health problems or being in lifelong education. In this respect, the proportion of the prime-age population (25–54), especially women, who were without a job in the previous one or two years is significantly higher than the numbers recorded as unemployed (Table 10).

4.1.5. Main characteristics of LTU

This section presents information on the incidence of LTU[51] over time for an EU aggregate.[52] Chart 32 suggests that, on

(51) Unemployment lasting for 12 and more months over total unemployment.

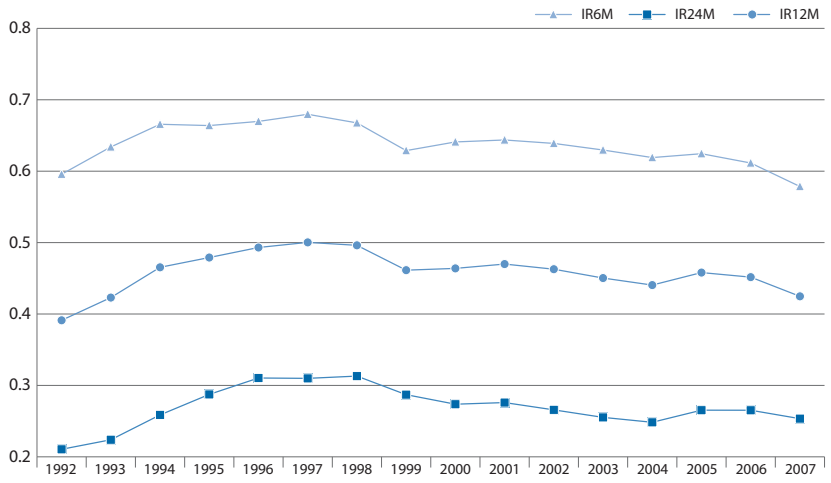
(52) This aggregate is made of all the 27 EU Member States for which data is available. It varies during the 1992–2007 period; therefore charts should be interpreted with caution.

Table 10: **Long-term unemployment and joblessness in the EU, 2005–07 (%)**

	Joblessness/not employed of which			Unemployed of which		
	Total	Have not worked for the past year	Have not worked for the past two years	Total	Have not worked for the past year	Have not worked for the past two years
Males						
15–24	52.3	1.7	0.7	16.8	2.5	1.0
25–54	8.1	4.7	4.0	6.4	3.3	2.2
55–64	43.8	38.3	33.5	6.1	4.3	3.2
Females						
15–24	59.3	3.0	1.7	17.4	2.7	1.2
25–54	23.6	14.2	12.4	8.0	4.4	3.3
55–64	63.0	49.9	46.0	5.9	4.2	3.2

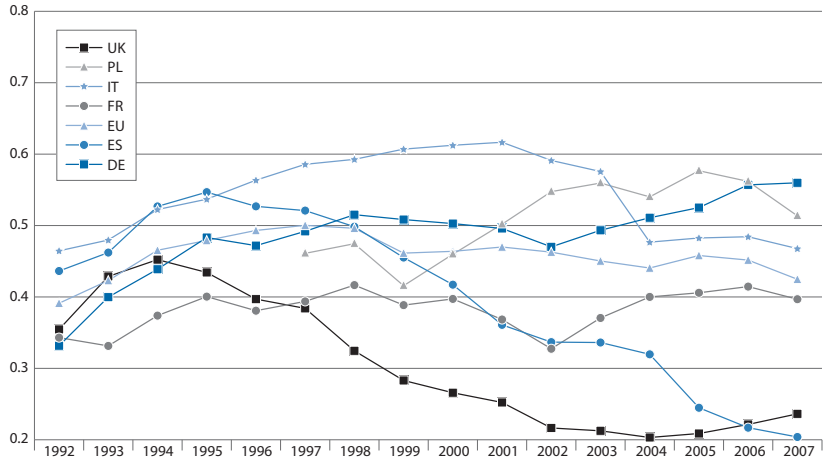
Source: DG EMPL calculations based on EU LFS data. LFS variable used: LEAVTIME.
Note: Joblessness is defined as the absence of employment during the period shown.

Chart 32: **Incidence of LTU in the EU – more than 6, 12 or 24 months (%)**



Source: DG EMPL calculations based on EU LFS. Variable used: DURUNE.

Chart 33: **Incidence of LTU by country (%)**



Source: DG EMPL calculations based on EU LFS. Variable used: DURUNE.

average across the EU, the distribution of unemployment spells by duration has not changed markedly since 1992 – the first year for which data is available.

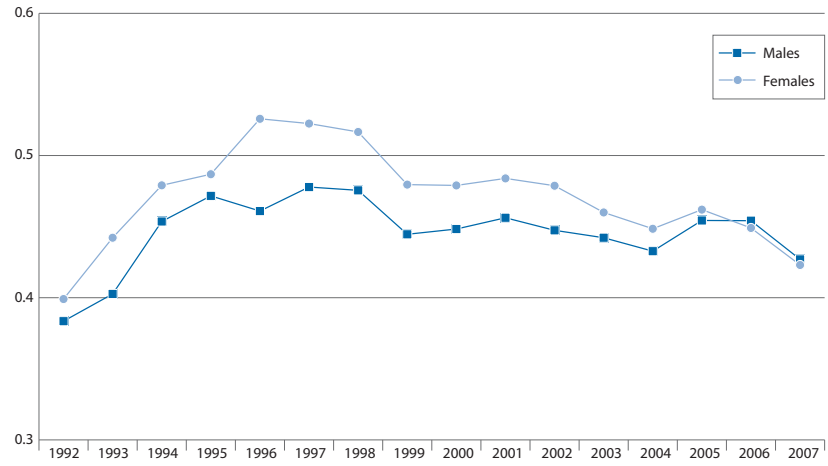
Chart 33 presents data for the five-largest EU economies. In Germany and France, the incidence of LTU increased between 2002 and 2007. Since the early 1990s, among the largest EU economies the incidence of LTU has significantly fallen in Spain and the UK, while in Poland, the incidence of LTU rose between 1999 and 2005, having since declined.

Across the EU, there has been a convergence in the incidence of LTU by gender (Chart 34).

Despite the high rate of unemployment of younger workers (see Table 10), the incidence of LTU is low relative to older age groups (Chart 35), in line with their low average duration of unemployment (see Chart 47). It has also fallen since the mid-1990s.

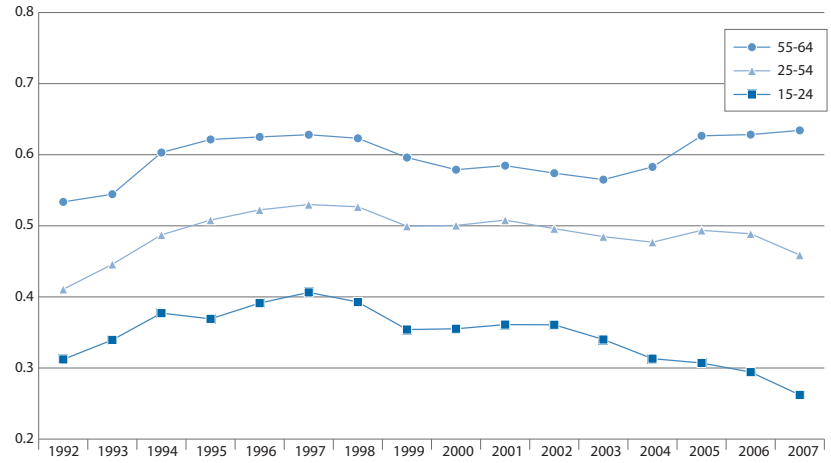
Chart 36 suggests that since the mid-1990s there has been on average across the EU a significant reduction in the incidence of LTU for the unemployed with high levels of education. This compares with persistent higher levels for those with low and medium levels of education, although for the latter two groups there has been some modest improvement in recent years.

Chart 34: **Incidence of LTU by gender (%)**



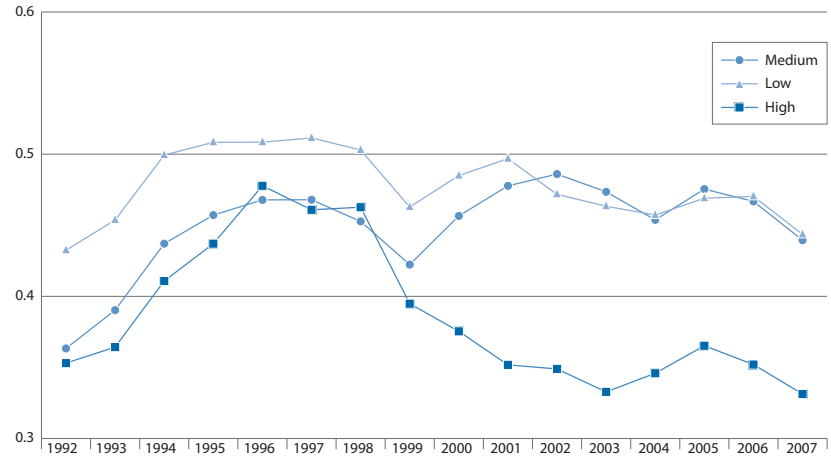
Source: DG EMPL calculations based on EU LFS. Variable used: DURUNE.

Chart 35: **Incidence of LTU by age (%)**



Source: DG EMPL calculations based on EU LFS. Variable used: DURUNE.

Chart 36: **Incidence of LTU by education level (%)**



Source: DG EMPL calculations based on EU LFS. Variable used: DURUNE.

Table 11: **Composition of LTU (1 year and over) by major breakdowns (average values 2005–07) (%)**

	Males	Females	Youth	Prime-age	Older workers	Low education	Medium education	High education
AT	27.3	25.6	14.1	28.9	58.2	29.7	24.4	25.8
BE	49.9	52.1	28.4	56.5	79.7	59.8	47.6	38.5
BG	56.9	59.5	43.9	60.6	67.0	66.8	52.7	51.0
CY	19.7	20.1	na	21.0	41.4	23.3	20.8	21.0
CZ	52.0	54.2	36.1	57.8	54.2	70.3	48.3	33.0
DE	54.7	54.8	31.4	56.2	72.7	56.5	54.4	51.8
DK	20.1	20.1	na	20.9	45.4	17.8	21.4	21.9
EE	50.4	50.0	32.2	56.0	70.8	48.6	52.9	49.5
ES	18.6	25.0	11.8	23.3	47.9	23.7	19.6	21.1
FI	27.6	21.2	5.6	28.1	49.3	25.0	21.7	30.4
FR	40.5	40.7	23.8	44.4	65.0	48.3	36.2	33.2
GR	43.4	57.2	44.9	53.9	56.7	52.0	54.3	47.1
HU	46.2	44.9	36.0	47.6	54.1	49.8	44.5	36.7
IE	38.5	21.3	21.5	35.8	44.4	43.7	25.1	18.3
IT	45.8	49.7	41.9	49.5	55.4	50.8	46.8	38.9
LT	42.9	43.0	23.6	46.1	55.9	47.3	43.1	38.5
LU	33.5	24.3	20.7	28.9	54.0	29.8	22.2	29.5
LV	40.0	32.7	20.7	40.2	55.0	34.9	39.2	34.2
MT	49.5	32.4	31.5	53.5	na	46.4	29.8	na
NL	42.7	37.4	15.7	45.9	69.5	36.9	42.2	43.5
PL	53.9	56.3	40.6	59.6	65.2	62.5	55.3	39.0
PT	48.6	48.1	29.4	51.1	69.1	52.3	42.3	32.2
RO	55.5	52.9	49.2	56.6	58.7	54.9	54.8	49.1
SE	16.2	12.4	4.7	18.4	30.8	11.0	16.5	17.6
SI	47.8	47.1	34.4	51.0	64.8	54.2	47.2	38.1
SK	74.7	73.6	59.5	77.8	83.3	87.6	70.5	44.9
UK	26.6	16.3	13.9	26.8	37.0	28.1	18.6	17.0
EU	44.5	44.5	28.8	48.0	63.0	46.1	46.1	35.0

Source: DG EMPL calculations based on EU LFS. Variable used: DURUNE.

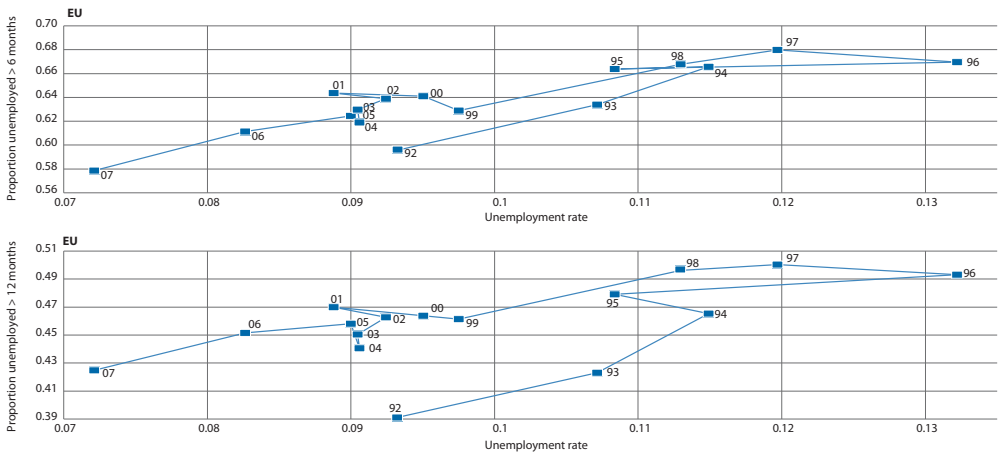
Legend: Youth (16-24); Prime-age (25-54); Older workers (55-64);
Low education (isced 00-21); Medium education (isced 22-43); High education (51-60).

4.2. Relation over the economic cycle between unemployment and the incidence of LTU

Machin and Manning (1999) mention that, over the economic cycle, the incidence of LTU lags actual unemployment or, in more technical terms, the relationship between unemployment and the incidence/proportion of LTU displays counter-clockwise loops (Charts 37–43).

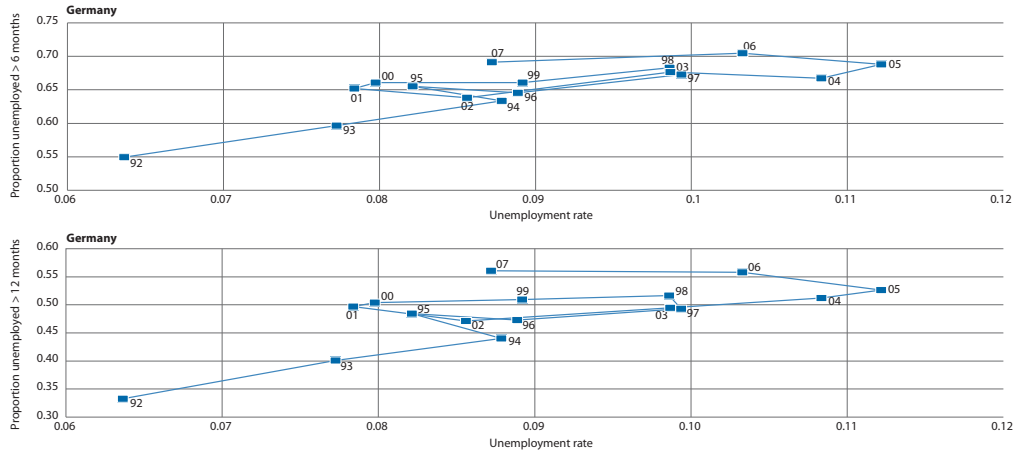
At the onset of an economic downturn, higher inflows into unemployment tend to reduce the average incidence of LTU. Conversely, during economic expansion, while flows into unemployment and the unemployment rate fall, the stock of unemployed becomes more heavily weighted with individuals who are in the midst of longer unemployment spells which had begun during the downturn phase. As a result, for a given level of unemployment, the incidence of LTU is usually higher during upturns than downturns.

Chart 37: **The unemployment rate and the incidence of LTU in the EU – more than 6 months, top panel; more than 12 months, bottom panel (%)**



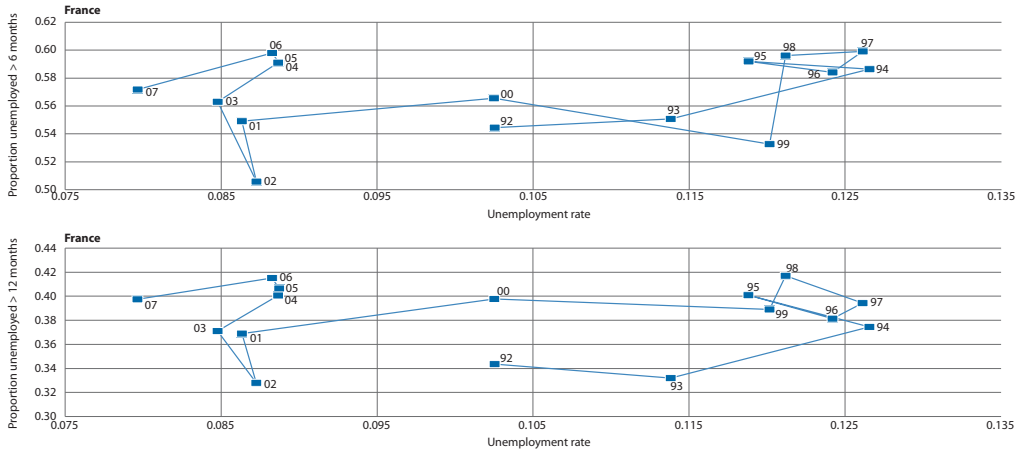
Source: EU LFS.

Chart 38: The unemployment rate and the incidence of LTU in Germany – more than 6 months, top panel; more than 12 months, bottom panel (%)



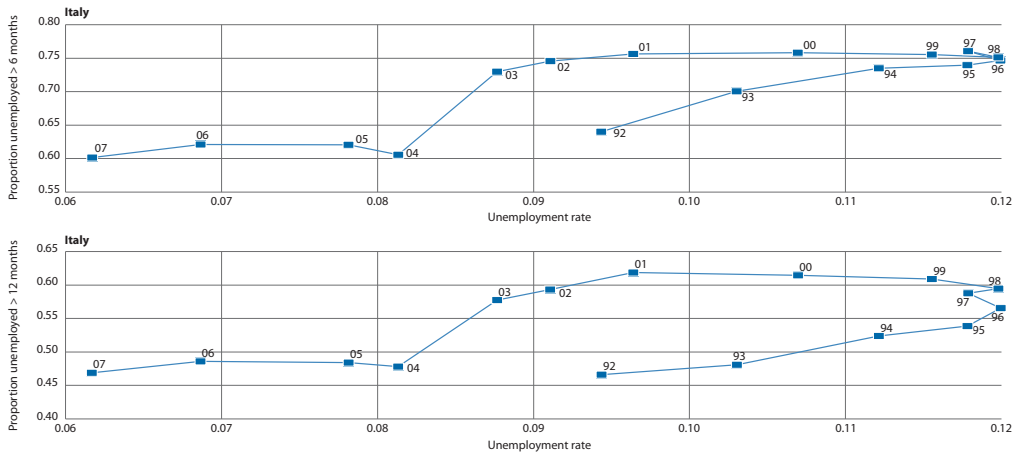
Source: EU LFS.

Chart 39: The unemployment rate and the incidence of LTU in France – more than 6 months, top panel; more than 12 months, bottom panel (%)



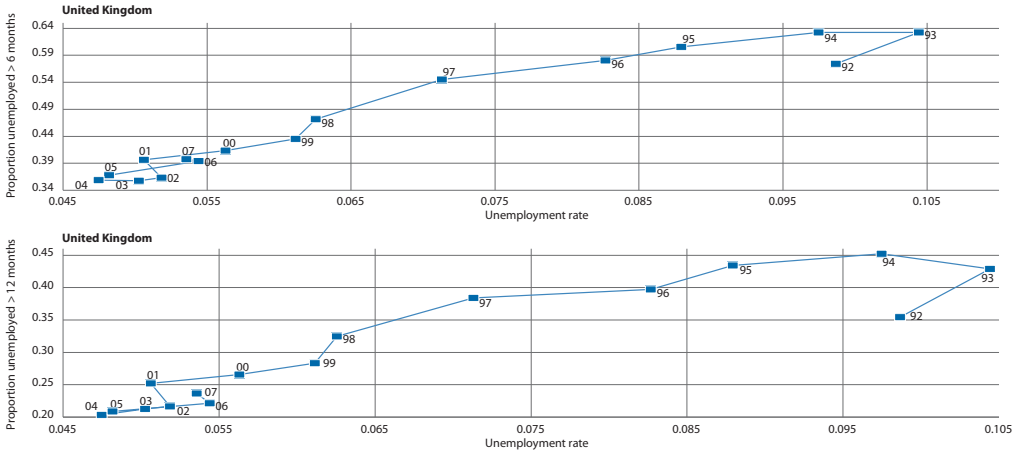
Source: EU LFS.

Chart 40: The unemployment rate and the incidence of LTU in Italy – more than 6 months, top panel; more than 12 months, bottom panel (%)



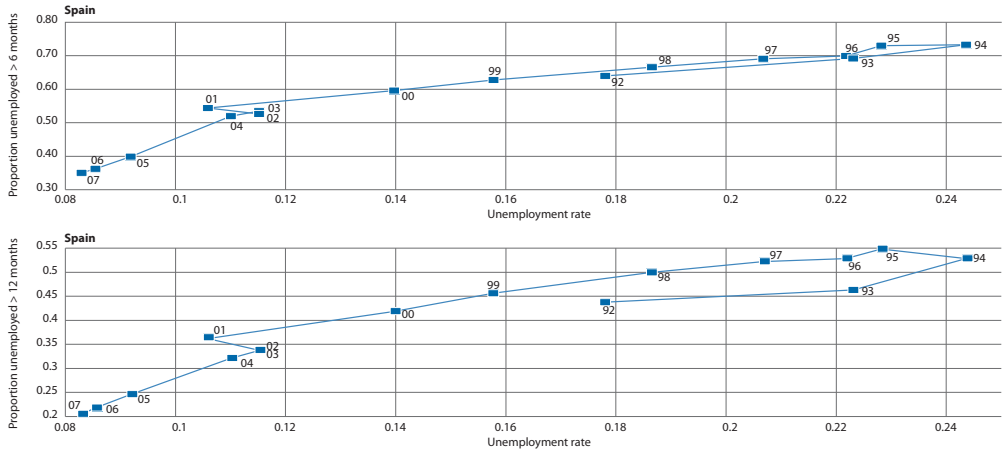
Source: EU LFS.

Chart 41: The unemployment rate and the incidence of LTU in the UK – more than 6 months, top panel; more than 12 months, bottom panel (%)



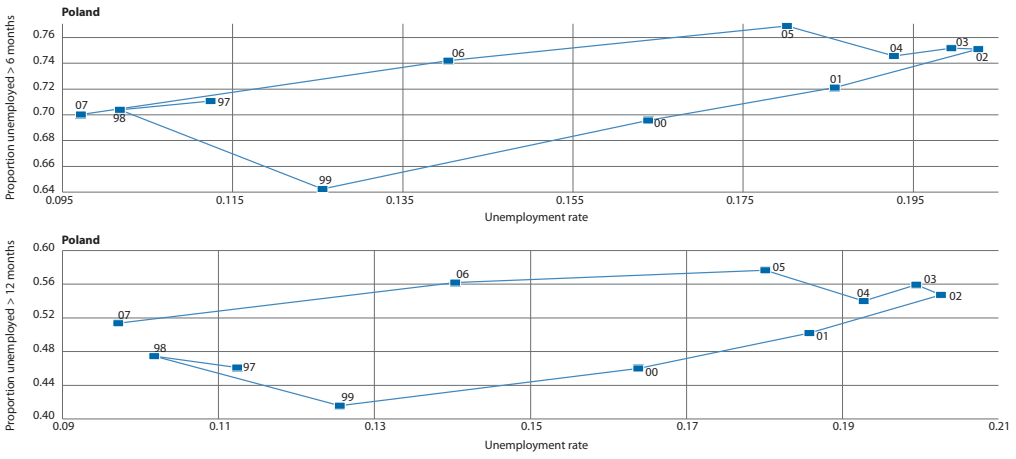
Source: EU LFS.

Chart 42: The unemployment rate and the incidence of LTU in Spain – more than 6 months, top panel; more than 12 months, bottom panel (%)



Source: EU LFS.

Chart 43: The unemployment rate and the incidence of LTU in Poland – more than 6 months, top panel; more than 12 months, bottom panel (%)



Source: EU LFS.

Box 5: Methodology to estimate an unbiased measure of the average duration of unemployment

The average incomplete duration of unemployment (or of spells currently in-progress) is a biased measure of the completed duration of unemployment

The welfare of the unemployed depends on the adequacy of replacement income and the conditional probability (or hazard rate) of leaving unemployment and obtaining a job. Success, in turn, depends on personal circumstances (notably age, education, social networks), the (dis)incentives of the tax-benefit system (e.g. entitlement to and duration of unemployment benefits), and the availability and quality of public employment services. The duration of unemployment is thus an important determinant of the welfare cost of unemployment, probably more important than the unemployment status itself.

The EU LFS does not capture the complete length of an unemployment spell, only the length of time spent unemployed up to the reference week. The EU LFS records the duration of *incomplete* unemployment spells (or spells in-progress) as the shorter of the following two periods: the length of time since last employment or the duration of search for work.

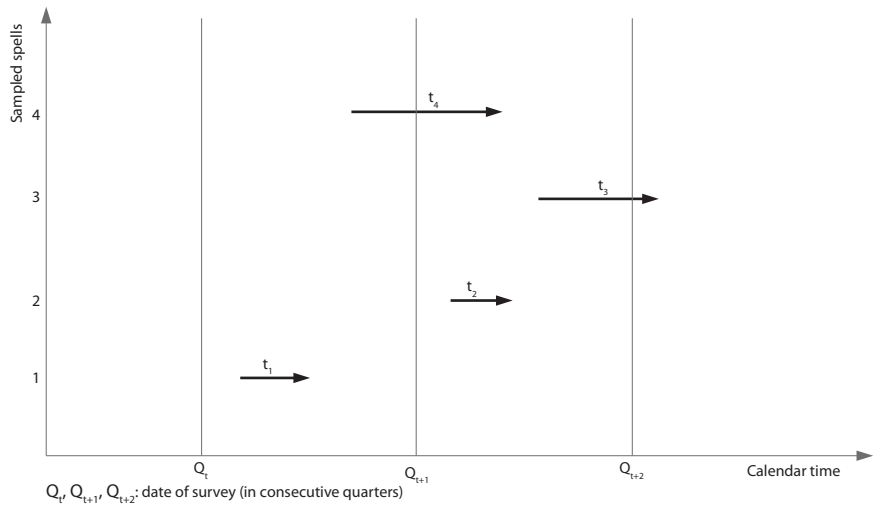
The average duration of *incomplete* unemployment spells can be calculated as the sum of all in-progress spells divided by the number of unemployed persons. A preferable indicator to measure the duration of unemployment would be the average expected *completed* duration of unemployment (of a synthetic cohort entering unemployment at the same time). The average duration of incomplete unemployment spells is a biased measure of the average completed duration because of the presence of two biases: a length bias and a sampling bias (Chart 44).

1. The *length* bias arises because a large fraction of the unemployment spells is right-censored – i.e. duration is above a certain value but by exactly how much it is unknown. This tends to under-estimate the complete spell length.
2. The *sampling* bias reflects the fact that there is a higher probability of sampling individuals with longer unemployment durations – i.e. the 'stock sampling problem'. This tends to overestimate the complete spell length.

Salant (1977) shows that the average *incomplete* duration of unemployment will be greater than the average *completed* duration if the probability of moving out of unemployment (i.e. the hazard rate) declines with the time spent unemployed. This condition is generally satisfied. As a result, the effect of the sampling bias is seen to outweigh the effect of the length bias.

Given that the EU LFS is a continuous survey (data collection in all weeks of the year), while the reference period for unemployment is four weeks, the sampling bias should affect only individuals in unemployment for very short periods (i.e. less than a month).

Chart 44: **Duration data and biases**



Q_t, Q_{t+1}, Q_{t+2}: date of survey (in consecutive quarters)
t_1, t_2: completed spells (sampling bias)
t_3, t_4: right-censored spells (length bias)

A non-parametric methodology to calculate the average completed duration of unemployment using the EU LFS

The objective is to estimate the length of *completed* unemployment spells from data on spells in-progress. The methodology used in this chapter follows Sider (1985) and Corak and Heisz (1995) in using a synthetic cohort approach and a non-parametric method based on lifetime and actuarial methods, such as those of Kaplan and Meier (1958). The calculation is based on aggregate probabilities (or group averages) that individuals continue in unemployment from one survey period (month/quarter) to the next.

Let $f(x)$ be the number of individuals remaining in unemployment after x periods $0<x<n$, where n is the maximum length in unemployment. The average duration of a completed spell is simply the sum of all spells weighted by the probability of leaving unemployment at each duration. The average duration of a completed spell is given by S:

$$S = \sum_{x=1}^{n} x * \frac{f(x-1) - f(x)}{f(0)} = \sum_{x=1}^{n} x * \left[\prod_{j=0}^{x-1} p_j \right] * (1 - p_x) \qquad \text{(Equation 1)}$$

Where

$$p_j = \frac{f(j)}{f(j-1)} \text{ and } p_0 = 1$$

where p_j is the continuation rate between periods *j-1* and *j*. The product of the p_js and $(1-p_x)$ is the proportion of the original cohort of unemployed leaving unemployment after *x* periods.

Evaluating Equation 1 using current continuation rates yields an estimate of the expected unemployment duration for a synthetic cohort of individuals entering unemployment. It reflects the average completed spell duration that would be incurred if current continuation rates were maintained into the future.

Note that Equation 1 can be rewritten in a slightly more familiar form, involving the hazard and survival[53] functions:

$$S = \sum_{x=1}^{n} x * h(x) * s(x-1)$$

Where

$$h(x) = \frac{\prod_{j=0}^{x-1} p_j - \prod_{j=0}^{x} p_j}{\prod_{j=0}^{x-1} p_j} \qquad \text{(Equation 2)}$$

$$s(x-1) = \prod_{j=0}^{x-1} p_j$$

Where h(x) is the hazard function: the conditional probability of leaving unemployment after *x* periods. s(x-1) gives the probability of surviving *x-1* periods in unemployment.

This chapter uses quarterly data from the EU LFS specifically the derived variable LEAVTIME, measuring the duration of unemployment for an unemployed person with previous work experience, in order to calculate the following continuation rates, which are calculated as the ratios of the number of individuals in each of the following categories:

0–2 months in quarter t–1 to 3–5 months in quarter t
3–5 months in quarter t–1 to 6–8 months in quarter t
6–11 months in quarter t–2 to 12–17 months in quarter t
12–17 months in quarter t–2 to 18–23 months in quarter t
18–29 months in quarter t–3 to 27–38 months in quarter t
30+ months in quarter t–6 to 48+ in quarter t

Continuation rates are then converted to monthly equivalents (by raising them to the 'appropriate' power). This assumes that monthly continuation rates are constant within each interval.

Some notes of caution

It should be stressed that the methodology presented in this box was originally developed for labour force surveys with a monthly periodicity in which the duration of unemployment is measured in weeks. In this respect, the EU LFS presents a number of limitations since it has a quarterly periodicity and measures unemployment duration in months. Moreover, exploitable statistics are only available since around the turn of the century, although the question on the duration of unemployment/inactivity was included in the 1992 survey.

Corak and Heisz (1995) point to the need to smooth raw data on durations prior to applying the methodology developed above, because they find significant spikes in the frequency distribution of the reported incomplete duration spells associated with survey respondents' 'digit preference' – namely the fact that individuals taking part in the survey tend to report even, rather than odd, numbers.

Furthermore, results are subject to three major qualifications. First, they should be interpreted in terms of the average unemployment experience which may include multiple spells as opposed to the single spell stereotype. Second, the underlying data do not permit us to distinguish between spells of unemployment at the end of which the person concerned finds employment, and those where they end up leaving the labour force altogether. Third, no information is available concerning the reason for their becoming unemployed, which might have enabled us to draw some conclusions in relation to their subsequent unemployment histories.[54]

Conclusions

This box adapted a non-parametric methodology, first developed for USA and Canada in the early 1970s (Kaitz, 1970), to calculate an unbiased measured of the average duration of unemployment for EU Member States using the EU LFS. The resulting measure reflects the completed duration of the unemployment spell for a synthetic cohort that enters unemployment today and which faces current economic conditions throughout the entire duration of the unemployment spell.

Although the empirical calculations and conclusions are tentative and provisional, and therefore should be interpreted with caution, they do give us a better understanding of the factors shaping unemployment duration and hazard rates, potentially leading to more effective policies.

(53) The survival function shows what proportion of a cohort of people who become unemployed remains unemployed as time passes.

(54) Section 4.4 gives information about the distribution of the duration of incomplete unemployment spells by main reason of leaving/losing the last job.

4.3. Statistics on the average duration of both completed and incomplete unemployment spells

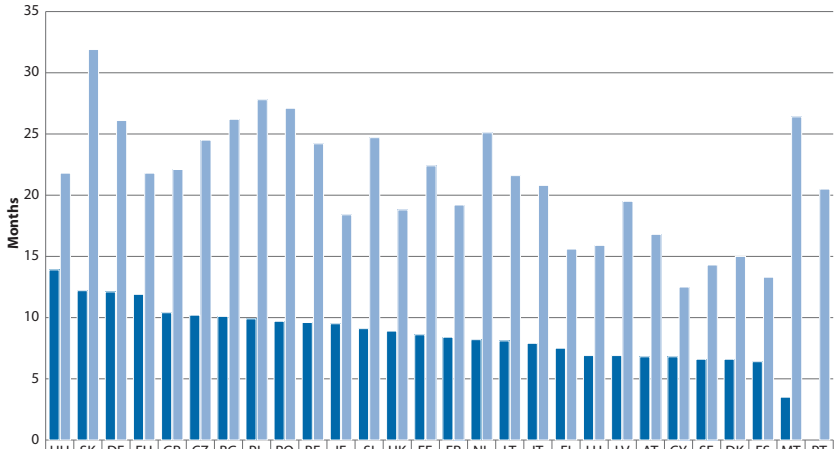
Using the methodology presented in Box 5, quarterly EU LFS data is used to calculate statistics for both the average duration of completed and incomplete unemployment spells. An attempt is made to compute quarterly values from 1992 Q1 to 2008 Q3, with breakdowns by country, gender, education and age.

This exercise highlights two practical obstacles to the calculation of average completed unemployment spells using a non-parametric method:

1. The statistic of completed unemployment spells can only effectively be calculated after 2000 Q1, and even then, on average just for about one quarter of the maximum number of possible data points, which compares with a much longer time coverage for statistics of incomplete duration of unemployment spells.

2. In practice, some dataseries on unemployment duration are degenerate – i.e. they contain cases of unemployment that are of infinite duration (Portugal, 2008), implying that a significant fraction of the unemployed may never find a job and leave unemployment. This presumably reflects either very few job offers being available in the labour market and/or very little pressure on those recorded as unemployed to seek work, possibly because the unemployment compensation scheme is being used as a more general form of income support. Obviously, statistics on the completed duration of unemployment cannot be calculated for such degenerate distributions.

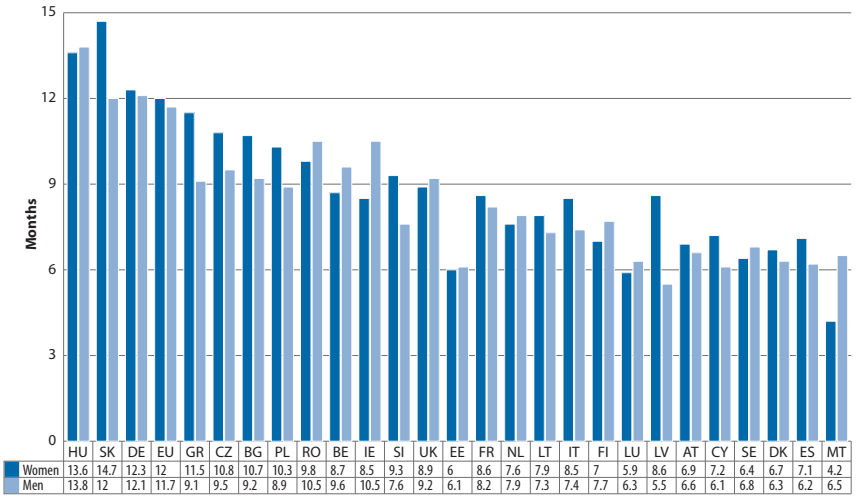
Chart 45: **Statistics on the average duration of CDU and IDU spells, average in period 2005 Q1 to 2008 Q3 (months)**



	HU	SK	DE	EU	GR	CZ	BG	PL	RO	BE	IE	SI	UK	EE	FR	NL	LT	IT	FI	LU	LV	AT	CY	SE	DK	ES	MT	PT
CDU	13.9	12.2	12.1	11.9	10.4	10.2	10.1	9.9	9.7	9.6	9.5	9.1	8.9	8.6	8.4	8.2	8.1	7.9	7.5	6.9	6.9	6.8	6.8	6.6	6.6	6.4	3.5	
IDU	21.8	31.9	26.1	21.8	22.1	24.5	26.2	27.8	27.1	24.2	18.4	24.7	18.8	22.4	19.2	25.1	21.6	20.8	15.6	15.9	19.5	16.8	12.5	14.3	15	13.3	26.4	20.5

Source: DG EMPL calculations based on EU LFS data.
Note: Countries are ranked in descending order of CDU.

Chart 46: **Statistics on the average duration of completed (CDU) unemployment spells by gender, average in period 2005 Q1 to 2008 Q3 (months)**



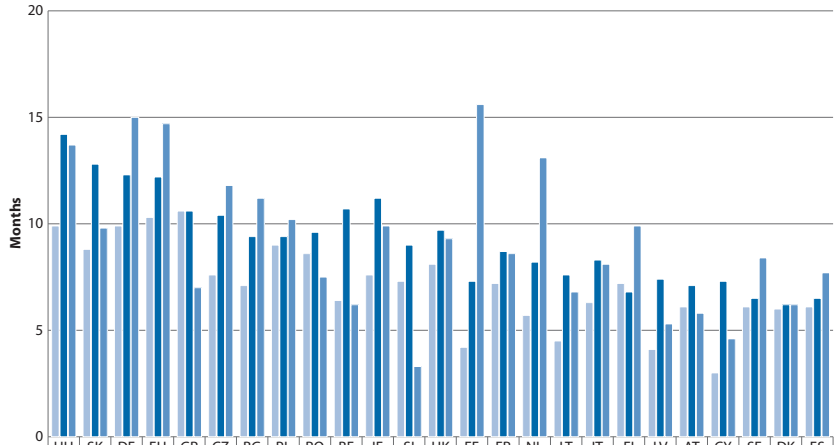
	HU	SK	DE	EU	GR	CZ	BG	PL	RO	BE	IE	SI	UK	EE	FR	NL	LT	IT	FI	LU	LV	AT	CY	SE	DK	ES	MT
Women	13.6	14.7	12.3	12	11.5	10.8	10.7	10.3	9.8	8.7	8.5	9.3	8.9	6	8.6	7.6	7.9	8.5	7	5.9	8.6	6.9	7.2	6.4	6.7	7.1	4.2
Men	13.8	12	12.1	11.7	9.1	9.5	9.2	8.9	10.5	9.6	10.5	7.6	9.2	6.1	8.2	7.9	7.3	7.4	7.7	6.3	5.5	6.6	6.1	6.8	6.3	6.2	6.5

Source: DG EMPL calculations based on EU LFS data.
Note: Countries are ranked in descending order of totals (not shown).

In order to better evaluate the potential biases involved in the calculation of indicators on unemployment duration, Chart 45 compares average values for the period 2005 Q1 to 2008 Q3 for statistics on both the average *completed* duration of unemployment (CDU) and average *incomplete* duration of unemployment (IDU).

As expected, the sampling bias outweighs the length bias; consequently the average incomplete duration is significant higher than the completed duration by a factor of around 2 for the EU. However, these results are preliminary requiring further research. In particular, the large gap between IDU and CDU statistics – besides reflecting the effects of the two sampling and length bias – results from problems with the method used to calculate CDU statistics, namely the need to smooth the data prior to applying the methodology.

Chart 47: **Statistics on the average duration of completed (CDU) unemployment spells by age, average in period 2005 Q1 to 2008 Q3 (months)**

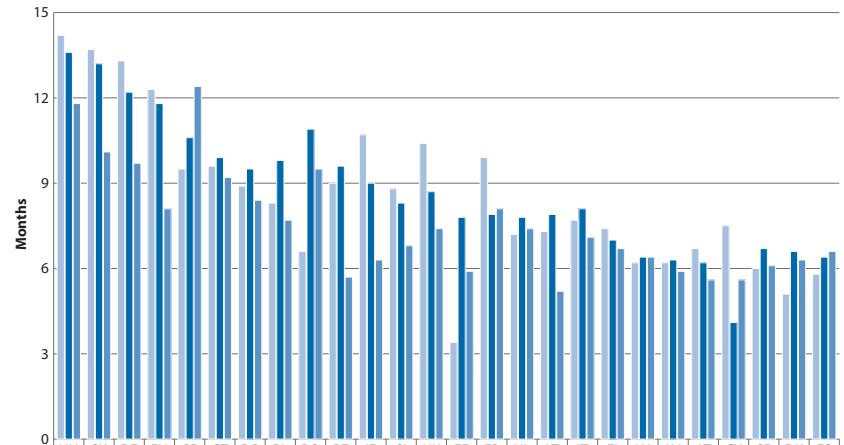


	HU	SK	DE	EU	GR	CZ	BG	PL	RO	BE	IE	SI	UK	EE	FR	NL	LT	IT	FI	LV	AT	CY	SE	DK	ES
15-24	9.9	8.8	9.9	10.3	10.6	7.6	7.1	9	8.6	6.4	7.6	7.3	8.1	4.2	7.2	5.7	4.5	6.3	7.2	4.1	6.1	3	6.1	6	6.1
25-54	14.2	12.8	12.3	12.2	10.6	10.4	9.4	9.4	9.6	10.7	11.2	9	9.7	7.3	8.7	8.2	7.6	8.3	6.8	7.4	7.1	7.3	6.5	6.2	6.5
55-64	13.7	9.8	15	14.7	7	11.8	11.2	10.2	7.5	6.2	9.9	3.3	9.3	15.6	8.6	13.1	6.8	8.1	9.9	5.3	5.8	4.6	8.4	6.2	7.7

Source: DG EMPL calculations based on EU LFS data.

Note: Countries are ranked in descending order of totals (not shown).

Chart 48: **Statistics on the average duration of completed (CDU) unemployment spells by education level, average in period 2005 Q1 to 2008 Q3 (in months)**



	HU	SK	DE	EU	GR	CZ	BG	PL	RO	BE	IE	SI	UK	EE	FR	NL	LT	IT	FI	LU	LV	AT	CY	SE	DK	ES
Low	14.2	13.7	13.3	12.3	9.5	9.6	8.9	8.3	6.6	9	10.7	8.8	10.4	3.4	9.9	7.2	7.3	7.7	7.4	6.2	6.2	6.7	7.5	6	5.1	5.8
Medium	13.6	13.2	12.2	11.8	10.6	9.9	9.5	9.8	10.9	9.6	9	8.3	8.7	7.8	7.9	7.8	7.9	8.1	7	6.4	6.3	6.2	4.1	6.7	6.6	6.4
High	11.8	10.1	9.7	8.1	12.4	9.2	8.4	7.7	9.5	5.7	6.3	6.8	7.4	5.9	8.1	7.4	5.2	7.1	6.7	6.4	5.9	5.6	5.6	6.1	6.3	6.6

Source: DG EMPL calculations based on EU LFS data.

Note: Countries are ranked in descending order of totals (not shown).

Despite country differences, in the EU as a whole, gender gaps for the average duration of completed unemployment spells are small (Chart 46).

Although there are country differences, average completed durations of unemployment increase with age in a majority of Member States (Chart 47). In countries where the average duration for older workers (55–64) is lower than for prime-age workers (25–54) (e.g. Slovakia, Greece, Romania and Belgium), this may reflect stronger 'discouragement' effects for the former. In fact, low U_E transition rates reflecting limited prospects of finding a job (see section 3 on transitions) may lead older workers to exit the labour force altogether.

Chart 48 suggests that the average duration of completed unemployment decreases with the level of education. In the EU during 2005 Q1–2008 Q3, the average duration of unemployment spells for unemployed persons with low level of education was 12.3 months, compared with only 8.1 months for those in the high education group.

4.4. Unemployment duration by reason of leaving/losing employment

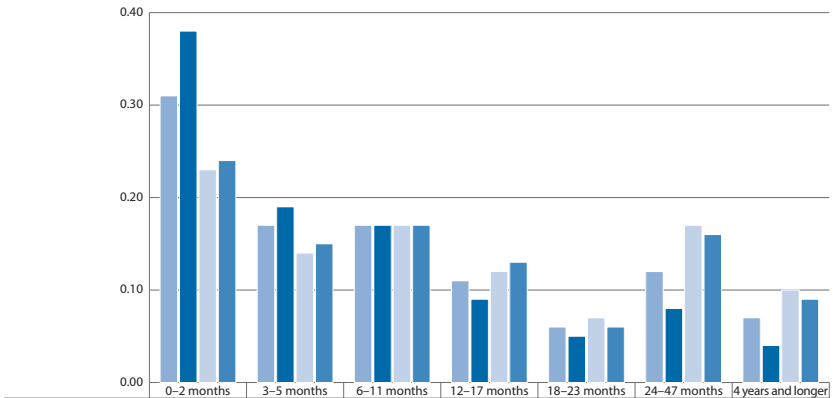
Based on the EU LFS, Charts 49 and 50 present information about the distribution of incomplete unemployment spells by the main reason of leaving (or having lost) the last job.

Chart 49 shows that the reasons dismissal/redundancy and own illness/disability are associated with more flat distributions, which correspond to relatively high average durations of unemployment.(55)

On average, becoming unemployed at the end of a fixed-term contract seems to be associated with relatively low unemployment duration, particularly when compared with having been dismissed or made redundant (Chart 50). In fact, in terms of unemployment duration, it looks as if dismissal/redundancy is as 'bad' as having lost/left a job on account of own illness/disability (Chart 49).

(55) Average values are not calculated, because EU LFS's DURUNE variable reports unemployment duration in intervals. The EU LFS records 10 main reasons for leaving (or having lost) employment: 'a job of limited duration has ended', 'compulsory military or community service', 'dismissed or made redundant', 'early retirement', 'education or training', 'looking for children or incapacitated children', 'normal retirement', 'other personal or family responsibilities', 'own illness or disability', and 'other reasons'.

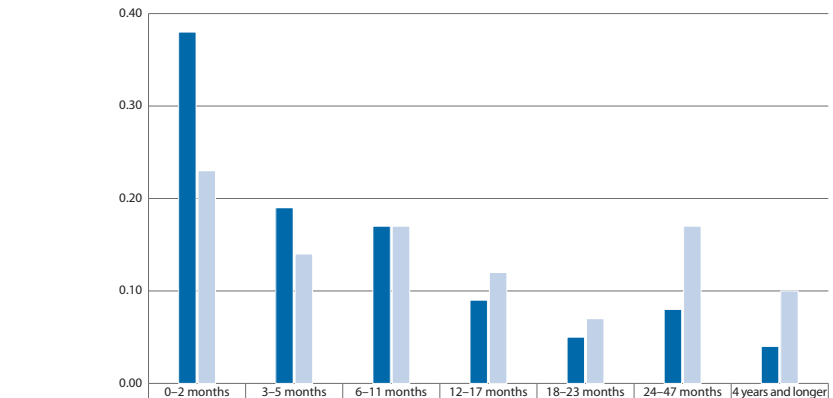
Chart 49: **Distribution of the duration of incomplete unemployment spells by main reasons for leaving (or having lost) employment, average in period 2006–08 for the EU**



	0–2 months	3–5 months	6–11 months	12–17 months	18–23 months	24–47 months	4 years and longer
Total	0.31	0.17	0.17	0.11	0.06	0.12	0.07
A job of limited duration has ended	0.38	0.19	0.17	0.09	0.05	0.08	0.04
Dismissed or made redundant	0.23	0.14	0.17	0.12	0.07	0.17	0.1
Own illness or disability	0.24	0.15	0.17	0.13	0.06	0.16	0.09

Source: EU LFS, DG EMPL calculations. Variable used: DURUNE.

Chart 50: **Distribution of the duration of incomplete unemployment spells initiated either at the end of a temporary contract or after dismissal/redundancy, average in period 2006–08 for the EU**



	0–2 months	3–5 months	6–11 months	12–17 months	18–23 months	24–47 months	4 years and longer
A job of limited duration has ended	0.38	0.19	0.17	0.09	0.05	0.08	0.04
Dismissed or made redundant	0.23	0.14	0.17	0.12	0.07	0.17	0.1

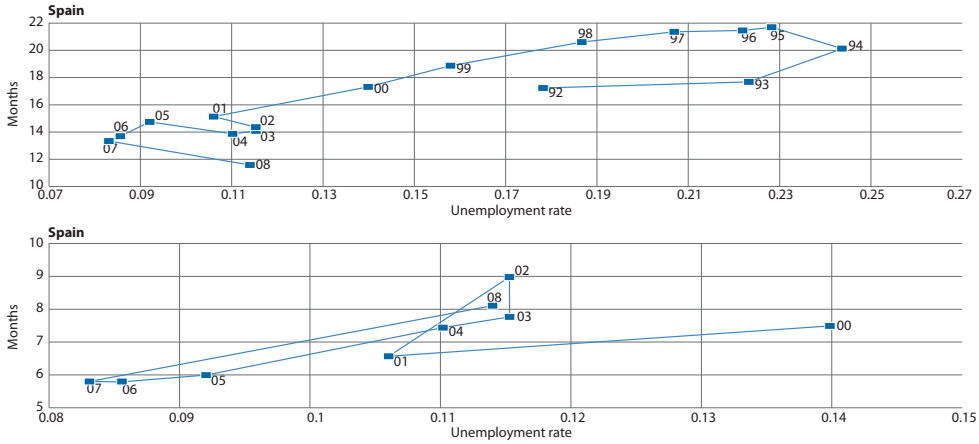
4.5. Differences between the average duration of CDU and IDU spells over the economic cycle

Given the importance of monitoring cyclical developments for policy purposes, this section follows Corak and Heisz (1995) in characterising the cyclical variation of the statistics used to measure CDU and IDU.[56] As an example, time-series are plotted only for a few selected countries (Spain, the Netherlands and the UK). As already mentioned in section 4.2, the average IDU shows that changes in the composition of unemployment by duration over the economic cycle follow a marked counter-clockwise loop (Charts 51–53). This implies that besides being a biased indicator of completed spells, the IDU statistic is also a lagging cyclical indicator.

With respect to monitoring cyclical developments, Corak and Heisz (1995) suggest that turning points in the CDU statistic closely follow the evolution of cyclical conditions in the labour market, although there is a loop in the data, but this time clockwise.

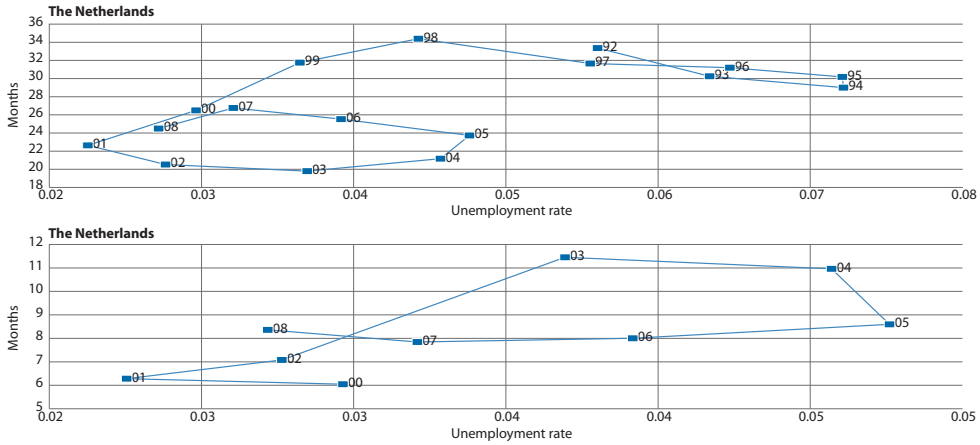
(56) Although using significantly shorter time series.

Chart 51: **Average IDU (top) and CDU (bottom) incomplete/completed duration of unemployment (in months) in Spain against the unemployment rate, period 1992 Q1 to 2008 Q3**



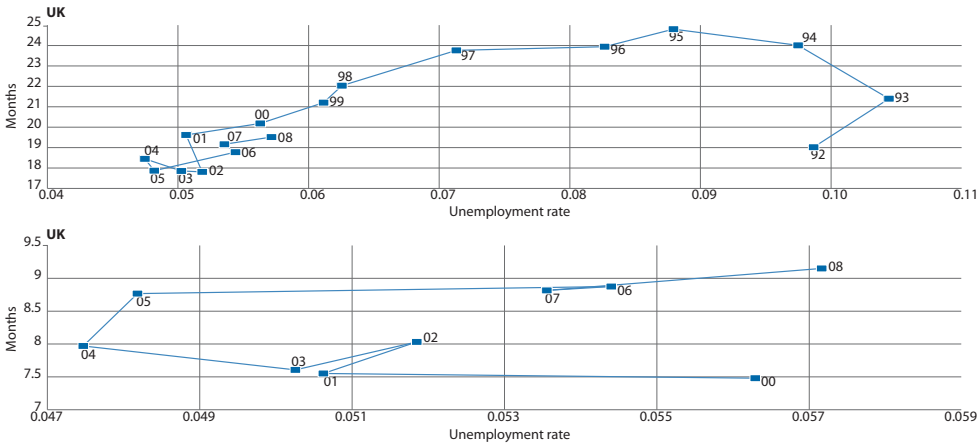
Source: DG EMPL calculations based on EU LFS data.

Chart 52: **Average IDU (top) and CDU (bottom) incomplete/completed duration of unemployment (in months) in the Netherlands against the unemployment rate, period 1992 Q1 to 2008 Q3**



Source: DG EMPL calculations based on EU LFS data.

Chart 53: **Average IDU (top) and CDU (bottom) incomplete/completed duration of unemployment (in months) in the UK against the unemployment rate, period 1992 Q1 to 2008 Q3**



Source: DG EMPL calculations based on EU LFS data.

4.6. Survival rates in unemployment

The calculation of statistics for the average CDU spells involves the calculation of hazard and survival functions (see Equation 2 in Box 5). The survival function shows, in effect, what proportion of a cohort of people who become unemployed remains unemployed as time passes. This section presents a few survival functions for various breakdowns – countries, gender, etc.

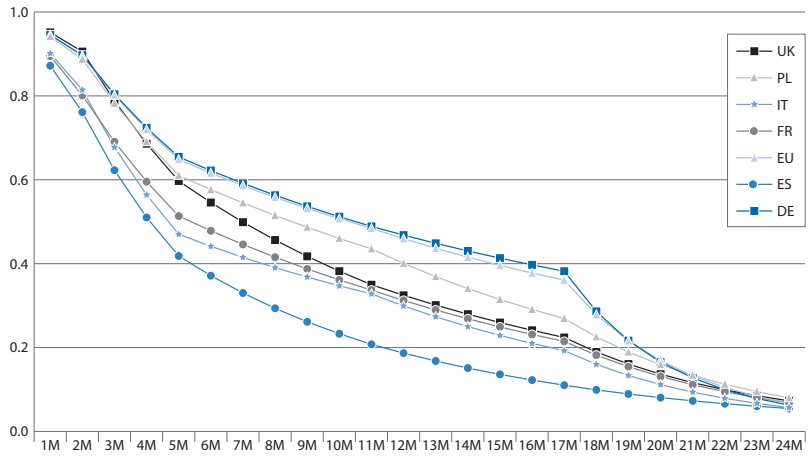
The country ranking resulting from the survival function in unemployment (Chart 54) is identical to that obtained using the CDU statistic (Chart 45). The survival curve of a country with a higher (lower) value for CDU lies above (below) that of a country with lower (higher) CDU. Amongst the largest EU Member States, Spain and Italy have the lowest values for CDU as their survival rates draw nearer to the x-axis. The situation in Spain and Italy is thought to partly reflect the high incidence of atypical labour contracts, resulting from the easing of employment protection legislation for temporary contracts in recent years.

For illustrative purposes, Chart 55 presents survival curves for a few selected Member States. The relatively high transition rates from unemployment and inactivity into employment observed in Denmark (see section 3) go together with low survival rates in unemployment – i.e. low CDU. Conversely Hungary and Slovakia show above EU average survival rates/CDU.

Chart 56 confirms the results shown in Chart 46, namely that gender differences in CDU/survival rates are relatively minor.[57]

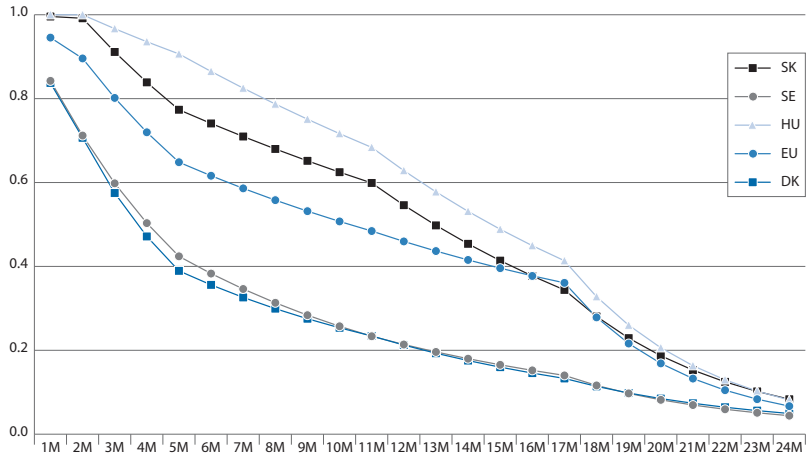
(57) In the same period (2005 Q1 to 2008 Q3), the long-term unemployment rate (incomplete duration of at least 12 months) in the EU was 3.7% and 3.1% for women and men, respectively.

Chart 54: **Survival function in unemployment in the largest EU Member States, average in period 2005 Q1 to 2008 Q3**



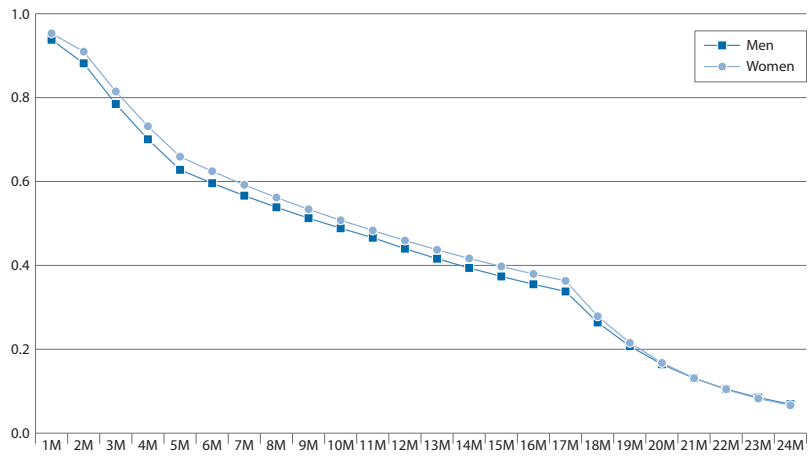
Source: DG EMPL calculations based on LFS data.

Chart 55: **Survival function in unemployment in a selected number of EU Member States, average in period 2005 Q1 to 2008 Q3**



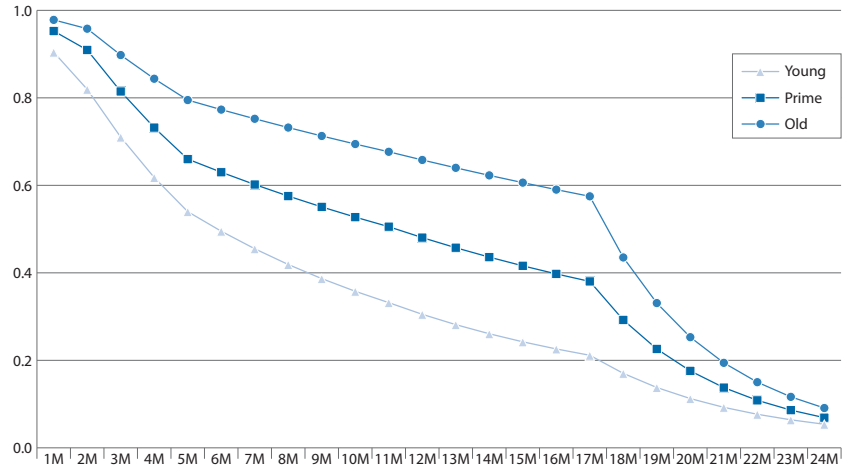
Source: DG EMPL calculations based on LFS data.

Chart 56: **Survival function in unemployment in the EU by gender, average in period 2005 Q1 to 2008 Q3**



Source: DG EMPL calculations based on LFS data.

Chart 57: **Survival function in unemployment in the EU by age, average in period 2005 Q1 to 2008 Q3**

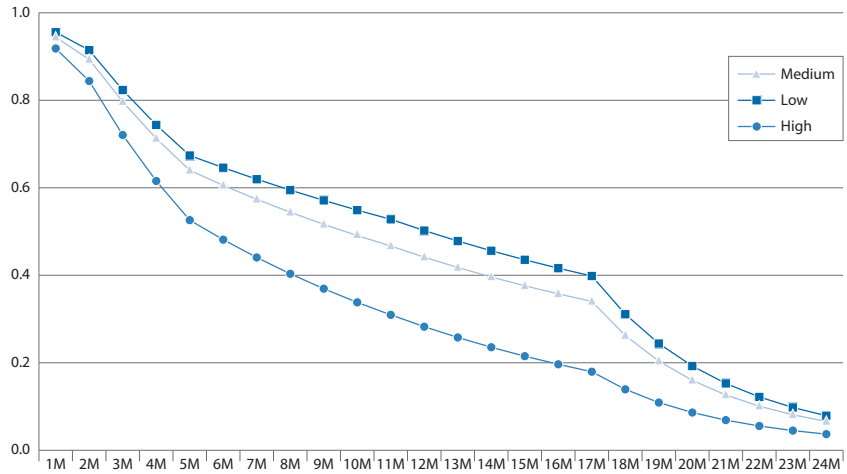


Source: DG EMPL calculations based on LFS data.

Table 12: **CDU, unemployment and LTU rates, EU average in the period 2005 Q1 to 2008 Q3**

Age	CDU	UR	UR12M
15–24	10.3	16.7	4.6
25–54	12.2	6.9	3.2
55–64	14.7	5.8	3.6

Chart 58: **Survival function in unemployment in the EU by education, average in period 2005 Q1 to 2008 Q3**



Source: DG EMPL calculations based on LFS data.

The CDU of young workers (15–24) is the lowest of the three age groups (Chart 57), although young people have both the highest unemployment and LTU rates (Table 12). Given the short duration of youth unemployment, it is particularly important to ensure that it is 'accurately' measured, recognising that unemployment rate indicators may overstate the relative welfare impact of youth unemployment.(58)

The apparent contradiction between, on the one hand, the high youth unemployment rate, and on the other, the relative low value for the average duration of completed spells can be explained as follows. The high unemployment rate reflects the high inflow rate into unemployment, which is not reflected in the CDU statistic because of the low average duration of unemployment.(59)

Chart 58 suggests that education is a major factor affecting the duration of unemployment.

(58) The coefficients of correlation (Pearson's and Spearman's rank) for country differences between youth and the working age population (15–64) of CDU and LTU were not found to be significantly different from zero.

(59) In the steady state, the following identity is satisfied: $u = \frac{\mu * i}{1 + \mu * i}$. Where μ is the average duration of unemployment and i the inflow rate into unemployment. A high inflow rate into unemployment does not necessarily imply a high unemployment rate, because it can be offset by a lower average duration of unemployment (i.e. a high outflow rate).

4.7. Do CDU statistics and LTU rates convey the same type of information?

The correlation between the *completed* duration of unemployment (CDU) and the unemployment rate is significantly different from zero. The correlation between CDU and various LTU rates is both significantly different from zero and high (Table 13).

The scatter plot shown in Chart 59 also suggests that the LTU rate and the CDU essentially convey the same information, although there are a few exceptions or country outliers.(60)

4.8. Methods used during the previous four weeks to find work

To be recorded as unemployed according to the ILO definition used in the EU LFS, an individual must have searched actively for a job during the last four weeks. The EU LFS also collects information on the methods used to find work, and some national statistic institutes additionally ask workers to identify the job-finding method that produced results.

The EU LFS lists a total of 13 methods, with the unemployed typically using more than one method. Charts 60–64 present information on the proportion of unemployed persons using a few selected methods – namely 'Contacted public employment office to find work', 'Contacted private employment agency to find work', 'Applied to employers directly', 'Asked friends, relatives, trade unions, etc.', and 'Inserted, answered or studied advertisements in newspapers'.(61)

(60) Note that measures of unemployment duration or LTU rates are essentially measures of 'dispersion' of unemployment, versus the unemployment rate which can be seen as a measure of 'localisation' or of the average incidence of unemployment.

(61) The latter combines EU LFS's search methods E and F, respectively, 'Inserted or answered advertisements in newspapers or journals' and 'Studied advertisements in newspapers and journals'.

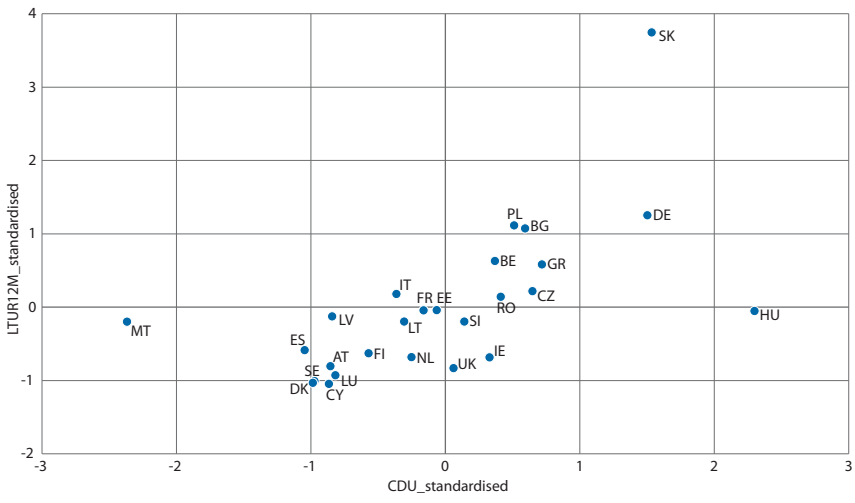
Table 13: **Average completed duration of unemployment, unemployment rate and three LTU rates (more than 6, 12 and 24 months of incomplete duration), country averages in the period 2005 Q1 to 2008 Q3**

	CDU	UR	UR6M	UR12M	UR24M
AT	6.8	4.6	2.0	1.2	0.6
BE	9.6	7.8	5.1	3.9	2.6
BG	10.1	7.9	5.6	4.5	3.2
CY	6.8	4.5	1.7	0.9	0.3
CZ	10.2	6.2	4.5	3.3	2.0
DE	12.1	9.5	6.5	5.1	3.5
DK	6.6	4.0	1.3	0.8	0.3
EE	8.6	6.1	3.6	2.8	1.7
ES	6.4	9.4	3.4	2.0	0.9
FI	7.5	7.4	2.8	1.7	0.9
FR	8.4	8.3	4.8	3.3	1.7
GR	10.4	8.8	6.0	4.5	2.6
HU	13.9	7.5	5.1	3.4	1.7
IE	9.5	4.9	2.3	1.5	0.8
IT	7.9	6.9	4.2	3.3	2.0
LT	8.1	6.1	3.4	2.4	1.5
LU	6.9	4.6	2.3	1.3	0.4
LV	6.9	7.5	3.8	2.6	1.6
MT	3.5	6.7	4.0	2.9	1.5
NL	8.2	3.7	2.0	1.4	0.8
PL	9.9	12.2	8.7	6.4	3.3
PT	na	8.2	5.4	3.9	2.2
RO	9.7	7.0	4.6	3.6	1.9
SE	6.6	6.8	1.9	0.9	0.3
SI	9.1	5.5	3.5	2.6	1.5
SK	12.2	12.6	10.7	9.2	7.0
UK	8.9	5.3	2.1	1.2	0.6
EU	11.9	7.9	4.6	3.4	2.0
Correlation coefficient					
CDU	Pearson a)	**0.45**	**0.62**	**0.62**	**0.61**
CDU	Spearman a)	**0.48**	**0.76**	**0.76**	**0.75**

Source: DG EMPL calculations based on EU LFS data.

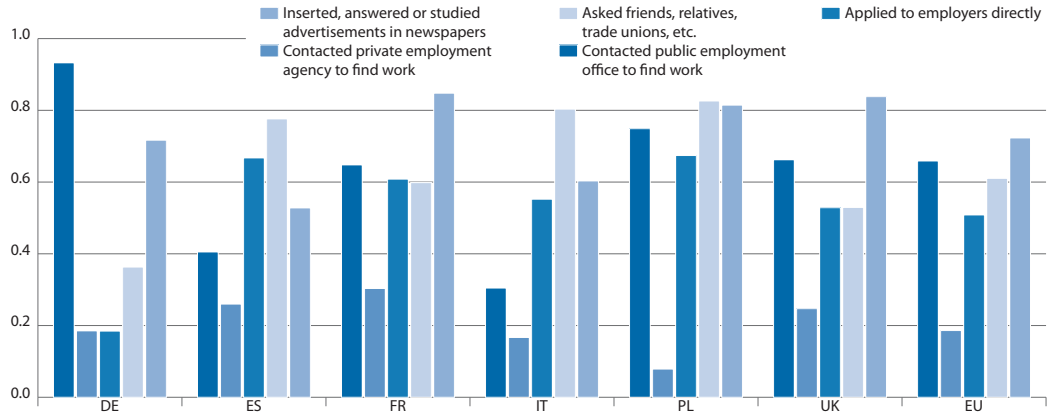
Notes: (a) Values in bold are significantly different from 0 with a significance level alpha=0.05. EU-27, excluding Portugal.

Chart 59: **Standardised values of LTU rate and CDU, country averages in period 2005 Q1 to 2008 Q3**



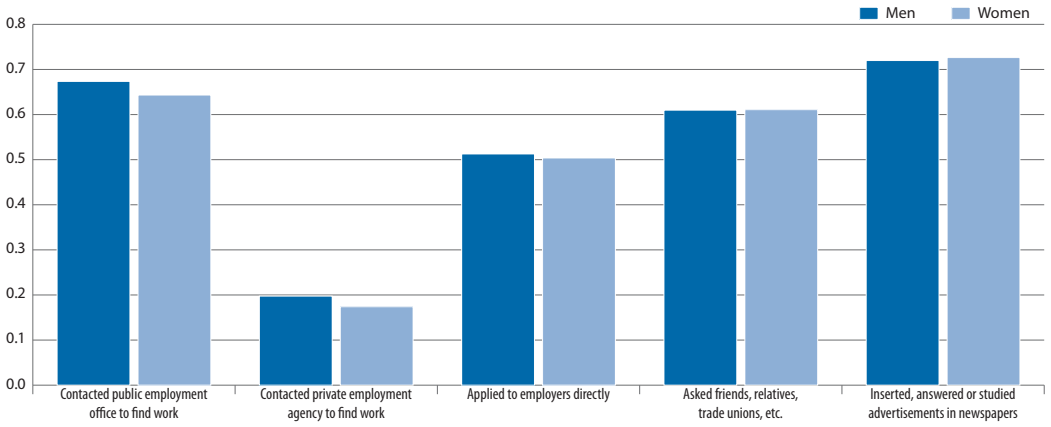
Source: DG EMPL calculations based on EU LFS data.

Chart 60: **Country breakdown of the proportion of unemployed persons using different job search methods, average in period 2004–07**



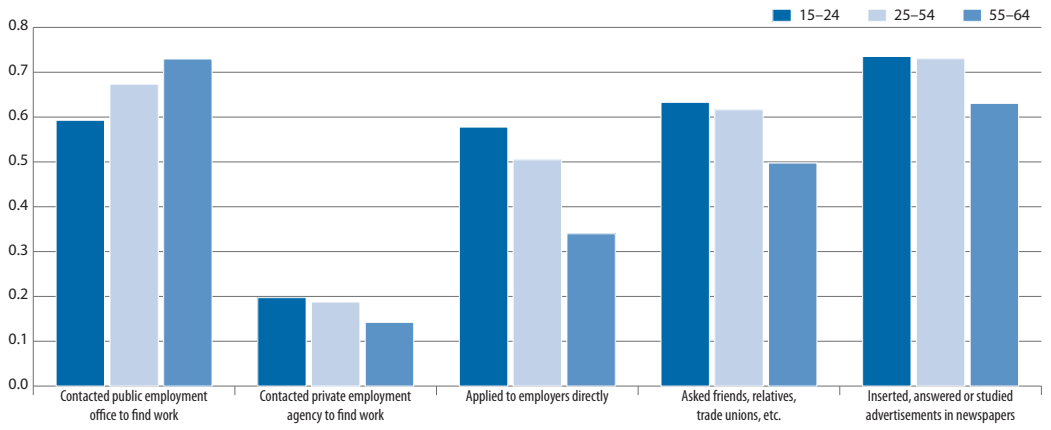
Source: EU LFS, DG EMPL calculations.

Chart 61: **Gender breakdown of the proportion of unemployed persons using different job search methods, average in period 2004–07**



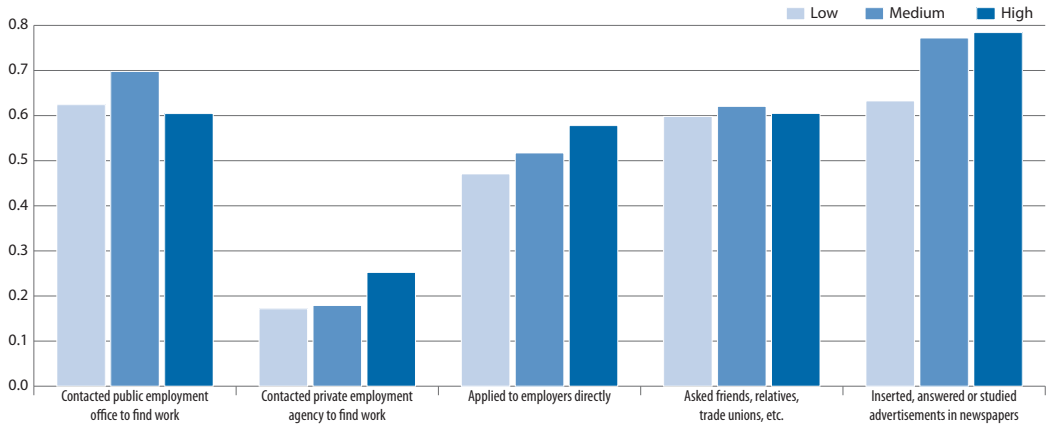
Source: EU LFS, DG EMPL calculations.

Chart 62: **Age breakdown of the proportion of unemployed persons using different job search methods, average in period 2004–07**



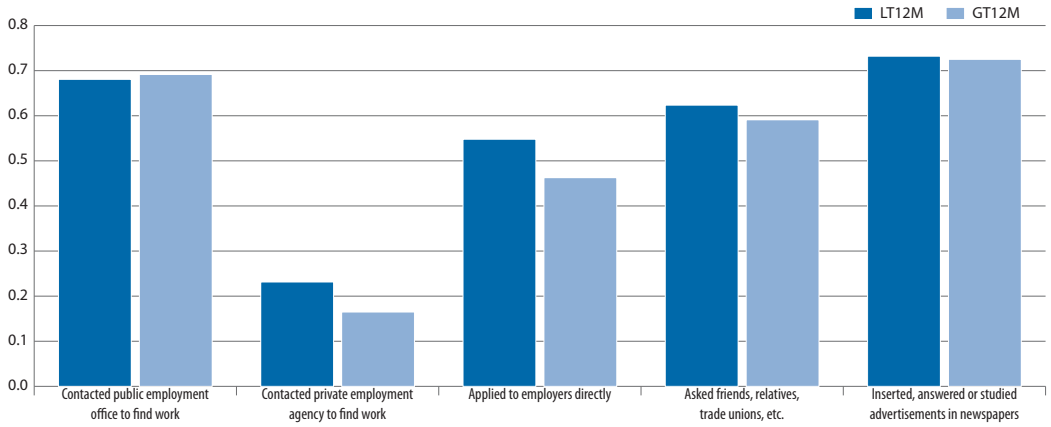
Source: EU LFS, DG EMPL calculations.

Chart 63: **Breakdown by level of education of the proportion of unemployed persons using different job search methods, average in period 2004–07**



Source: EU LFS, DG EMPL calculations.

Chart 64: **Breakdown by unemployment duration of the proportion of unemployed persons using different job search methods, average in period 2004–07**



Source: EU LFS, DG EMPL calculations.

On average in the EU, the two most frequently used methods of job search are 'Contacted public employment office to find work' and 'Inserted, answered or studied advertisements in newspapers'. Nonetheless, considerable variation remains across countries, with Italy and Spain relying more on direct contacts with employers and personal networks.

The breakdowns provided in Charts 61–64 suggest the following about 'preferences' for search methods:

- Men and women use various methods in much the same proportions (Chart 61)
- Older workers tend to use public employment services more and other methods less than other age groups (Chart 62)
- Unemployed persons with high levels of education tend to make more use of private employment agencies, apply directly to employers, and insert advertisements/study the press (Chart 63).
- Overall, some degree of 'duration dependence' seems to exist in the choice of search method with those in LTU using some methods less frequently, especially 'applied to employers directly' and 'asked friends, relatives, trade unions, etc.' (Chart 64), suggesting some discouragement.

4.9. Use of longitudinal data to evaluate the incidence of LTU and the recurrence of unemployment spells

This section reports evidence on the incidence of LTU and the recurrence (or multiplicity) of unemployment spells. Results suggest that cross-sectional data (i.e. EU LFS) is not able to monitor important aspects of unemployment experiences, such as the multiplicity of unemployment spells. In addition, they lack the detailed information needed to evaluate the impact on the measurement of unemployment (and of its duration) of choosing between alternative reference periods. Measures of unemployment based on longitudinal/calendar data, because they take into consideration the complete experience of individuals, are more resilient to short term interruptions in unemployment spells. However, one should acknowledge that the relative small sample size of EU SILC raises issues regarding the accuracy/representativeness of its results.

To calculate measures of incidence and duration of LTU, this section uses detailed calendar information on the labour market status for 14 European countries using micro-data from the users' EU SILC database.[62] Longitudinal data is also utilised to calculate the distribution of the duration of total unemployment by the number of spells in unemployment.

Following the OECD (2002), Table 14 shows the proportion of all individuals unemployed at a given point in time – July[63] 2005 – who experienced 12 months or more of unemployment, measured using alternative reference periods.

As noted earlier, the use of calendar/monthly data from EU SILC is likely to be associated with a relatively small *sampling* bias compared with the *length* bias (see Box 5). Therefore, in this case, statistics of completed unemployment duration are likely to exceed those based on incomplete spells, contrary to calculations using quarterly EU LFS data.[64]

Table 14: **Percentage of all persons unemployed in July 2005 who experienced at least 12 months of unemployment as measured by:**

	Incomplete duration of the current spell	Completed duration of the current spell	Total unemployment in a period of 36 months b)
AT	35.1	70.6	81.6
BE	69.3	90.4	94.5
DK	20.1	60.3	86.3
EE	59.5	81.0	85.8
ES	27.0	73.3	86.3
FI	39.1	61.2	73.6
FR	54.9	84.9	90.5
GR	44.8	78.0	89.1
IE	52.2	75.8	79.4
IT	45.5	84.3	91.5
LU	29.0	100.0	100.0
NO	7.4	54.7	57.3
PT	50.6	85.7	91.5
SE	22.4	37.0	55.3
Average a)	39.8	74.1	83.1

Source: UDB EU SILC. DG EMPL calculations.

Notes: a) Non-weighted average. b) Except Denmark, Greece, Luxembourg and Norway for which data covers 48 months.

Table 15: **Average months of unemployment experienced by persons unemployed in July 2005 as measured by:**

	Incomplete duration of the current spell	Completed duration of the current spell
AT	10.0	19.0
BE	14.8	27.3
DK	7.7	16.2
EE	13.2	23.2
ES	9.1	16.7
FI	10.0	17.9
FR	12.3	23.7
GR	12.6	22.1
IE	12.0	21.8
IT	11.8	22.5
LU	11.7	21.8
NO	6.2	11.4
PT	11.8	22.2
SE	7.3	11.3
Average a)	10.7	19.8

Source: UDB EU SILC. DG EMPL calculations.

Note: a) Non-weighted average.

(62) Data used cover the period 2004–06 for the countries: Austria, Belgium, Estonia, Spain, Finland, France, Ireland, Italy, Portugal and Sweden; and the period 2003–06 for the countries: Denmark, Greece, Luxembourg and Norway.

(63) July 2005 was chosen as reference point because it is the middle of the period covered for a majority of countries from January 2004 to December 2006.

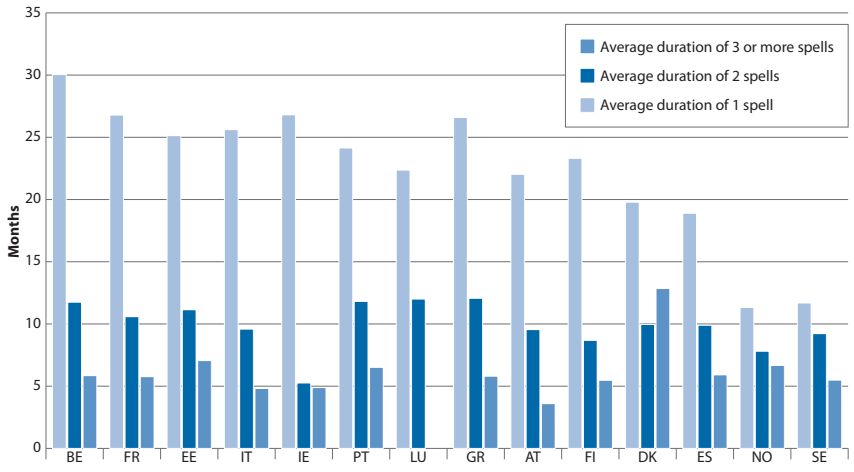
(64) In principle, the higher the frequency of observations the lower the sampling bias in the measurement of unemployment duration – i.e. the tendency for unemployment of shorter/longer duration to be under/over-represented in the sample. Although depending on the exact details of the data collection methodology used (or sampling design), moving from quarterly (EU LFS) to monthly/calendar data (EU SILC) is likely to significantly reduce the sampling bias involved in calculating unemployment duration.

Table 16: **Average duration of total unemployment by number of spells (in months), period January 2003/04 to December 2006**

	Average duration of 1 spell	Number of cases	Average duration of 2 spells	Number of cases	Average duration of 3 or more spells	Number of cases	Total Average duration	Number of cases
AT	22.0	56	9.5	18	3.6	6	18.0	80
BE	30.0	159	11.7	27	5.8	10	26.4	196
DK	19.8	47	10.0	12	12.8	2	16.3	61
EE	25.1	284	11.1	56	7.1	13	22.3	353
ES	18.9	543	9.9	124	5.9	107	15.6	774
FI	23.3	122	8.7	69	5.5	36	16.3	227
FR	26.8	492	10.6	103	5.8	50	22.6	645
GR	26.6	163	12.1	47	5.8	32	21.0	242
IE	26.8	59	5.3	9	4.9	7	21.4	75
IT	25.6	772	9.6	185	4.8	74	21.5	1031
LU	22.4	139	12.0	15			21.2	154
NO	11.3	43	7.8	9	6.7	1	10.7	53
PT	24.1	180	11.8	36	6.5	10	21.4	226
SE	11.7	57	9.2	33	5.5	28	9.6	118
Average/Sum a)	22.5	3116	9.9	743	6.2	376	18.9	4235

Source: UDB EU SILC. DG EMPL calculations.
Note: a) Non-weighted average.

Chart 65: **Average duration of total unemployment by number of spells in unemployment (months)**



Source: UBD EU SILC. DG EMPL calculations.
Notes: Countries ranked in descending order of totals (not shown).

Using the conventional measure of LTU, on average some 40% of unemployed persons had already been unemployed for 12 months and more. However, about 35% of those without a job for less than 12 months (in July 2005) ended up experiencing a completed spell of unemployment lasting 12 months and more. On this basis, nearly 75% were long-term unemployed. Counting the total unemployment that occurred in the period from January 2003/04 to December 2006[65], more than four out of each five persons in unemployment (in July 2005) went on to spend 12 or more months in unemployment over a 3–4-year period.

It should be noted that the CDU statistic calculated using longitudinal data (Table 15) is considerable higher than the one based on cross-sectional data (Chart 45). Use of calendar/monthly data potentially reduces the sampling bias (Box 5), although EU SILC data is released only once a year and involves smaller samples than EU LFS data, which is available quarterly.

The monthly calendar of labour market status in EU SILC enables the average (completed) unemployment duration to be calculated by number of spells in unemployment (Table 16 and Chart 65).[66]

Multiple spells in unemployment are a relatively common experience. In the sample used, about one quarter of all unemployed persons experienced more than one spell of unemployment. In addition, the distribution of average duration of total unemployment by spell is strongly skewed; therefore, statistics based on the average duration misrepresent the situation of all groups. This suggests that the calculation of unemployment duration statistics (based on the calendar variables of longitudinal data) be used to complement the information on unemployment duration calculated using LFS cross-sectional data.

(65) From January 2003 to December 2006 for the countries: Denmark, Greece, Luxembourg and Norway.

(66) Note that this point calculates the average duration of total unemployment, not the average duration of LTU.

4.10. Brief description of methods to estimate unemployment duration

The average duration of unemployment is a key element in the evaluation of the labour market experience of the unemployed and of the welfare implications of those experiences. There are essentially three methods to estimate the average duration of completed unemployment spells: non-parametric, semi-parametric and parametric.

Non-parametric methods have already been extensively used in this chapter. A well-known problem with them, however, is that they frequently introduce an undesirable level of 'noise' in the empirical estimates of hazard/survival functions. Sider (1985) states that the estimation of average completed unemployment spells from raw data on incomplete unemployment spells is particularly hazardous given the multiple problems and irregularities in the data.[67] While acknowledging the possible need to use smoothing techniques, Baker and Trivedi (1985) in a comparative study favour the use of non-parametric over parametric methods, because of their simplicity and the fact that there is no need to make assumptions on the statistical distribution of duration models.

Semi-parametric methods establish a compromise between a strictly non-parametric approach and a parametric one. Unemployment durations are grouped together into a relatively small number of time intervals. A specific (piecewise constant) hazard function is estimated for each interval.

Regression analyses using duration models try to explain the duration of a given state (e.g. the duration of an unemployment spell). This is normally applied to the estimation of hazard functions – i.e. the conditional probability of exiting a particular state. Current practice consists of postulating an a priori form for the hazard function, depending on a limited set of parameters; hence this strand of analysis is called the parametric approach. The hazard function is generally estimated as a function of the duration of unemployment and a set of explanatory variables that have an impact on both labour market policies (e.g. unemployment benefit system) and the characteristics of individuals (e.g. gender, education, family status, age). The Weibull distribution is the simplest functional form in which it is possible to distinguish average duration from duration dependence, although the latter is taken into account in a monotonic fashion.[68]

The notion of duration dependence is central. It measures how the probability of leaving unemployment (the hazard rate) varies in line with the time already spent in unemployment. If the hazard rate increases (decreases) with the amount of time already spent unemployed, there is positive (negative) duration dependence.

Parametric/regression methods have the potential advantage to identify major polices and risk factors associated with unemployment duration. This is particularly relevant in assessing the impact of unemployment benefit systems on both average duration and duration dependence, and in identifying the groups that are most vulnerable to long unemployment spells, and which may require targeted policies and/or profiling (Box 6).

However, implementation of regression methods is associated with considerable technical difficulties. A major problem is that unobserved differences between individuals in the data set (i.e. differences that are not easily documented like age, gender, education level) can cause a

Box 6: Brief reference to profiling techniques

Profiling mainly uses econometric techniques (sometimes in combination with the judgement of case handlers) to identify those most at-risk of becoming long-term unemployed from among the newly unemployed. Profiling is more common in Anglo-Saxon countries.[1] Those profiled are referred to various active labour market policies, such as counselling and job-search assistance, where a counsellor then assists the jobseeker in tailoring re-employment services to their specific needs.

The aim of profiling is to facilitate the allocation (or the rationing) of scarce staff and financial resources (e.g. the use of limited public employment services and training slots) to those most in need and might be justified even if many non-referred workers end up in LTU as well.[2] According to the OECD (1999):

evidence suggests that *operational profiling systems are subject to a varying degree of inaccuracy and misprediction. However, possible deadweight losses arising from early interventions in favour of wrongly profiled at-risk workers must be weighted against the costs of delaying assistance until jobseekers are actually 'scarred' by the experience of LTU*, risking losing human capital and employability.

(1) OECD (1998) reviewed experiences with different profiling approaches in Australia, Canada, the UK and the USA. It should be noted that there are strong differences of view about the relevance and reliability of formal profiling methods, and how central a role profiling can play in making active labour market programmes more effective.

(2) If jobseekers at risk of LTU are correctly identified and offered appropriate active labour market policies, resources will ultimately be freed up to help those in LTU, assuming that doing the latter is more expensive than the former.

(67) *The full schedule of in-progress spells is dominated by a pattern of spikes that reflect response bias among individuals in the sample. Local modes occur corresponding roughly to monthly, quarterly, half-year, and yearly points in the schedule. This pattern must be accounted for and smoothed…*

(68) The Weibull function assumes that the hazard rate out of unemployment h(t) is governed by: $h(t) = \mu \alpha t^{(\alpha-1)}$. There are two parameters μ and α. μ determines the average duration of unemployment spells. If $\alpha=1$, there is no duration dependence and the hazard rate is equal to μ at all durations. If $\alpha>1$ ($\alpha<1$) there is positive (negative) duration dependence (Cahuc and Zylberberg, 2004).

Box 7: Some elements on job search theory

Job search theory predicts that, under certain conditions, both higher levels and longer periods of unemployment benefits lower the hazard rate of leaving unemployment, and therefore result in higher average unemployment duration (Bover and al., 2002).

In its simplest formulation of job search theory(1), an unemployed worker accepts all job offers above the reservation wage ξ, which is the lowest wage at which a worker will accept a job offer. The reservation wage solves the equation:

$$\xi = b + \frac{\lambda(c)}{p}\int_{\xi}^{t}(w-\xi)^{*}dF(w) \quad \text{with} \quad \frac{d\lambda(c)}{dc} > 0 \qquad \text{(Equation 1)}$$

where b is the value of the unemployment benefit net of the costs of looking for a job, p is the discount rate, F(w) is the distribution of available wages, λ the arrival rate of job offers, and c the intensity of job search.

Equation 1 can be interpreted as follows. The reservation wage just covers unemployment benefits (net of search costs) plus the expected gain from waiting for a better offer. The optimal strategy of an unemployed person is to accept (reject) any job offer above (below) the reservation wage ξ.

The hazard rate - h(t) – can be written as:

$$h(t) = \lambda(t, c(t))^{*}\left[1 - F(\xi(t), t)\right] \qquad \text{(Equation 2a)}$$

While the average duration of unemployment - μ(t) – is given by:

$$\mu(t) = \frac{1}{\lambda(t, c(t))^{*}\left[1 - F(\xi(t), t)\right]} \qquad \text{(Equation 2b)}$$

An increase in the unemployment benefit raises the reservation wage (and/or reduces the intensity of the job search). This translates into a reduction in the probability of a job offer being accepted, $1 - F(\xi)$, leading to a fall in the hazard rate and therefore to an increase in unemployment duration.

Equations 2a and 2b can be used to identify the following possible sources of duration dependence (Machin and Manning, 1999): i) job offer rate; ii) search intensity; iii) wage offer distribution; and iv) reservation wage.

An important caveat is that the disincentive effects described above regarding the rise in benefits concern only those unemployed persons who are entitled to unemployment benefits. For unemployed persons not entitled to benefits, their increase might raise hazard rates as employment becomes more valuable on account of enhanced future rights to unemployment benefits.

(1) Portugal (2008). For the classical framework of job search theory, see Mortensen (1977).

systematic bias in estimation, favouring findings of negative duration dependence – i.e. that exit rates out of unemployment fall with duration. In fact, such unobserved heterogeneity always leads to negative duration dependence. The reason for this bias stems from the fact that, as time passes, the pool of the unemployed is progressively made up of the less employable individuals.(69)

The methods employed to disentangle 'true' duration dependence from unobserved heterogeneity, thereby correcting for the estimation bias induced by the latter, are not entirely convincing in terms of their underlying economic-theoretical rationale being largely determined by mathematical/computational convenience (Machin and Manning, 1999).

4.11. Elasticities of unemployment duration to benefits and duration dependence of hazard rates

Most available empirical studies find positive (but modest) elasticities of the average duration of unemployment to the level of unemployment benefits, in line with theoretical predictions (Devine and Keifer, 1991). Conversely, empirical results show that the duration of unemployment is more sensitive to the extension of the entitlement period to benefits, than it is to an increase in the level of benefits (Katz and Meyer, 1988), and that unemployment hazard rates tend to rise in the period immediately preceding the expiry of benefit entitlement (Meyer, 1990; Dormont et al., 2001) (see Box 7 for a synthetic presentation of search theory).

In a survey on unemployment duration studies for the Portuguese economy, Portugal (2008) lists a number of personal characteristics of the unemployed which are statistically significant in predicting hazard rates/unemployment duration. For example, older workers have lower (higher) hazard rates (unemployment duration) and hazard rates are higher(70) for those who are married, educated, and have work experience.

A number of empirical studies find that hazard rates decrease with the duration of unemployment(71), but the scale of this decline is limited, especially after controlling for individual heterogeneity. 'True' negative duration dependence has important policy implications, suggesting that the employability of jobless persons deteriorates with the duration of unemployment itself – i.e. after controlling for both policies and observable personal characteristics.

(69) Individuals with (unobserved) characteristics that hinder their exit from unemployment.

(70) Unemployment duration is lower.

(71) i.e. there is negative duration dependence.

Table 17: **Average duration of unemployment and duration dependence**

	Average duration of unemployment (in months)		Duration dependence (α)	
	1960s-1970s	1980s-1990s	1960s-1970s	1980s-1990s
Belgium	6.2 (0.07)	15.1 (0.06)	0.39 (0.002)	0.58 (0.002)
France	3.6 (0.01)	12.7 (0.01)	0.54 (0.001)	0.93 (0.001)
Germany	4.2 (0.01)	5.3 (0.01)	0.86 (0.001)	0.58 (0.001)
Netherlands	2.4 (0.01)	13.7 (0.04)	0.68 (0.002)	0.66 (0.002)
Spain	2.3 (0.37)	17.7 (0.17)	0.58 (0.06)	0.91 (0.01)
United Kingdom	0.8 (0.14)	6.5 (0.36)	0.35 (0.02)	0.57 (0.02)
Australia	1.2 (0.22)	6.5 (0.56)	0.72 (0.10)	0.79 (0.10)
United States	1.1 (0.04)	1.2 (0.03)	0.61 (0.01)	0.52 (0.01)

Standard errors are in parenthesis.

Source: Machin and Manning (1999, table 4).

In these circumstances, transitory economic shocks that increase unemployment can lead to a more permanent deterioration in the functioning of the labour market as the reduction in hazard rates, and the consequence rise in the average duration of unemployment, become entrenched. Adequate policy responses may involve, inter alia, better targeting of active labour market policy (ALMP) spending, possibly making use of profiling techniques, in an effort to maximise the efficiency of spending.

Using data spanning four decades (1960s to 1990s), Machin and Manning (1999) estimate Weibull duration models for a group of OECD countries (Table 17). Although average duration of unemployment and the incidence of LTU increased from the 1960s–70s to 1980s–90s, this outcome did not result from any marked change in duration dependence which remained negative in all the countries considered.[72] The authors argue that the rise in average unemployment duration reflects a downward shift in hazard rates at all durations, without changing the slope of the curve.

Machin and Manning's (1999) estimates do not control for country-specific policies and the heterogeneity of individuals. Hence the results are likely to be biased towards finding negative duration dependence. However, a number of papers suggest that negative duration dependence persists even after controlling for the intrinsic characteristics of workers (van den Berg and van Ours; 1994, 1996).

4.12. Labour market institutions and unemployment duration

In an often cited paper, Blanchard and Portugal (2001) compare Portuguese and US labour markets, highlighting major differences. Using microdata, the authors find significantly lower labour flows and higher unemployment duration in Portugal compared to the USA, which the authors attribute to stricter EPL in the former. The statistical evidence also suggests that there is a higher incidence of LTU in Portugal, and that unemployment duration tends to be higher in countries with strict EPL (see Box 8).

The impact of EPL on labour market outcomes has been the subject of considerable research (OECD, 2006). It is a particularly complex issue, partly because EPL interacts with other labour market policies, such as wage bargaining and unemployment benefits. According to flexicurity principles, the design of an unemployment benefit system has to be considered alongside other labour market institutional arrangements (e.g. EPL and ALMPs) as well as the taxation system. Full treatment of these issues is outside the scope of this chapter.

In a nutshell, theoretical arguments suggest that high EPL is likely to depress labour demand because firing costs increase total production costs, reducing wages that firms can offer. EPL tends also to boost workers' wage demands because high EPL, particularly when combined with a generous unemployment benefit system, boosts their bargaining power. Therefore, high EPL on the one hand tends to shift downwards labour demand, while on the other it tends to move upwards labour supply, overall resulting in higher equilibrium unemployment and unemployment duration.

However, empirical results suggest that strict EPL does not have significant effects on overall labour market variables, although it is seen to deteriorate labour market prospects of particularly vulnerable groups, such as young and older workers.

As regards the impact of wage-bargaining structures on unemployment, Calmfors and Driffill (1988) argue that there is a non-linear relationship between the degree of centralisation/coordination of collective wage bargaining in an economy and the level of unemployment[73], roughly postulating an 'inverted U' relationship: with low and high levels of centralisation/coordination in wage bargaining being preferable

(72) Note that $\alpha<1$ means negative duration dependence. However, negative duration dependence seems to have declined, especially in France and Spain.

(73) The rationale for this is related to Olson's idea (1982) – namely that organised interests can be most harmful when they do not internalise a significant proportion of the costs they impose on society, but become less harmful as their interests become encompassing enough to internalise the costs they impose on society.

to an intermediate one. Market pressure tends to discipline outcomes when wages are negotiated at firm level, being compatible with favourable overall unemployment developments. Unions that take into consideration the wider effects of their actions when bargaining at national level also secure favourable overall unemployment outcomes. However, unions are not seen to internalise significant amounts of the costs that their decisions impose on society when wages are negotiated at sectoral level, resulting in unfavourable overall unemployment outcomes.

The aims of unemployment benefit systems are basically to protect workers against cyclical fluctuations in employment, and thereby smooth consumption patterns. They also subsidise job search, giving sufficient time for an unemployed person to search for and accept an adequate job offer.[74] Using a general equilibrium model, Acemoglu and Shimer (1999) show that economies with moderate unemployment benefits can have higher output and welfare than those with lower levels of unemployment insurance, because unemployment insurance encourages workers to look for more productive, albeit more vulnerable jobs. Although too generous unemployment benefit systems can increase unemployment and lengthen its duration, moderate unemployment benefits can raise the quality of job matches and labour productivity, outweighing the effects of the rise in unemployment and its duration on output and welfare.

However, a tax-benefit system can turn out to be unnecessarily inefficient, resulting in lower transitions into employment, higher unemployment duration and overall lack of incentives for vocational training (OECD, 2006, chapter 3).[75] For a given level of income support, higher benefit levels coupled with shorter eligibility periods are preferable in order to facilitate the return to employment and improve the fluidity of labour markets (Cahuc and Zylberberg, 2004).[76] Alternatively, the adverse employment effects of long benefit duration could be (at least partly) offset by the introduction of stricter job search obligations, entailing financial penalties in case of non-compliance.[77]

(74) Obviously, together with other elements of tax-benefit systems, unemployment benefits contribute to the overarching objective of social cohesion and the reduction of poverty risks.

(75) OECD finds moderately sized labour market effects to changes in financial (dis) incentives. The marginal effective tax rate (METR), which is a comprehensive indicator of the leakage between gross earnings gains and the resulting rise in disposable income, provides a useful measure of these disincentives (Carone et al., 2004). Some calculations carried out by the OECD suggest that a 20% reduction of METRs, roughly representing the size of some of the more ambitious reforms implemented in recent years, imply a rise in the one-year transition probability for moving from unemployment to employment from 45% to 49%. However, large effects are found for the unemployed with a working partner, whose re-employment probability is estimated to increase by 7 percentage points, from 51% to nearly 58%. The evidence for the effect of tax disincentives on transitions from inactive to work is more mixed, with large effects found only for single women: for this group, the probability to move from inactivity to work would increase by almost 13%.

(76) A number of cross-country panel data studies find that the impact of unemployment benefits on aggregate labour market outcomes is significant, with benefit duration having a more detrimental impact than high replacement rates (OECD, 2006, chapter 3).

(77) Several recent empirical studies conclude that labour supply disincentives from generous unemployment benefits can be offset, at least to a significant degree, by benefit administration practices that use financial sanctions (i.e. benefit cuts) to enforce an obligation to actively search for work and to accept reasonable job offers (Boone et al., 2004; Hasselpflug, 2005).

Box 8: Cross-country variation in LTU

This box presents a simple cross-country regression of the incidence of LTU[78] on a number of labour market 'institutions'. Averages for 22 countries in the period 2000/01 to 2006/07 are used. The list of variables is the following:

Dependent variable:
IR12: Incidence of long-term unemployment of 12 months and more
Period: 2000-2007
Source: LFS and OECD

Explanatory variables:
UT: Unemployment trap: Marginal effective tax rate for an unemployed person (67% of average wage, one-earner couple with 2 children)
NRR6: Net replacement rate after 6 months - 1 earner 2 children, 67% of average wage
NRR12: Net replacement rate after 12 months - 1 earner 2 children, 67% of the average wage
NRR60: Net replacement rate after 60 months - 1 earner 2 children, 67% the average wage
NRR12_6 = NRR12 / NRR6
NRR60_6 = NRR60 / NRR6
Period: 2001-2007
Source: DG ECFIN (2009), 'Recent reforms of tax and benefit systems in the framework of flexicurity'

EPL: Employment protection legislation indicator
Period: 2003
Source: OECD

ALMP: Active labour market policies in % of GDP
PLMP: Passive labour market policies in % of GDP
Period: 2000-2006
Source: LFS and OECD

SAR: Strictness in availability rules that unemployed must fulfill in order to be entitled to unemployment benefits
Period: 2004
Source: Søren Hasselpflug (2005), 'Availability criteria in 25 countries', wp 12/2005 (Finansministeriet)

Countries: BE, DK, DE, GR, ES, FR, IE, IT, NL, AT, PT, FI, SE, UK, CZ, EE, HU, LT, PL, SK, SI, US

The set of explanatory variables includes:

- an unemployment trap and a number of net replacement rate indicators calculated by Carone et al. (2009) for an analysis of recent reforms of tax-benefit systems, as well as an assessment of their impact on financial incentives to work and on labour supply
- OECD's (2004) EPL indicator
- an indicator on the strictness of unemployment benefit entitlement rules (Hasselpflung, 2005).

Given the high multicollinearity, a principal component analysis (PCA) was run on the 10 (potential) explanatory variables. The country scores of the first three dimensions were used as explanatory variables in an ordinary least squares (OLS) regression where the incidence rate of LTU (12 months and more) is the dependent variable.

Table 18: Percentage of variance after Varimax rotation

Percentage of variance after Varimax rotation:

	D1	D2	D3
Variability (%)	53.2	24.4	13.2
Cumulative %	53.2	77.6	90.8

Factor loadings after Varimax rotation:

	D1	D2	D3
UT	**0.78**	0.45	0.26
NRR6	**0.90**	0.28	0.17
NRR12	**0.97**	0.21	0.05
NRR60	**0.92**	0.25	-0.18
NRR12_6	**0.91**	-0.09	-0.14
NRR60_6	**0.84**	0.02	-0.39
EPL	-0.06	0.12	**0.94**
ALMP	0.13	**0.96**	0.06
PLMP	0.20	**0.93**	0.09
SAR a)	0.10	-0.03	0.01

Source: DG EMPL calculations.

Note: (a) Supplementary variable. Figures in bold signify factor loadings larger than 0.5 in absolute value.

The first factor summarises the 'financial incentives' on labour market supply of tax-benefit systems. The second factor is highly correlated with spending in labour market policies (LMP). The third factor is picking up the effects of EPL.

Regressing IR12 on the three principal components gives:

Table 19: OLS regression – standardised coefficients

OLS regression - standardised coefficients

Source	Value	Standard error	t	Pr > |t|
D1: Financial Incentives	-0.189	0.189	-0.997	0.332
D2: LMP	-0.384	0.189	-2.031	0.057
D3: EPL	0.416	0.189	2.202	0.041

Source: DG EMPL calculations.

Results suggest the following tentative interpretation. Strict EPL tends to raise the incidence of LTU, while spending on LMPs tends to reduce it. The impact of financial incentives linked to tax-benefit systems is not found to be significantly different from zero.

Flexicurity principles make a strong case for protecting/supporting workers, i.e. their transitions, instead of particular jobs. The econometric result above intuitively supports this approach. Most flexicurity packages include reductions in job protection (EPL) in exchange for greater support of workers' job-to-job transitions by increasing spending on both active and passive LMPs. According to the regression estimates presented above, such a strategy is likely to contribute to a reduction in LTU.

(78) The LTU statistic used is based on the incomplete duration of unemployment, as a high number of missing quarterly observations prevents use of a statistic based on the completed duration of unemployment.

4.13. The consequences of LTU

A distinction is commonly made in the economic literature between the effects of the experience of being unemployed on the employment capacity of individuals, and the more general effects of unemployment on the economy.

As regards the economy as a whole, several labour market theories[79] suggest that the long-term unemployed put upward pressure on wages because of their relatively low search effectiveness. As regards the impact on the unemployed themselves, the consequences are seen as multiple. LTU is often associated with a high concentration of unemployment across a relatively few number of individuals, who move back and forth between unemployment and temporary jobs. LTU is an important risk factor of poverty among the working-age population. The literature suggests (e.g. Akerlof and Main, 1980; Machin and Manning, 1999; OECD, 2002) that a more accurate indicator to assess the poverty/inequality risks associated with LTU might be a concentration measures of unemployment based on longitudinal data.[80] It should be noted that LTU is also associated with deteriorating physical and mental health, and an increased propensity to engage in shadow economy or illegal activities.

Given the potential relevance of LTU, over and above that of unemployment, Box 9 presents some estimates of the incidence of LTU and of the LTUR in the period 2009 and 2010.

(79) e.g. the efficient wage model (Shapiro and Stiglitz, 1984), and the matching model (Blanchard and Diamond, 1994).

(80) e.g. the fraction of total unemployment accounted for by those experiencing it for 12 months and more.

Box 9: In the current economic situation, what are the prospects for LTU?

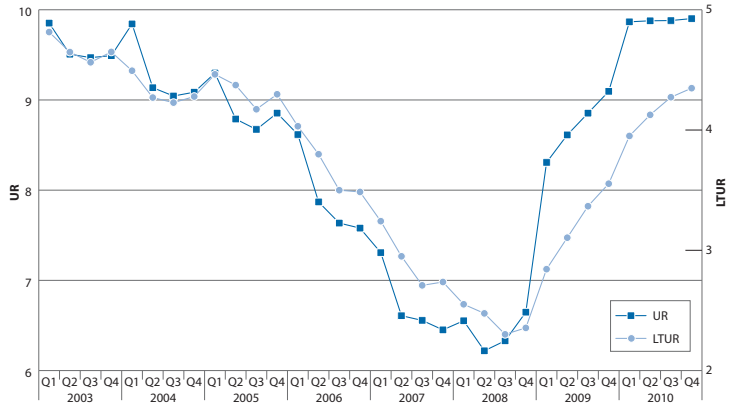
The European Commission publishes biannual economic forecasts (e.g. DG ECFIN, 2009), including forecasts of unemployment rates, but they do not provide details of the structure of unemployment by duration. Given the special problems associated with LTU, this box attempts to estimate its evolution in the period up to 2010, based on the latest European Commission spring 2009 economic forecast.

Using quarterly data, three vector autoregressive systems (VAR) equations are estimated. The endogenous variables are: real GDP[1], the incidence rate of LTU[2], and the unemployment rate. The VAR systems do not include exogenous variables (only a constant term).[3] In principle, data availability allowed for the estimation of 16 VAR systems, covering the following EU Member States: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Italy, Lithuania, Latvia, the Netherlands, Poland, Portugal, Slovenia, Slovakia and the UK.[4] The lag length of VAR systems varies country by country depending on statistical criteria/tests on the optimal lag order and stability requirements – namely that the inverse roots of the characteristic polynomial lie inside the unit root. In the end, models were retained for 11 EU Member States: Belgium, the Czech Republic, Denmark, Estonia, Italy, Latvia, the Netherlands, Poland, Portugal, Slovenia, Slovakia and the UK.[5] In 2008, these 11 EU Member States represented about 40% of the EU labour force.

The estimation period of VAR systems covers the whole period for which data is available (up to 2008 Q4). The model is simulated outside of the estimation range between 2009 Q1 and 2012 Q4. In 2009 and 2010, GDP and unemployment rate variables are 'forced' to equal DG ECFIN's spring 2009 economic forecast.[6] Therefore, the only variable free to adjust according to the VAR dynamics is the incidence rate of LTU (or equivalently the LTU rate).

As could be anticipated by the definition of LTU, the incidence of LTU (or the LTU rate) lags the unemployment rate (Chart 66).

Chart 66: **Unemployment and LTU rates for an aggregate of 11 EU Member States, period 2003 Q1 to 2010 Q4 (%)**



Source: DG EMPL calculations.

(1) The first difference of the log of real GDP. Quarterly real GDP values are seasonally and working days adjusted.

(2) Instead, the LTU rate could have been used. The incidence rate of LTU is based on the incomplete duration of unemployment, as a high number of missing quarterly observations prevents use of a statistic based on the completed duration of unemployment.

(3) Inclusion of quarterly dummies was tested but they were not found to be significant.

(4) Historical data is from Eurostat.

(5) Computations were made using EViews software.

(6) In the jargon of EViews, this requires first to include add factors in the GDP and unemployment rate equations, and second to solve the model in a way that the endogenous variable in these equations match pre-determined trajectories for them. DG ECFIN's spring 2009 economic forecast includes quarterly profiles for GDP and annual averages for the unemployment rate. This information was used in setting target trajectories for GDP and unemployment rate in the period 2009 Q1–2010 Q4.

LTU lags total unemployment (Table 20). In a majority of countries, and despite the strong rise in the unemployment rate, the incidence of LTU is still expected to fall during 2009, although the LTU rate is already projected to increase but by a considerably smaller margin than the unemployment rate. The LTU rate is expected to increase until the end of 2010.

Table 20: **Incidence of LTU, LTU and unemployment rates (non-weighted annual averages)**

		IR12	LTUR	UR
BE	2008	47.7	3.4	7.0
	2009	41.5	3.5	8.5
	2010	48.0	4.9	10.2
CZ	2008	49.3	2.2	4.4
	2009	43.2	2.6	6.1
	2010	42.1	3.1	7.4
DK	2008	13.7	0.5	3.4
	2009	14.5	0.8	5.2
	2010	21.3	1.4	6.6
EE	2008	31.3	1.8	5.6
	2009	27.9	3.2	11.3
	2010	39.3	5.5	14.1
IT	2008	45.6	3.1	6.8
	2009	44.1	3.9	8.8
	2010	49.4	4.6	9.4
LV	2008	26.0	2.0	7.8
	2009	41.9	6.6	15.7
	2010	55.2	8.8	16.0
PL	2008	33.5	2.4	7.2
	2009	32.8	3.2	9.9
	2010	37.0	4.5	12.1
PT	2008	47.4	3.8	8.1
	2009	44.8	4.1	9.1
	2010	49.2	4.8	9.8
SI	2008	42.2	1.9	4.5
	2009	52.1	3.4	6.6
	2010	58.6	4.3	7.4
SK	2008	69.3	6.6	9.6
	2009	60.7	7.3	12.0
	2010	53.8	6.5	12.0
UK	2008	24.2	1.4	5.7
	2009	28.0	2.3	8.2
	2010	37.1	3.5	9.4
EU11	2008	37.6	2.4	6.4
	2009	36.8	3.2	8.7
	2010	42.2	4.2	9.9

Source: Eurostat and DG ECFIN's spring 2009 economic forecast, DG EMPL calculations.

5. Conclusions

This chapter has focused on analysing the dynamics of EU labour markets in order to assess their degree of 'fluidity'. It has considered three main groups of indicators, covering aspects related to labour turnover, labour market transitions, and unemployment duration.

In the public debate, it is common to discuss labour market performance on the basis of essentially static variables, such as levels and rates of employment and unemployment. However, labour markets of economies with similar employment or unemployment rates may be working in very different ways in terms of the movement of people into and out of jobs, the extent to which they can or cannot quickly find alternative employment if they lose their current jobs, and the extent to which different sections of the labour force are more affected than others.

Such differences have major implications for policies. A labour market in which relatively few people become unemployed, but where those who do are likely to remain unemployed for a very long time, is likely to be more damaging to the long-term employability of jobless individuals than one in which there are many more who become unemployed, but remain in that position for only a short period of time.

In this context, the first section of this chapter focused on labour turnover – i.e. the gross movements of people in and out of specific jobs together with moves in and out of employment altogether. Using data from the EU LFS, it finds that such gross labour flows exceed net flows or employment growth by a significant margin. In the EU, average annual labour turnover between 2002 and 2007 amounted to 22% of employment, compared with net employment growth of just 1.4% a year.

On average every year, between one fifth and one quarter of all European workers separate from their current job and/or are hired to a new one. Such labour market dynamism is not just limited to countries usually considered as 'flexible', such as the UK or Denmark – but rather it concerns all Member States, although annual labour turnover, relative to total employment, ranges from 14% in Greece and 16% in Sweden to between 25% and 30% in the UK, Finland, Spain and Denmark.

EU LFS data is fundamental to our knowledge of EU labour markets, but annual or quarterly data cannot pick up flows which occur and are reversed between surveys. Using both monthly and annual data from the longitudinal component of EU SILC, it is found that, on average,

indicators of labour turnover based on monthly data are twice as large as indicators based on annual data.

The size of labour turnover also varies substantially between different groups of workers. Flows tend to be substantially higher for women than for men (5 percentage points difference at aggregate EU level) with only a few country exceptions (Estonia, Poland and Sweden). Turnover rates for young workers (15–24) stand at about 70% of their employment level, being much larger than those of prime-age and older workers. At the same time, turnover rates tend to decrease with the level of education, although to different degrees across Member States.

In addition, labour turnover varies according to firms' characteristics, and the chapter also notes that sectoral differences explain a much larger fraction of overall variability in EU hiring rates compared with differences between countries or the effects of the economic cycle. This underlies the importance of sector-specific technological, organisational and demand factors in driving labour dynamics.

Furthermore, the evidence available suggests that Member States with less stringent EPL, such as the UK and Denmark, or with a higher share of temporary employment, such as Spain, tend to have higher labour turnover rates. It is nevertheless difficult to draw definite conclusions about the desired or 'optimal' levels of labour turnover. While more rigid labour market institutions tend to create obstacles to the reallocation of labour from declining to expanding activities, high labour turnover can also be associated with welfare costs, such as high frictional unemployment, matching costs, a loss of specific human capital, as well as possible higher spending on unemployment benefits.

The second section of this chapter looks at indicators of transition rates from unemployment to employment, and inactivity to employment (U_E and I_E, respectively). Compared with data on turnover rates and gross flows, such transition rates can provide much more detailed information on the 'quality' of these labour market transitions, i.e. on the prevalence of 'good' versus 'bad' moves.

In line with the evidence on labour turnover, the EU is seen to be characterised by relatively large annual transition rates. On average during the period 2002–07, nearly a third of unemployed people, and about 10% of inactive people, found a job in the following year. However, such U_E transition rates range from 40% or more in the UK, Spain, Portugal and the Netherlands to 25% or below in Germany, Greece, Poland and Belgium; while, I_E rates range from 15% or more in Sweden, the UK and Denmark to 3% and 4.5% in Greece and Italy.

This chapter also breaks down transition rates into cyclical and trend components. The U_E transition rate and GDP are positively correlated, while the I_E transition rate appears to be a procyclical and leading variable. As regards the trend components of both U_E and I_E transition rates, a sustained rise occurred since the second half of the 1990s in the EU, suggesting a fundamental structural improvement in our labour markets during this period.

Moreover, U_E and I_E trend transition rates are seen to be negatively correlated with structural unemployment, and positively correlated with participation and employment rates, suggesting that positive developments in those transitions have contributed significantly to the improved labour market performance.

Trends in the development of U_E transition rates vary considerably across Member States. In the UK, the share of the unemployed finding a job within a year nearly doubled from 1983 to 2007, while in Greece there has been a significant decline over much the same period. In contrast, trend I_E transition rates have increased substantially in Germany (since the late 1980s), and in Spain (since the mid-1990s), while decreasing in Greece (since the early 1980s), in France and Denmark (since the early 1990s), and in Italy (since 2001).

In relation to worker characteristics, the U_E transition rates for older workers (aged 55-64) are less than a third of those of prime-age workers (aged 24-54). Moreover, more highly educated unemployed or inactive people have a substantially higher probability of moving back into employment, especially if they had previously been inactive.

The third section of this chapter covers labour market aspects related to the incidence of LTU and its duration. A distinctive feature of EU labour markets is the high incidence of LTU. In Europe, close to 45% of all unemployment spells last longer than 1 year, compared with only about 10% in the USA, raising concerns on both equity and efficiency grounds.

Based on the EU LFS, two indicators of the average duration of unemployment are calculated: firstly, the official statistic that measures the duration of incomplete spells (i.e. spells still in progress at the time of observation), and secondly the duration of completed unemployment spells.

The official statistic of unemployment duration based on incomplete spells tends to overlook the large number of short spells of unemployment that occur between observation periods, leading to an overestimation of the average duration of completed spells. The chapter finds that, in the EU over the 2005–08 period, the average duration of completed spells in unemployment was just about one half of the measure calculated using incomplete spells – i.e. the official statistic.

Although the measure based on completed spells would be more appropriate for assessing the welfare implications of unemployment, the official

statistic of unemployment duration has a number of practical advantages in terms of timeliness, transparency, data availability and ease of calculation, which justify its continued use, despite the possible bias.

Breaking down figures based on complete unemployment spells by worker characteristics, the chapter shows that gender gaps in average unemployment duration are very small across the EU (12 months for women against 11.7 for men). However, unemployment duration tends to increase with age and decreases with the level of education (12.3 months for the low skilled unemployed, compared with 8.1 months for the skilled unemployed).

An evaluation of a number of aspects related to unemployment duration, such as the incidence of LTU and multiplicity of unemployment spells, draws on longitudinal data from EU SILC.[81] Three particular aspects are associated with the use of longitudinal data to measure unemployment duration.

First, their use allows for a more comprehensive coverage of shorter spells of unemployment. Second, they enable alternative indicators of LTU to be calculated, which are robust to short interruptions of unemployment, such as the fraction of unemployed spending a total of 12 and more months in unemployment over a number of years. Third, the data can be utilised to monitor multiple unemployment spells, allowing the calculation of unemployment duration statistics per number of spells.

Finally, the chapter also investigates the impact of certain policies on the incidence of LTU. In general, econometric studies suggest that higher levels of unemployment benefits and, especially, longer periods of access to such benefits tend to be associated with longer periods of unemployment, with the probability of leaving unemployment tending to increase significantly just before their expiry.

The literature also suggests that the probability of leaving unemployment decreases with duration (i.e. 'negative duration dependence').[82] In part because employability tends to decline the longer people are away from the labour market. Thus a rise in unemployment duration, following an economic downturn/recession, may become entrenched, transforming a cyclical/transitory problem into a permanent one – i.e. unemployment hysteresis. In this context, adequate policy responses may involve, *inter alia*, better targeting of ALMPs spending towards those most at risk of staying unemployed for long periods, or of becoming inactive, possibly using profiling techniques.

A number of studies point to the importance of labour market institutional arrangements, notably the extent of EPL or the incidence of temporary work, in explaining major cross-country differences in the incidence of LTU and in the duration of unemployment. This chapter carries out a simple econometric cross-country analysis of the impact of a number of policies on the incidence of LTU. The results suggest that strict EPL tends to raise LTU, while spending on labour market policies tends to reduce it.[83]

Flexicurity principles argue for focusing on protecting and supporting workers in undertaking 'good' transitions in the labour market, rather than preserving particular jobs. The econometric results provide broad support for this approach, with the specific prospect of reductions in the general level of LTU.

In this respect, and based on the Commission's spring 2009 economic forecast, the chapter provides estimates of LTU for the period up to 2010. For an aggregate of 11 EU Member States and representing about 40% of the EU labour force, the LTU rate is projected to increase from 2.4% in 2008 to 4.2% in 2010, lagging the expected evolution of total unemployment, which is expected to increase from 6.4% in 2008 to 9.9% in 2010.[84]

(81) The calendar/monthly information of the labour market status variable in the longitudinal component of EU SILC.

(82) Although after controlling for individual characteristics, the magnitude of this effect seems to be rather limited.

(83) Financial incentives linked to tax-benefit systems do not seem to have any significant effect on long-term unemployment.

(84) This unemployment rate is based on calculations carried out in Box 9, which do not include all 27 EU Member States.

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Chapter 3

Climate change and labour market outcomes

1. Introduction

The International Panel for Climate Change (IPCC, 2007d) and Stern Review (2006)[1] provide convincing evidence that the world is already experiencing global warming, and that – in view of the fact that since the onset of the industrial era the human impact on climate greatly exceeds the impact from natural factors[2] – deep and significant cuts in anthropogenic greenhouse gas (GHG)[3] emissions are urgently needed if we are to avoid dramatic, irreversible and self-reinforcing changes in the world's climate.[4]

The current global economic crisis may be slowing the rate of increase in energy use and carbon emissions, but it does not change the significance of this long-term challenge. Furthermore, it should not hinder the direction and speed of the transition towards a competitive low-carbon and resource-efficient economy – certainly not if one takes into consideration that tackling climate change[5] provides significant opportunities to develop new technologies, create new jobs, enhance energy security, increase international competitiveness and improve public health.

This chapter analyses how European labour markets are affected by climate change, adaptation to it, and policies to mitigate further climate change, with a view to strengthening the development of labour market policies that can support the creation of more and better jobs for all in a sustainable economy.

The second section begins with a brief summary of the main environmental challenges faced by the European Union (EU) and the world, and examines how new economic concepts related to these challenges, such as 'green jobs' and 'eco-industries', are defined and measured.

The third section describes the labour market effects of climate change and adaptation. As these impacts are expected to materialise only in the very long run and the time horizon of this chapter only

(1) See also European Environment Agency (2008), European Commission (2005a, 2007a, 2009a, 2009b) and conclusions from the International Scientific Congress on Climate Change in Copenhagen ('Climate Change: Global Risks, Challenges and Decision', 10–12 March 2009, available at http://climatecongress.ku.dk/)

(2) See for instance IPPC (2007e).

(3) The main greenhouse gases in the Earth's atmosphere are water vapour, carbon dioxide (CO_2), methane, and ozone. The human activities that generate greenhouse gases include the consumption of fossil fuels (for transportation, heat and power), changes in land use, deforestation and dairy farming, producing mainly CO_2, methane and ozone.

(4) Although the consensus is quite widespread, nonconformist views on the urgency and size of climate change action do exist , see for instance Lawson (2008) and Nordhaus (2007 and 2008). In its assessment of the effects of climate change, the Stern Review (2006) proposes to use a low social discount rate implying that costs carried by future generations have a high actual value. On comparing the costs and benefits of action on climate change the Stern Review (2006) finds that the benefits of strong, early action outweigh the costs. More concretely, it recommends immediate investment of 1% of world output to reduce the impact of global warming as the cost of inaction would vary, depending on assumptions, between 5% and 20%. Nordhaus (2007) and Lawson (2008), by contrast, argue that the discount rate used in the Stern Review (2006) is too low and that the use of a market interest rate would imply a lower level of action. Apart from the issue of the discount rate, Nordhaus (2007) also criticises the assumptions regarding the behavioural structures, risk aversion and the prospects of future learning in the Stern Review. Although there is no overall consensus as to how much, how fast, and how costly climate change action should be, most would agree that early climate change action is efficient.

(5) This chapter focuses on climate change, however tackling the other environmental challenges including the erosion of biodiversity, pollution and increasing volumes of waste will also affect labour market outcomes.

covers the period until 2020[6], the discussion of these effects is limited. Nevertheless, the importance of this analysis should not be underestimated for current policy purposes given that there is a strong case for taking preventive policy actions without any further delay. This is because the costs of taking action to adapt now will be much lower than the costs of inaction over the medium to long term. Moreover, adaptation to, and mitigation of, climate change are essentially complementary in that stronger adaptation will require weaker mitigation, and vice versa we are faced with significant scientific evidence that if radical mitigation measures are not taken rapidly, adaptation will eventually prove impossible.

Section 4 discusses in detail the labour market effects of the efforts to mitigate climate change. Based on a literature review, the gross employment effects as well as the net employment effects are analysed and quantitative projections for jobs are presented. Although the transition towards a low-carbon economy will lead to a loss of environmentally inefficient jobs, the scope for the creation of new 'green jobs' and the greening of existing jobs is seen as significant, and will affect all types of worker including low- and high-skilled workers, workers in the manufacturing as well as the service sector, and workers in all localities – from low-lying regions to the Alps. Nevertheless, to exploit these opportunities effectively, appropriate policies are required as markets alone may be unable to tackle these problems in an efficient and equitable way due to the presence of global externalities, uncertainties, international spillovers, and differences in the capacity of individuals and communities to adapt to the changes.

The fifth section explores how labour market policies can mitigate adverse employment effects of climate change and climate policies, how they can be used to create more and better jobs for all, and how they themselves can contribute to a reduction in GHG emissions. The sixth and final section then draws conclusions.

2. CLIMATE CHANGE AND GREEN JOBS

2.1. The challenge of climate change

Climate change[7] risks inflicting large and irreversible adverse effects on the quality of life across the globe, but it is an issue that concerns EU citizens as much as any other region of the world.

A recent survey[8] shows that world poverty and global warming are considered to be the most important challenges that the world as a whole is currently facing[9], as presented in Chart 1. The survey also indicates that European citizens consider that corporations and industry, citizens themselves, national governments and the EU are not doing enough to fight climate change, even though the list of policy initiatives at EU level is quite extensive.

In addition to the challenge to stabilise the stock of GHGs in the atmosphere at sustainable levels, it should also be noted that, in Europe as well as in the rest of the world, the erosion of biodiversity continues, pollution continues to harm public health, and waste volumes continue to increase. As the EU's Sixth Environment Action Programme underlines, there is a global need to protect and restore the functioning of natural systems and halt the loss of biodiversity; to protect soils against erosion and pollution; and to achieve a de-coupling of resource use from economic growth through significantly improved resource efficiency, dematerialisation of the economy, and waste prevention.[10] Crucially the achievement of real de-coupling will almost certainly have to be achieved – in the medium to longer term – by radical and fundamental restructuring of economic activity in particular and societal structures more generally.

Estimates of the likely economic costs of mitigating and adapting to global warming and other environmental challenges are highly uncertain.[11] The existing literature focuses primarily on estimates of damages to economic systems, while estimates of the costs of the climate challenges on human health and ecosystems are much less developed.

(6) Or beyond 2020 if the available data allows it.

(7) See Box 1 for a very brief overview of the definition, recent evolution and effects of climate change.

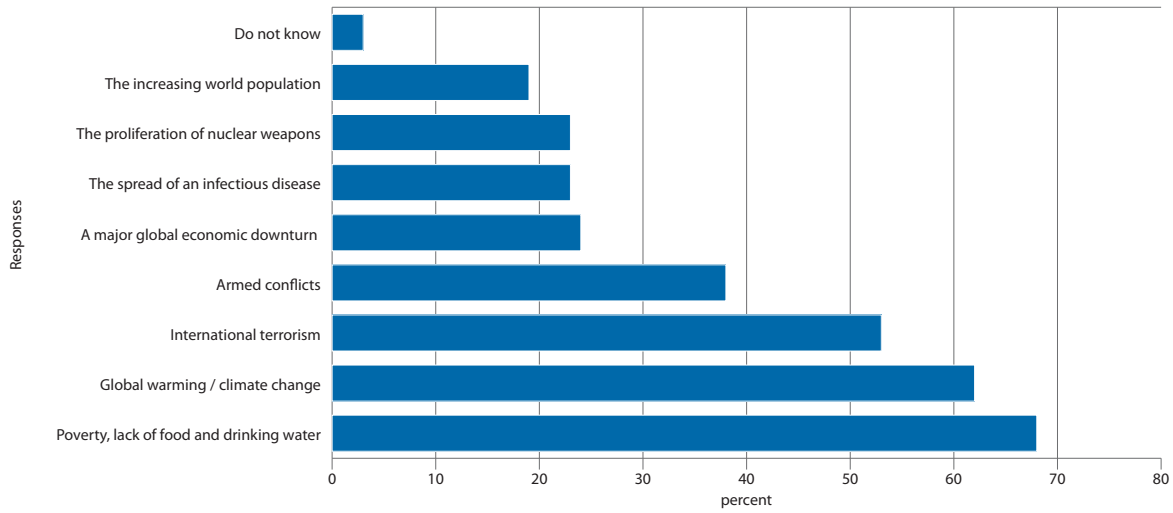
(8) See European Commission and European Parliament (2008).

(9) The special Eurobarometer Survey was concluded in May 2008, when global economic activity was still to a limited extent disturbed by the financial turbulence. However, even though people think of global warming as an important global challenge, they do not give it such importance when listing national concerns. Only 5% of Europeans ranked protection of environment among the two most important concerns that their countries were currently facing in the Standard Eurobarometer Survey that was also concluded in May 2008. With the evolvement of the economic crises that percentage fell to 4% when the survey was conducted in October and November 2008. More 'visible' and short-term challenges such as economic situation, inflation and unemployment received much more attention. Thus, it is important that policy-makers keep focused on and remind the public about the long-term challenges of climate change.

(10) See the European Commission (2001a and 2009f)) for a very detailed discussion of these issues.

(11) This uncertainty arises to a large extent from our current poor understanding of the feedbacks between the stock of GHGs and clouds, see IPCC (2007a).

Chart 1: **The most serious problem currently facing the world as a whole, (firstly, among others), EU-27**



Source: Special Eurobarometer Report 300, European Commission and European Parliament (2008).

Apart from the potentially catastrophic impacts, estimates of damages caused by global warming are usually calculated in terms of lost output.[12] Moreover they differ strongly across the different regions in the world. For instance, Africa is subject to several stresses and has a low adaptive capacity[13], while Europe also faces serious challenges but is better equipped to adapt to the challenges. The impact on different groups in the population is also likely to differ, with the poor and elderly in the EU showing the highest vulnerability to climate change. Likewise low-latitude areas are seen to be more vulnerable than others, with other differences also existing between market sector activities (especially agriculture, fishery, forestry, transport, manufacturing, buildings and tourism) and non-market sector activities (e.g. health and education).[14]

(12) Other environmental challenges also bear their cost. For instance, the welfare loss caused by the loss of services from land-based ecosystems is estimated to amount to a value equivalent to about 50 billion per year. See the Economics of Ecosystems and Biodiversity - Interim Report 2008 available at http://ec.europa.eu/environment/nature/biodiversity/economics/pdf/teeb_report.pdf

(13) For a discussion of the implications of climate change for Africa, see for instance Kato (2008). More general reference for developing countries, see European Commission (2007c).

(14) See also Tol (2002a) and (2002b).

Box 1: Climate change

Article 1 of the United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as 'a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods'.[1] Climate refers to the average weather that persists for an extended period, whereby weather is measured in terms of the mean and variability of surface variables such as temperature, precipitation and wind.[2] Global warming denotes the gradual increase, observed or projected, in global surface temperature, as a consequence of radiative forcing caused by anthropogenic[3] emissions of GHGs.[4] See IPCC (2007) and EG Science (2008).

Climate change and greenhouse gas emissions

Several natural factors cause climate change, including changes in solar output, volcanism, plate tectonics and ocean variability. Human activities provoking climate change through their impact on the composition of the atmosphere include the consumption of fossil fuels (for transportation, heat and power etc), changes in land use, deforestation and cattle farming. These activities affect the atmospheric build-up of GHGs primarily through their impact on carbon dioxide (CO_2), methane and ozone. Greenhouse gases trap heat within the surface-troposphere system, leading to increased atmospheric radiation emitted towards the Earth's surface.

It is the overall stock of GHGs that matters for climate change and the emission of GHGs contributes to climate change through its effect on this stock, whereby the location of the origin of the emissions is irrelevant. The rate at which the stock accumulation occurs depends inter alia on the 'carbon cycle', which includes for instance the feedbacks from the release of methane from the permafrost and the progressive destruction of the Amazon rain forest.

Global warming since the industrial revolution

Average temperatures have been on a rising trend since the early 1900s, although they stabilised somewhat between the 1940s and 1970s, before accelerating again in the early 1980s, as shown in Chart 1b. Eight of the 12 years between 1996 and 2007 were among the 12 warmest years since 1850, the date when global surface temperatures first started to be measured.

(1) See http://unfccc.int/essential_background/convention/background/items/2536.php

(2) See http://www.ipcc.ch/pdf/glossary/ar4-wg1.pdf

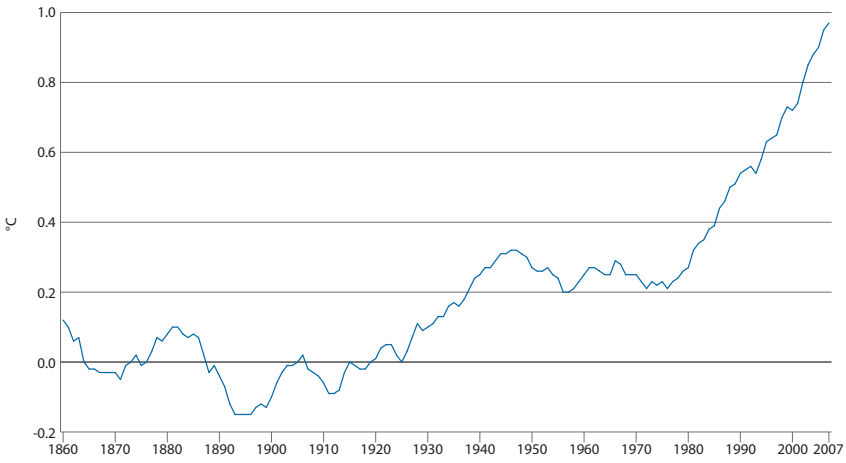
(3) I.e. resulting from or produced by human beings

(4) See http://www.gcrio.org/ipcc/ar4/wg1/faq/ar4wg1faq-1-1.pdf

The effects of global warming

It is projected that, if no measures are taken[5], average global temperatures will increase significantly by the end of the century, with consequences that will be unprecedented, costly and potentially unmanageable. See for instance IPCC (2007), Stern Review (2006), Joint EEA-JRC-WHO report (2008) and European Commission (2009b).[6]

Chart 1b: **Global annual average temperature deviation (compared with the 1850–99 average, 10-year moving average)**



Source: European Energy Agency.

If global temperatures were to rise to 2°C above pre-industrial levels, it is estimated that 15-40% of species could face extinction (especially the Arctic species) and that the Greenland ice sheet could begin to melt irreversibly. If temperatures were to increase to 3 °C above pre-industrial level, 20-50% of species could be threatened by extinction and the collapse of the Amazon ecosystem may be unavoidable. An increase to 4°C above pre-industrial level would melt the West Antarctic ice sheet, leading to a gradual increase in sea levels of between 5 and 6 metres (in addition to the increase resulting from the loss of the Greenland ice sheet). All in all, there is a general consensus that, if no actions are taken – i.e. there is 'business as usual' then major catastrophic effects[7] will be unavoidable. See for instance IPPC (2007) and Stern Review (2006).

Apart from these impacts, it is also expected that climate change will have major socioeconomic implications. See also European Commission (2009b).

EU Climate and Energy Package[8]

In response to the climate change challenges the European Council stressed the need for effective, urgent and integrated actions in the field of climate and energy policies. In its March 2007 Presidency Conclusions, the European Council endorsed the key targets for the year 2020, while in December 2008 the Council and European Parliament approved the measures that will contribute to reaching the targets, including proposals to improve the EU Emissions Trading System (ETS) and an agreement on the inclusion of aviation in the ETS.

The EU key targets are as follows:

- cutting greenhouse gas emissions by at least 20% of 1990 levels (30% if other developed countries commit to comparable cuts[9])
- cutting energy consumption by 20% of projected 2020 levels as estimated by the Commission in its Green Paper on Energy Efficiency[10] – by improving energy efficiency
- increasing the use of renewable energy sources (including wind, solar, biomass, etc.) so that 20% of our energy needs stem from renewable sources and the share of renewable energy represents at least 10% of overall EU transport petrol and diesel consumption.

A rapid shift to a low-carbon and low-input economy was identified also as one of the potential focuses of the Sustainable Development Strategy.[11]

(5) The 'business as usual' scenario.

(6) See http://ec.europa.eu/environment/climat/home_en.htm for a comprehensive overview of climate change issues.

(7) These catastrophic outcomes include for instance a complete deglaciation of the ice sheet on Greenland which would rise sea-levels by 7 metres, see Stern Report (2006), IPCC (2007); or a shutdown of the Gulf Stream, see Schlesinger et al. (2006).

(8) Climate and energy package: texts adopted by the European Parliament on 17 December 2008; available at http://www.europarl.europa.eu/sides/getDoc.do?type=TA&reference=20081217&secondRef=TOC&language=EN

(9) See European Commission (2009b) for EU proposals how to set global goals to reduce emissions and how to strengthen countries' ability to adapt to climate change.

(10) See European Commission (2005b).

(11) Commission Communication "Mainstreaming sustainable development into EU policies: 2009 Review of the European Union Strategy for Sustainable Development", COM(2009) 400 final, available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0400:FIN:EN:PDF

2.2. Total environment-related employment

2.2.1. Definition and measurement

Climate change, and policies to combat or manage it, will have a profound impact on employment structures in the EU – even in the short to medium term. The question is: how do we measure these effects, and how do we measure environment-related labour market concepts such as green jobs and eco-industries?

A review of the literature tells us that a uniform definition of a green job and related green concepts is not available and that the concepts are commonly defined in terms of the specific issues being studied – see Box 2. Nevertheless, even though there is no clear definition of green jobs, there have been attempts to measure the scale of environment-related employment in the EU, with wildly varying results – from 2.4 to 36.4 million (2000 estimates) – depending on the nature and coverage of the estimates. See Chart 2.

Employment in the eco-industries – following the OECD/Eurostat (1999) concept of eco-industries[15] – covers direct and indirect employment[16] in the pollution and resource management industries. Direct employment covers employment in activities concerning the operation and maintenance of equipment or the provision of environmental goods and services, as well as employment in activities aimed at the production of environmental equipment or infrastructure to provide environmental services. Indirect employment covers employment in activities that provide intermediate inputs for the production of environmental equipment and services.

(15) See Box 2.

(16) For discussion of direct and indirect effects see Box 2 and section 4.2.1.

Box 2: Green jobs

Definition

The United Nations Environmental Programme (UNEP, 2008) defines green jobs as 'positions in agriculture, manufacturing, R&D, administrative, and service activities aimed at alleviating the myriad environmental threats faced by humanity'. This definition covers many shades of green jobs, ranging from jobs directly affiliated to the environment through the application of end-of-pipe clean-up techniques (including the recycling, recovery and reuse of materials), through jobs that promote a more efficient use of non-renewable natural resources and a stronger use of renewable energy (including solar, wind, biomass, hydro, hydrogen and fuel cell industries), to jobs in research and development and the marketing of green goods and services. A broader definition would also cover jobs in activities that depend on environmental quality such as, for instance, eco-tourism.

Recognising that sustainability goes well beyond environmental protection, the German employers' federation BDA (2009) applies a more holistic approach to the concept of green jobs by explicitly emphasising the importance of the interdependence between the economic, ecological and social dimension of jobs. BDA (2009) argues that a more comprehensive definition of this kind avoids putting too much focus on very specific areas of the economy (e.g. renewable energy) to the detriment of other sectors.

Eurostat (2009b) does not define 'green jobs' but environmental goods and services sector (EGSS)[1] as a heterogeneous set of producers of technologies, goods and services that prevent or minimise pollution and minimise the use of natural resources. Thus, environmental activities are divided into two broad segments: environmental protection and resource management. Only those technologies, goods and services are considered that have an environmental protection or resources management purpose as their prime production objective (i.e. 'environmental purpose'), thus excluding goods and services that are not provided mainly for environmental purposes. For example, electronic delivery of documents is beneficial to the environment, but it has not been provided mainly for environmental purposes; therefore it is not considered. The EGSS is not recognised as a distinctive sector but it rather regroups activities from many different economic sectors.

Measurement

The measurement of green jobs and the comparison of the data over time are not straightforward because a 'green job' is basically a relative and dynamic concept. Virtually every new product or 'thing' is more energy-efficient than the model it replaces – a fact particularly noticeable in relation to vehicles, notably cars. Thus the dividing line between 'green' and 'environmentally inefficient' jobs is not always easy to draw in practice, as for example in relation to pollution prevention compared with pollution control, or efficient building construction compared with the retrofitting of buildings, each of which have different implications for environmental sustainability. Moreover, the dividing line may shift over time in response to progress in technology, work organisation, workers' skills, training and education, so that past levels of green efficiency may no longer be regarded as adequate.

Direct and indirect effects

New green jobs may:

- substitute for existing environmentally inefficient jobs (e.g. the increased use of renewable energy will reduce employment in the fossil fuel industry, but increase employment in the renewable sectors),

(1) Eurostat has just finalised its data collection handbook on the Environmental goods and services. It represents a further development of the OECD/Eurostat 1999 Manual on environmental industry, which also applied the principle of 'environmental purpose', however it labelled environmental-related activities as 'eco-industries' and it classified them into three broad segments: pollution management, cleaner (integrated) technologies and products, and resource management. The EGGS provides consistency with the SERIEE (System for the Collection of Economic Data on the Environment) and SEEA (System of Environmental and Economic Accounting) frameworks. A new classification of resource management activities by resource domain (CReMA) has been developed especially for the purpose of collecting data on the EGSS and is seen as progress in comparison with the OECD/Eurostat 1999 manual. Eurostat has started a trial data collection exercise on EGSS among the Member States, with data requested to be transmitted by the end of 2009.

- contribute to the greening of existing jobs – e.g. the supply of green vehicles will lead to the supply of greener services by workers in the transport sector, construction of better insulated buildings,
- eliminate existing (inefficient) jobs, or establish new jobs – e.g. manufacturing of pollution-control devices.

Apart from these direct employment effects, indirect knock-on effects may also ripple through via price, wage and income effects and affect employment in the rest of the economy (UNEP, 2008 and GHK et al., 2007).

Job quality and quality of life

A green job that 'helps the environment' may not necessarily be a job of high quality. Its quality is determined by the same variables as the quality of any other job.(2)

The literature gives mixed views on the impacts of increasingly 'green' jobs on the direction of job quality. The AK Wien study (2000) concluded that "overall, integrated environmental protection results in clear positive effects regarding employment quality. Apart from a significant increase in skills levels, there is an improvement in physical working conditions."

A recent study by 'Good Jobs First', a US national policy resource centre, found a wide variation in work conditions in some existing workplaces in a number of supposedly 'environment-friendly' sectors of the economy - including manufacturing of components for wind and solar energy, green construction and recycling. Significant observations within the study included:

- Low pay was not uncommon in the workplaces profiled, and wage rates at many wind and solar manufacturing facilities are below the national average for workers employed in the manufacture of durable goods. In some locations in the USA, average pay rates fall short of income levels needed to support a single adult with one child.
- Some US wind and solar manufacturers had already begun to offshore the production of components destined for US markets to low-wage havens such as China and Mexico. Examples of offshoring included the manufacture of blades for wind turbines, 'defying the common assumption that such blades are too large to ship overseas'.
- Very few workers at wind and solar manufacturing workplaces identified in the course of the research were covered by collective bargaining agreements.
- Publicly available data on overall construction wages for non-union construction workers employed in green building suggested that they were far lower than those of the union members profiled in the report.

It remains uncertain how applicable these observations are to green jobs in the EU. Although it is likely many of these issues are relevant to green jobs in Europe, there appears to be almost no literature with an equivalent level of detail on working conditions within environment-related sectors in Europe.

From a broader perspective, it should also be recognised that the creation of green jobs may have an important impact on the standard of living of everybody. For instance, a shift from private to public transport will reduce significantly traffic accidents and congestions, just as a shift from fossil to RES will affect public health through a reduction in particle pollution, etc. See for instance Krupnick et al. (2000).

Social dimension of green jobs(3)

There are conflicting arguments as to whether the creation of more and better jobs will reinforce social opportunities and equity. On the one hand, it could be argued that the creation of more green jobs will open up employment opportunities for those who were previously excluded from the labour market, acting as a 'platform' for integrating those who had been on the 'fringes' of the labour market. On the other hand, there is a fear that the significant increase in new green jobs may exacerbate the gap between skilled and unskilled jobs. The social impacts from the Mosus project(4) show that structural changes due to sustainability scenarios may enhance risks of social exclusion.

However, new technologies and developments in work organisation associated with green jobs are likely to result in an important job expansion particularly at the 'high level' end of the job spectrum. At the same time, medium-skilled routine tasks and repetitive work may be replaced by automation and computerisation(5), or indeed outsourced to countries outside the EU, leaving a large number of people out of work and with 'obsolete' skills. This 'polarisation' effect has been envisaged in several Member States, although at this stage, it is not clear-cut and may be offset by a high replacement demand for middle-skilled workers.

The perception of employment security by workers will be affected by climate change in a number of ways. Firstly, the physical aspects of climate change (e.g. increased drought and lack of water availability in Spain) will severely affect those agricultural industries heavily dependent on irrigation and may result in the closure of farms and businesses in this area, creating a sense of job insecurity. In a more positive light, the emphasis on creating more and better green jobs as part of the European economic recovery, in the context of the Lisbon Agenda, may mean that green jobs emerge as more 'secure' jobs and consequently may attract an influx of migrants both from within and outside the EU.

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(2) The European Commission (2001b) states that a safe and healthy working environment, together with a modern work organisation, is essential for quality in work and identifies 10 dimensions of quality in work: composition of jobs and their qualification requirements; profile of workers, their inclusion and access to the labour market, their skills and career development as well as their subjective job satisfaction; aims and operating practices of employers; working environment and health and safety at work in particular; gender equality and non-discrimination; and direction and priorities of employment and social policies. See also Chapter 4 'Measuring the quality of employment in the EU' in the Employment in Europe Report 2008, available at http://ec.europa.eu/social/main.jsp?langId=en&catId=113&newsId=415&furtherNews=yes

(3) Based on GHK (2009c).

(4) Source: Mosus project http://www.mosus.net/documents/Results_and_evaluation_IIASA.pdf

(5) Szovics et al. (2008).

In addition to estimates of direct and indirect employment levels, GHK et al. (2007) also estimate the induced employment effects – namely the economic impact induced by the spending of the additional income received from direct and indirect employment. According to this study, total EU-27 employment in eco-industries is estimated at 4.6 million jobs in 2000 (i.e. 2.4 million direct jobs, 1.3 million indirect jobs and 0.9 million induced jobs).

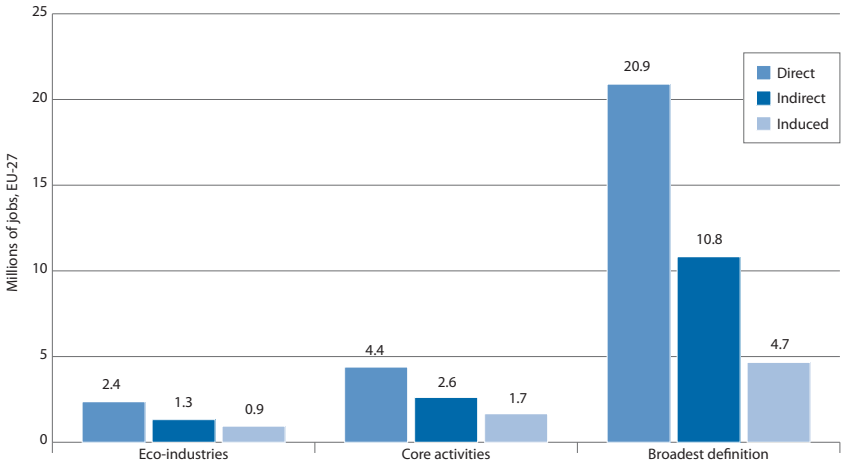
Extending the definition of environment-related economic activities to activities that depend on environmental resources (e.g. agriculture, forestry) and quality (e.g. environment-related tourism) significantly increases the level of employment that is to some extent linked to the environment. Using the broadest definition, direct employment in 2000 is estimated at over 10% of total EU employment – a figure that rises to 17% when indirect and induced employment are added (GHK et al., 2007).

The dynamic employment effects of climate policy can be presented as follows. Direct employment impacts tend to appear earliest, when jobs are lost and created in the industries directly affected by climate policies, as seen in Fankhauser et al. (2008). Indirect effects develop over the medium term as climate policy implications ripple through the economy. Finally, the biggest employment effects materialise as innovative developments and technologies mature and affect the overall structure of production.

Table 1 presents estimates of 3.4 million full-time equivalent (FTE) EU-25 jobs in the eco-industries in 2004[17], compared with 2.7 million in 1999

(17) The employment figures are calculated figures (and not reported figures) applying the calculation methodology described in ECOTEC (2002a) which is based on the estimated levels of capital and operating environmental expenditures. See Ernst and Young (2006) for more details.

Chart 2: Employment by environment-related economic activity, 2000, FTEs



Source: GHK et al. (2007).

Note: FTE, full-time equivalent.

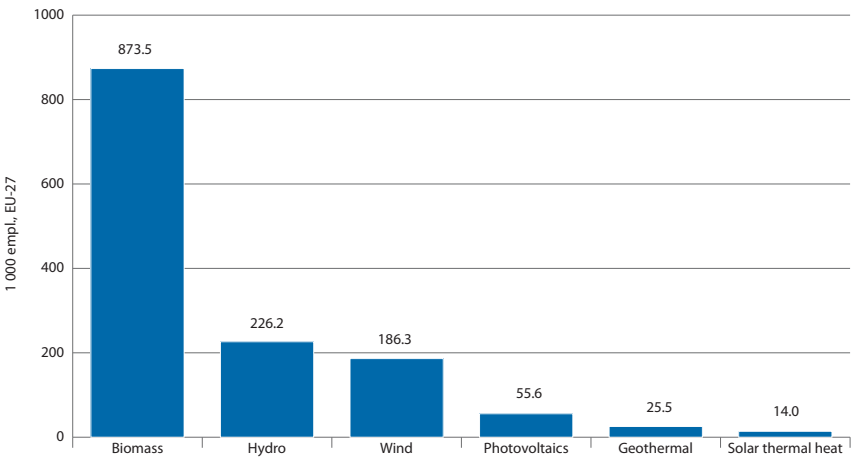
Table 1: Total EU-25 employment in eco-industries, 2004

Pollution management		Resource management	
Air pollution control	178757	Water supply	502000
Waste Water Treatment	800146	Recycled materials	439000
Solid Waste Management	1008488	Nature protection	100000
Remediation & Clean Up	60966		
Noise & Vibration	33318		
Environmental Management (private)	106530		
General Administration (public)	162329		
Total	2350533		1041000

Source: Ernst and Young (2006).

Note: Total employment includes direct and indirect employment.

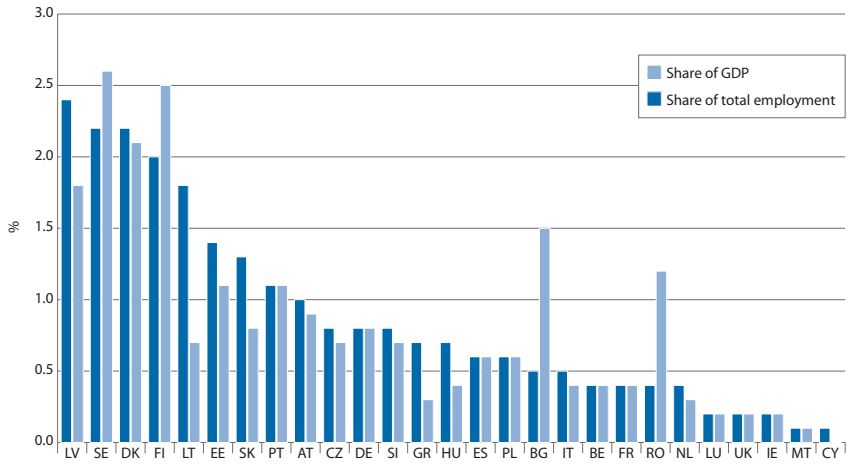
Chart 3: Total employment induced by RES deployment by technology, EU-27, 2005



Source: Fraunhofer ISI et al. (2009)

Note: The biomass includes biogas, biomass grid, biomass non-grid and biowaste; and geothermal includes deep geothermal energy and heat pumps.

Chart 4: **Significance of economic and employment impacts of the renewable energy sector, by Member State**



Source: Fraunhofer ISI et al. (2009, p. 54).

Note: The GDP and employment shares in Member States differ because of different RES-related and average labour productivities.

(EU-15).[18] Some 2.35 million jobs are to be found in pollution management activities, with waste-water treatment and solid waste management sectors amounting to 77% of the jobs in these activities. Resource management activities account for the remaining 1 million FTE jobs.

For more details on the definition of core and broad activities and an overview of direct, indirect and induced employment impacts, see Annex 1.

2.2.2. Employment in the renewable energy sector

Compared with the limited number of estimates of the scale of environment-related employment, there is a much richer literature on the employment effects of renewable energy, an area where activities are somewhat easier to define and identify.

A recent research project, supported by the European Commission, provides a comprehensive overview of the employment development in renewable energy sector (Fraunhofer ISI et al., 2009). This shows that expenditures and gross value-added induced by renewable energy sources (RES)[19] doubled between 1991 and 2005, while total employment increased by around 40% (the slower growth of employment being due to increased labour productivity). In 2005, the renewable energy sector directly employed 775 000 persons in the EU – i.e. 0.36% of the total EU-27 workforce. If indirect employment is added, the total rises to 1.38 million persons across the EU – i.e. 0.64% of the total EU workforce.[20] The direct value-added generated by renewable energy was €32 billion (i.e. 0.32% of EU total) and total value-added, including indirect effects, amounted to €58 billion (i.e. 0.58% of EU total).

The production and use of RES in the EU has increased steadily since 1990, apart from a small drop in 2002, with legislative actions, such as the Directives on renewable electricity (2001) and on the use of RES in transport (2003) seen to have contributed to the acceleration since 2002 (Eurostat 2009a). According to Eurostat data sources, the primary production of energy from RES in 2007 was 90% above the 1990 level, while total energy production *decreased* by almost 9%. In 2007, however, most of the renewable energy was still produced from biomass and wastes (69%), and hydropower (19%) although the strongest growth during the last 17 years has been in wind and solar energy, increasing their respective shares from 0.1% to 6.5%, and from 0.2% to 0.9%, between 1990 and 2007. The current relative unimportance of 'modern RES' (i.e. solar and photovoltaics, wind power and geothermal energy) mainly reflects the high costs involved in their production.

Employment figures set out in Chart 3 show that biomass, including biowaste, represents the most significant part of employment, not only because of its high share in total energy output, but also because of more labour-intensive nature. After biomass technologies, hydro-power was the second largest employer, followed by wind technology.

Investments in renewable sources made the strongest contribution to the creation of new jobs. In 2005, about half of both direct and total employment was due to investments, while operation and maintenance represented around one quarter of direct jobs and one fifth of total employment. At the same time, around two thirds of total renewable employment (or 900 000 FTE-jobs) was in small and medium-sized enterprises (SME), especially in the areas of biomass, solar and geothermal energy.[21]

(18) Data for 1999 has been provided by ECOTEC (2002a). They show low-end estimates. By using various procedures to include also other effects of environmental expenditure on employment (e.g. inclusion of subsidised jobs, more 'comprehensive' estimation of expenditures, use of adjusted employment multiplier and inclusion of amenities (urban parks and gardens) as well renewable energy activities) the high end estimate of the total environmental employment is around 4 .5 million jobs in the EU-15.

(19) The RES include hydropower, geothermal, solar and wind energy, tide/wave/ocean energy, combustible renewables (CRW) and waste (including solid biomass, wood, wood waste, other solid waste, charcoal, biogas, liquid bio fuels and municipal waste) (OECD/IEA 2007). This definition is adopted also by Eurostat in defining Environmental goods and services sectors.

(20) For a discussion of direct and indirect effects see Box 2 and section 4.2.1.

(21) This result excludes personnel in direct operation of RES plants, for which the share of SME in the EU Member States is not known. Therefore the results for employment in SME are slightly underestimated.

The economic significance of the renewable energy sector varies significantly across Member States (Chart 4), mainly because of differences in reliance on biomass and the potential for hydro. In 2005, the highest share of total employment was found in Latvia and the lowest in Cyprus, with the high shares of employment in Finland, Sweden and Latvia due to the extensive use of biomass. The exception among countries employing more than 2% of workforce in RES is Denmark, where modern renewables, notably wind power, accounted for almost 60% of total RES employment. Such sources were also very important for RES employment in Cyprus, Malta, Spain and Germany, representing between 35% and 50% of the total RES employment. For Cyprus and Malta the main area of employment was in the solar energy as opposed to Germany and Spain where the main area of employment was the wind power sector. In absolute terms, Germany had the largest share of RES-related expenditures and the highest number of employees – at about one quarter of the total employment in RES in the EU.

In Germany, the number of renewables jobs jumped from 56600 in 1998 to almost 250000 in 2007 and 278000 in 2008.[22] Business consultants Roland Berger projects that in Germany 400000–500000 people may be employed in renewables by 2020, with 710000 by 2030.[23] In 2007, a trade union study found that Spain's renewables industry directly employed 89000 workers and another estimated 99000 indirectly, for a total of 188000. Renewables firms are spread evenly throughout different regions of Spain, though with some concentration in already industrialised regions, including Madrid, Catalonia, Valencia, Basque country, and Andalusia.[24]

Direct employment in wind energy in the EU amounted to some 104350 persons in 2008 (Blanco and Rodrigues, 2009). In 2008, employment was less geographically concentrated than in 2003, with the share of the three biggest producers (namely Denmark, Germany and Spain) falling from 89% to 72%.

Eastern European countries have generally been slow to embrace RES technologies especially wind energy, although this is changing. Wind power increased by 150% in 2008 in the Czech Republic.[25] Poland's wind capacity grew 71% in 2008. Bulgaria has a goal of 220 MW wind capacity by 2012, up from 16.5 MW today. Moreover, future plans for expansion exist in most Member States.[26]

Wind energy development has helped revitalise regions that had suffered from economic decline, such as northwestern Denmark and Schleswig-Holstein in northern Germany. Denmark has experienced a shift from shipbuilding to wind energy.[27] Wind development can provide similar benefits in other European countries with areas that suffer from deindustrialisation or outsourcing.

2.2.3. Analytical tools for the economic analysis of climate change

Although it is difficult to fully assess the quantitative and qualitative labour market effects of climate change and climate change policies, analytical economic tools can provide a useful theoretical and empirical basis for identifying the direction and intensity of the effects. Nonetheless, it should be recognised that research results regarding labour market outcomes may be subject to estimation biases for several reasons:

- First, estimates of current or future employment effects are derived from a variety of sources: case studies (micro-level); input-output analyses; or macroeconomic/general equilibrium models (macro-level). Moreover, the parameters in these models are usually based on historical data, and do not necessarily capture future changes due to technological progress, changes in work organisation, etc.

- Second, shocks to a particular sector will have important feedback effects on other sectors of the economy through changes in prices, wages and income. If these effects are not explicitly modelled (as is the case of a case-study or input-output analysis), then general equilibrium effects will not be picked up and the results obtained will only describe a partial equilibrium.

- Third, any calculations of the impact of climate change on employment (as well as on other economic variables) will need to take account of changes due to other factors at work at the same time, such as the business cycle, globalisation, technological progress and demographic ageing.

- Fourth, most climate change studies limit themselves to the analysis of the quantitative labour market effects, even though climate change and related policies are likely to also have important qualitative effects on the quality of working life (as well as living conditions generally).

Annex 2 provides an overview of findings in the literature on estimated employment effects of climate change related policy measures.[28] The estimates are not comparable due to different methodological approaches, different geographical and sectoral coverage, different assumptions concerning economic growth and the underlying business as usual policies, and reporting the gross or net effects.

(22) Kratzat et al. (2007), Umweltwirtschaftsbericht 2009, op. cit. note 16, p. 93; O'Sullivan et al. (2009).

(23) Bühler et al. (2007).

(24) Nieto Sáinz (2008).

(25) Cardais (2008).

(26) Makower et al. (2009).

(27) EWEA (2008).

(28) See GHK (2009c).

3. EMPLOYMENT EFFECTS OF ADAPTATION TO CLIMATE CHANGE

In the long run, not only global warming itself but also the adaptation to it is expected to primarily affect the composition of employment. Indeed, global warming destroys certain production factors (e.g. agricultural areas, touristic resorts, and fish stocks) and disrupts production processes (e.g. through hurricanes and flooding), which clearly leads to a significant reallocation of labour and capital across and within sectors and regions. At the same time, however, adaptation to global warming will also bring about opportunities to create new jobs as new green markets emerge and as the infrastructure is modernised. Nevertheless, it has to be recognised that in the long run there are limits to our capacity – and certainly also to the capacity of natural systems (e.g. coral reefs) - to adapt to climate change, and that a strategy that relies only on adaptation 'could eventually lead to a magnitude of climate change to which effective adaptation is not possible, or will only be available at very high social, environmental and economic costs' (IPCC, 2007a).[29]

Estimating the impact of global warming on output and employment is clearly a complex process, especially when one takes account of the adjustments that producers can make in response to changing environmental conditions, such as the introduction of new or modified crops in agriculture. Thus, as is well recognised in the economic literature, there is a risk of overestimating the negative effects of global warming on output and employment by, in effect, assuming that the production function remains unchanged and that the only adjustments are made in terms of the magnitude of the input variables (which includes for instance temperature and precipitation in the case of agriculture). See for instance Mendelsohn e.a. (1994).

The economic sectors that are expected to undergo the most significant adjustments in employment, both in terms of level and composition, include agriculture and fisheries, beach and skiing tourism, infrastructure building, energy supply, construction and finance and insurance. The regions most likely to be affected are thought to include Southern Europe, the Mediterranean Basin, mountainous areas, coastal zones, densely populated floodplains and the Arctic region. See for instance ETUC (2007), OECD (2008) and European Commission (2009a).

As quantitative projections for the output and employment effects of adaptation to climate change are scarce[30], and as the time perspective of the analysis in this chapter is restricted to the year 2020, the discussion of the employment effects of adaptation to climate change is inevitably somewhat limited. Nevertheless, the scale of the labour market adaptation required should not be underestimated, and a strong case can be made for taking early preventive policy actions given that the costs of taking action now are seen to be much lower than the costs of inaction over the medium to long term, as indicated in both OECD (2008) or the Stern Review (2006). In this perspective, the European Commission aims to commence with the implementation of a comprehensive EU Adaptation Framework in 2013. See European Commission (2009a).

3.1. The agricultural sector

The impact of climate change on the *agricultural sector* depends to a large extent on the size of the temperature increase and the latitude at which economic activity takes place, recognising that it will affect crop yields, livestock management and the location of production. See for instance ETUC (2007), AEA Group (2007) and European Commission (2009b).

As long as the temperature increases remain within the lower estimates (i.e. within 2°C above pre-industrial temperatures), it is expected that productivity in the agricultural sector will actually rise in the northern Member States due to lower energy costs for glasshouses, increased CO_2 concentrations, longer growing seasons and greater release of nutrients of dead organic matter - provided that sufficient water is available to sustain higher production. At the same time, however, productivity in the Southern Member States is expected to decline due to an increasing shortage of water, heat stress for plants and the emergence of new pests and diseases. Mountainous Alpine regions are expected to be confronted with significant temperature rises, decreased snow cover and retreat of glaciers which may lead to changes in crops, potentially leading to increased crop productivity.

Livestock activities would also be affected by changes in temperature and precipitation, with major differences in developments across regions. In north-west EU, moderate warming could be beneficial to livestock activities in the short to medium term, but in the Mediterranean areas warmer temperatures and summer precipitation deficits would be less favourable as it could shorten the grazing period of cattle. See European Commission (2009b) for more details. In the fisheries sector, displacements of fish species would be expected as water temperatures and salt concentrations change.

In line with any expected changes in (relative) productivity, employment opportunities in the agricultural and fisheries sector would adjust accordingly, with jobs in the former having the potential to be transformed into jobs that provide environmental services, including tourism, rural services and the production of RES, including biofuels.

(29) Moreover, a distinction should be made between the adaptation capacity of natural and human systems, whereby natural systems (e.g. coral reefs) have a much lower capacity to adjust.

(30) European Commission (2009a) proposes to improve and build a knowledge base on the impact and consequences of climate change for the EU.

Although the overall adjustments in the agricultural and fisheries sector may be relatively small, the adjustments in some regions could be very significant, notably in coastal and marine areas where fisheries is an important sector of employment.

3.2. The tourism sector

Employment in the tourism sector would also be expected to be affected by climate change. For instance, beach tourism in the Mediterranean Member States might need to shift to spring and autumn as it becomes too hot during the summer; at the same time new resorts for beach tourism may arise in the Atlantic and North Sea coasts during the summer due to the emergence of more 'favourable' summer weather. Likewise, winter tourism would change as snow conditions alter, glaciers retreat and landscapes lose their attractiveness.

3.3. The power sector

Employment in the power sector would be affected by changes in the demand for energy (e.g. more demand for air conditioning in the summer and less demand for heating in the winter) and by changes in the conditions under which energy is produced (e.g. variations in rainfall and increased temperatures in the production of hydropower). Significant different regional developments would be expected. For instance, it is projected that hydropower production could increase by 5% or more in Northern Europe and decrease by 25% or more in Southern Europe in line with changes in precipitation and glacier melt.[31]

The construction of new environmental infrastructures to protect against rising sea levels or floods may have a significant positive impact on employment as is the case for instance with the Deltaplan (dike building) in the Netherlands[32]. For this particular plan it is also expected that in addition to providing employment opportunities during the construction phase, it would also create opportunities for additional jobs, such as activities in recreation and tourism once the infrastructure was completed. In addition, the existing infrastructure would suffer more from higher frequency and intensity of storms and water floods. In order to accommodate these changes, adjustments in employment would have to be made.

3.4. The insurance sector

In the insurance sector new products would need to be developed in order to cover the increased risks caused by higher levels and variability in temperature, wind and precipitation.[33] To accommodate these changes, adjustments in employment would have to be made.

Summarising the overall employment effects of adaptation to climate change, it can be concluded that adaptation would lead to the reallocation of employees to new jobs across sectors and regions. This would require workers to acquire new skills, knowledge and competences in order to strengthen occupational mobility, and obstacles to greater geographical mobility would need to be further reduced in the EU. More importantly, although the expected direct effects of adaptation to climate change are expected to take time to realise, policies to adapt will not be postponed and will have important labour market effects in the near future. Moreover, if nothing is done on adaptation today, it is very likely that more employment problems will arise in the future.

This overview implies that the available evidence on the quantitative effects of adaptation to climate change is limited and inadequate, and that further research is urgently needed.

4. Employment effects of the transition towards a low-carbon economy

The main driving forces behind the transition towards a competitive low-carbon economy are the various efforts to improve energy efficiency, to develop RES, to capture CO_2 and other harmful emissions, to modernise the European infrastructure (including transport networks and energy supply), to integrate environmental responsibility in business models, to promote environmental friendly land use and agriculture, and to create conditions conducive to climate-related research and innovation.

Moving towards a competitive low-carbon economy will not only affect GHG emissions but also security of energy supply, international competitiveness of the European industries, quality of public health, and quantity as well as the quality of jobs. In this chapter only the latter effects will be examined, though it is to be expected that no contradictions with the policy targets regarding these effects will emerge.

The overall net employment effect of any such transition is expected to be neutral or slightly positive, at least in the long run.[34] Indeed, in the long

(31) See European Commission (2009a).

(32) See http://www.deltawerken.com/The-Deltaplan-/92.html

(33) See European Commission (2007a).

(34) Overall climate change policy will have a modest aggregate economic impact on job growth in the EU (ETUC 2007) and in the US (CERES, 2008). Climate change policies are more likely to lead to a redistribution of jobs within and across sectors than to changes in absolute employment levels (ETUC, 2007), (IEEP, 2008), (CERES, 2008). Of course, behind these net changes in total employment some significant gross flows into green jobs and out of traditional jobs as well as shifts between jobs will occur. As discussed in section 5, in order to smooth the whole transition process and avoid a situation where short-term rises in unemployment persist, these transitions will have to be accompanied by appropriate labour market policies.

run, net changes in total employment are essentially determined by changes in the labour supply, participation rate and natural rate of unemployment.[35] To the extent that green jobs increase the quality of work, it may increase the participation rate as people find it more attractive to work. For instance, green jobs usually pose fewer health and safety risks than traditional environmental inefficient jobs so that older people may be more inclined to postpone their retirement when they get employed in a green job. The effect of climate change policies on the natural rate of unemployment is less clear-cut. If it concerns policies that affect the overall tax rate on labour, the natural rate of unemployment will increase. However, if it concerns a revenue-neutral environmental tax reform package in which indirect taxes on energy carriers are increased and the taxes on labour are reduced, the natural unemployment rate may be unaffected or even decrease.[36]

More significant effects are expected concerning the distribution of employment across sectors and regions. Indeed, the sectoral composition of employment will be affected significantly as existing jobs become obsolete, while others will have to be redefined and new ones will have to be created. More specifically, ETUC et al. (2007) identify the following three main adjustment mechanisms:

- transfer of jobs from power generation activities to activities relating to energy efficiency and the reduction of power consumption
- transfer of jobs from goods transport by road and the private car to public transport activities for freight and passengers
- substitution effects within equipment industries – i.e. jobs in the equipment sector for power generation from fossil fuels being replaced by jobs in the equipment sector for power generation from renewable sources.

The employment implications of such a transition will also contain a strong regional dimension, reflecting different initial starting points regarding regional weather conditions, characteristics of local economic activity, as well specific features of local labour markets.

The adjustments are likely to affect low–skilled workers in a less favourable way than high-skilled workers. The latter will benefit more as transitions to new activities call for the implementation of advanced technologies for which only the high-skilled have the necessary qualifications, with the introduction of new green technologies increasing the demand for corresponding skills, and rendering obsolete others.

Not all employment gains will be permanent. For instance, those linked to current higher labour intensity of some of low-carbon technologies will probably not be sustained over the long term because differences in labour intensity are likely to diminish over time as those technologies mature and become more competitive (Fankhauser et al. 2008). Nevertheless, these developments should be seen as beneficial to the economy since they would enable a more efficient use of labour inputs, and further R&D efforts would help to speed up this process, thereby supporting new investments and consequently creation of jobs.[37]

Moreover, as the economy shifts to a lower energy consumption regime, important employment gains will be made because such a move requires that the old capital stock is replaced by a capital stock that embodies the new energy technologies. However, this is only a temporary employment effect because once the capital stock has fully adjusted to the new technologies, the investments in new capital – and thus also employment - will grow at a lower rate. The time path of such adjustments will to a large extent be determined by policies implemented at European and national level.

Finally, the channels that can reinforce or weaken the transmission of the effects of climate change and climate policies are manifold and include the labour intensity of production, nature of the distribution systems, international competitiveness and consumer preferences. See GHK (2009b). Indeed, if one shifts from the construction of buildings characterised by low energy-efficiency standards to the construction of building with high standards, labour intensity – and thus also employment- will increase. If consumer preferences change in favour of more environmentally friendly services (due to, for instance, rising awareness of the climatic implications of their consumption behaviour), there will be a shift in production out of the manufacturing sector into the service sector, and consequently also a shift in the composition of employment. Changes in international competitiveness caused by climate policies[38] can lead to a loss of jobs in energy-intensive sectors

(35) The natural rate of unemployment is the unemployment rate in equilibrium, i.e. when no cyclical disturbances are affecting labour demand and supply, wage and price inflation are at their long-term growth rate and all expectations are realised. Assuming a traditional production function with two production factors (labour and capital), this rate is usually specified as a function of labour and capital taxes and the real interest rate. See for instance Morrow and Roeger (2000). Increases in taxes and the real interest rate will increase the natural rate of unemployment. If the underlying production function would also include energy as a production factor (along with labour and capital) a rise in the energy tax rate would also have a negative effect, however if proceeds of this tax would be used to finance a cut in the labour tax the net effect may be a decrease in the natural unemployment rate. It is an empirical matter to determine the precise outcome of this.

(36) Depending on the elasticity of substitution between the production factors energy and labour and the magnitude of the tax shift.

(37) Inefficient use of labour in green jobs is subject to criticism; see e.g. Morriss et al. (2009).

(38) The impact of climate change and climate policies on international competitiveness and subsequent impact on jobs depends on the level of EU environmental policies and standards, and on the level of non-EU environmental policies and standards.

(e.g. steel, cement, paper) or a relocation of jobs to non-EU countries with relatively lower environmental standards (carbon leakage). However, it can also result in certain jobs being transformed or upskilled, such as car workers trained on hybrid/electric engines and related technology and gas-fitters installing gas combined heat and power (CHP) instead of traditional systems; or to the creation of new jobs, such as additional insulation fitters for retrofitting homes or jobs for producing new types of biomass for transport fuels.

The following sub-sections show, in more detail, the employment effects of improved energy efficiency, and increased use of renewable energy.

4.1. Improved energy efficiency and jobs

4.1.1. Energy efficiency

An improvement in energy efficiency implies that the same level of energy services is provided with less energy. Such improvements can be realised, first, through the use of more efficient infrastructures (including residential buildings and industrial equipment), products (including appliances and cars) and energy systems and, secondly, through changes in the behaviour of consumers (e.g. through the use of public transport or non-motorised transport instead of motorised private transport), employees and employers (e.g. through teleworking), and public authorities (e.g. through more green public procurement[39]). See European Commission (2005b).

These changes are not expected to reach their social optimal level automatically at the desired speed because of production and consumption externalities, imperfect information, uncertainty and inertia in decision-making, and public policies will be required to direct and strengthen the necessary adjustments. See for instance Stern (2008).

Policy instruments to improve energy efficiency in a cost-effective way include the completion of the internal market, environmental tax reform, promotion of environmental technologies and R&D, introduction and monitoring of minimum energy-efficiency standards (ecodesign[40]), labelling of products and services (ecolabelling), better targeted state aid, construction of green infrastructures, and promotion of adequate education and training.[41] See European Commission (2006c). In this chapter the relative merits of these instruments are not discussed, but the following sub-sections will focus on the impact of changes in energy efficiency on employment, irrespective of the policy instruments used.

4.1.2. Overall labour market outcomes of improved energy efficiency

The implementation of cost-effective energy efficiency will have important effects on employment levels, in particular the composition of employment, and these effects will be established through several channels.

First, a new infrastructure will have to be manufactured, installed and operated. This will not only affect directly related employment but also employment in the sectors that supply the green equipment and services. The European Recovery Plan[42] assigns more than €3.7 billion to new energy infrastructures investment, from gas interconnections to carbon capture and storage projects. This initiative has the potential to create a significant number of jobs. However, it should also be noted that such catch-up investments in energy infrastructure are only of a temporary nature, and will end as soon as the optimal stock of green infrastructure capital is attained. Moreover, the number of permanent jobs for the maintenance of this new infrastructure will be significantly lower than the number required to build it.

Second, improved energy efficiency will have important spill-over effects on employment across the economy through multiplier effects induced by changes in prices and income – the 'double dividend'. For instance, as households' energy bills reduce due to improved energy efficiency, they will have more income to spend on other goods and services[43], or producers will have more means to invest.

Third, with respect to the skill composition of employment, it is to be expected that in an initial phase the new jobs associated with the development, installation and operation of the new technologies, will generally require highly skilled workers who are at the cutting edge of new technologies. In the medium term when technologies mature, lower skilled workers will also be able to fill these jobs. However, to the extent that these changes in energy efficiency, such as changes in the energy efficiency of buildings, are immediately accompanied by some up-skilling of the lower skilled workers, employment prospects of the lower skilled may improve even in the short run.

Fourth, with respect to the geographical effects on employment, it is to be expected that many new jobs in energy services and construction will be created at local level as, for instance, the existing building stock is refurbished to higher energy-efficiency standards.[44]

(39) See for instance http://ec.europa.eu/environment/gpp/index_en.htm

(40) See Directive 2005/32/EC on the eco-design of Energy-using Products (EuP).

(41) Structural Funds Operational Programmes could be amended in order to devote a greater share to energy-efficiency investments, including where they fund social housing. See European Parliament (2008).

(42) See European Commission (2008c).

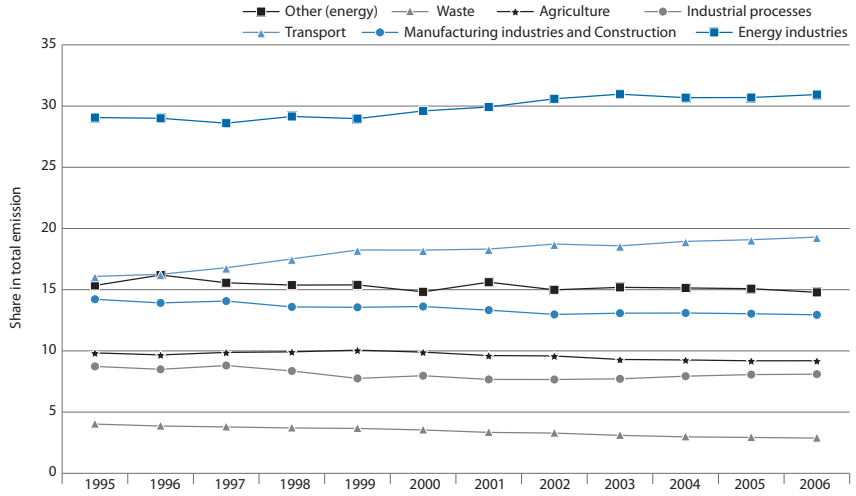
(43) Lower energy prices will increase the international competitiveness of other economic sectors, especially energy-intensive industries, thereby creating the potential to increase total output and the overall employment level (and/or wage level).

(44) See http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/06/31&format=HTML&aged=0&language=EN&guiLanguage=en

However, employment in areas characterised by a high concentration of traditional energy-intensive and high carbon industries, and by poor economic diversification, will be severely hit during the transition process.

All in all, it is estimated that energy efficiency has the potential to improve by at least 20% in the EU by 2020 if more efficient technologies are applied, and that, if such an outcome were achieved, this could potentially create as many as 1 million new (direct and indirect) jobs in Europe[45]. See European Commission (2005b).

Chart 5: **Contribution of selected sectors to total GHG emissions in EU-27, 1995–06**



Source: Eurostat and DG EMPL calculations.

4.1.3. Sectoral labour market outcomes of improved energy efficiency

Chart 5 shows that, in recent years, the transport sector has experienced the strongest increase in its share in total GHG emissions in EU-27, followed by the energy sector. Over the same period, GHG emissions by the waste and agricultural sector have undergone a relative decline.

The following sections discuss the employment effects of climate change policies for selected sectors. However, it should be noted that in some cases the presented quantitative effects are limited to a discussion of the direct employment effects only or only part of the indirect employment effects.

The transport sector

In the transport sector[46], which is responsible for almost 20% of GHG emissions and which faces the fastest growth in GHG emissions, there is ample room for improvement in energy efficiency, provided the essential measures[47] for developing new technologies and smart energy infrastructures (including the promotion of cleaner alternative transport)[48] are implemented.

These structural changes would be expected to have a considerable impact on employment in the transport sector. First, it should be noted that although the construction of the new transport infrastructure, such as cycling and walking infrastructure, railways and roads, may yield a strong increase in jobs[49], these infrastructure jobs are only of a temporary nature. Furthermore, once created, they would require only a limited amount of direct permanent jobs, such as those related to its operation, maintenance and security.

Next, employment opportunities in this sector will only be realised if workers acquire the skills to make the necessary transitions. For instance, a major expansion of the railway sector requires a considerable increase in relatively highly skilled and specialised workers, such as locomotive drivers who require extensive training and need to maintain their knowledge of routes and networks on a permanent basis. In view of these considerations, the employment outcomes in the railway sector will partly depend on the degree at which better training networks and a more integrated job market[50] are created at European level. Moreover, to the extent that workers' rights in the road transport sector are strengthened and harmonised across the EU, the quality of work in the transport sector may improve significantly. See European Commission (2006d) and ETUC et al. (2007).

Finally, the expected developments in the transport sector will also have important spill-over effects on employment in other sectors. Employment in rural areas may benefit if stricter targets on GHG emissions by vehicles make the development of biofuels more appropriate, while employment in the automobile and aviation industry will also be affected as the manufacturing of more fuel efficient and hybrid vehicles leads to eco-innovations and high-quality jobs. Moreover, by improving fuel efficiency, consumers will be able to

(45) The direct employment effects of energy savings investments stem from the labour required to produce and install the new energy saving capital goods. Here, the measured indirect employment effects derive from the 'redeployment effect' stemming from the reinvestment of the financial savings generated by energy-efficiency measures.

(46) The transport sector covers transport over air, maritime, inland waterway, rail and road.

(47) Such measures include imposing a binding target to reduce CO_2 emissions from cars to 120g of CO_2/km by 2012, vehicle labelling and public authorities purchasing clean vehicles. See for instance European Commission (2006c) and European Commission (2007b).

(48) See European Commission (2008c).

(49) The labour intensity of these projects is difficult to project, varying for instance between 8 and 85 man-years per kilometre of road, or even more in some projects. See ETUC et al. (2007).

(50) See ETUC et al. (2007).

make important fuel savings which will give them additional income to spend on the goods and services of other sectors – and thus improve employment prospects elsewhere.

The building and construction sector

The introduction of energy-saving measures in the building and construction sector[51], which is responsible for 40% of EU final energy consumption[52], has the potential to create a significant number of new jobs, varying from jobs for low-skilled workers who install better insulation in the existing housing stock, to jobs for medium-skilled workers who inspect heating and air-conditioning systems, and jobs for high-skilled workers providing engineering and technical support.

The European Commission (2008e) estimates[53] that the implementation of cost-effective measures that reduce the energy demand and energy loss[54] in the large buildings[55] of the EU, as proposed in the 2002 EU Energy Performance of Buildings Directive (EPBD)[56], would reduce the emission of CO_2 in 2020 by 129 million tonnes compared with the level attained in 2009. Moreover, if the measures were implemented in all buildings, the emission of CO_2 would fall by a further 51 million tonnes in 2020.

In addition to these important drops in CO_2 emissions, significant savings in energy costs and gains in employment are also to be expected. More particularly, it is estimated that, if the measures would only apply to large buildings, employment would increase by 149 000 persons by 2020, not taking into account the influence on employment in other industries such as the energy or manufacturing industry. Moreover, if the measures were applied to all buildings (with a surface larger than 50 m^2), employment would increase by an additional 75 000 units.

Finally, it should be noted that the previous estimates may increase significantly if account is taken of the employment gains to be made by strengthening the other pillars of the EPBD. Besides reducing the surface of the buildings, the full implementation of the directive would create significant employment opportunities for energy certifiers and auditors (with the potential to increase employment by up to 100 000 units by 2020), as well as inspectors of heating and air-conditioning systems in respect of EU-wide energy performance requirements.

The energy-intensive industry

Significant energy savings are also to be made in the energy-intensive industry. GHK et al. (2007) have simulated the employment effects of the substitution of 10% (in value terms) of the industry's energy purchases with investments in energy-efficient technologies (that already exist)[57] by the energy-intensive industry[58] in EU-27. Under such a scenario[59], employment in the energy sector is estimated to drop by close to 29 000 FTE jobs and increase by some 83 000 FTE jobs in the sectors that supply the investment goods and services for the new energy infrastructure. In other words, net direct employment is expected to increase by some 54 000 FTE jobs. If the indirect employment effects are taken into account, total employment will rise by over 90 000 FTE jobs. This growth in indirect employment of some 37 000 arises from the fact that the energy sector will demand fewer inputs from the other sectors, that the other sectors will increase their demand as a result of the higher economic activity, and that the latter effects are larger than the former. This large positive indirect employment impact is mainly the result of the fact that the energy sector is less labour-intensive and has a relatively short supply chain.

Energy demand-side sectors

Table 2 shows the general equilibrium employment effects of an improvement in energy efficiency simulated with the GEM-E3 model[60] in the context of the EC funded 'Models'

(51) Measures to increase the energy efficiency of buildings include inter alia insulation, heating/cooling controls and equipment, shading, glazing, lighting and ventilation.

(52) See European Commission (2005b).

(53) Based on inter alia Ecofys (2005a and 2005b).

(54) These measures include insulation of external walls, insulation of roofs, insulation of ground floors/cellar ceilings, windows and heating. See Ecofys (2005a).

(55) I.e. buildings with a surface exceeding 1 000 m^2, when they undergo major renovation.

(56) See the EU Energy Performance of Buildings Directive (2002/91/EC) available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:001:0065:0071:EN:PDF

(57) The simulation results have to be interpreted with due caution as general equilibrium effects (including multiplier effects of changes in relative prices, wages, profits and international trade) are not fully incorporated in these results. As the energy-intensive industry operates under strong international competition, it should also be taken into account that an improvement in energy efficient in this sector will increase its international competitiveness creating the potential to increase employment in the sector (provided wages do not capture the full gain in efficiency).

(58) These industries include wood and paper, printing and publishing, pharmaceuticals, chemicals, rubber and plastics, non-metallic minerals product, basic metals, and metal goods.

(59) See scenario 4.b in GHK et al. (2007).

(60) For more details concerning the GEM-E3 model see for instance http://www.gem-e3.net/. For this exercise the labour market of GEM-E3 has been extended so as to incorporate frictions that lead to involuntary unemployment. In particular the efficiency wages approach was adopted, where employers are willing to pay wages above the market equilibrium in order to improve labour productivity. In modelling terms a labour supply function was introduced into the model (relating wages and unemployment). This function was calibrated to the wage, unemployment benefits and base-year unemployment rates of each Member State.

project[61], Paroussos L. and P. Capros (2009). Under this scenario the primary energy needs are assumed to fall by 15% from the reference case in 2020 and by 20% in 2030. These improvements are assumed to be generated by changes in energy consumption patterns and technology reflecting energy-efficiency improvement in all energy demand-side sectors. The dynamics of the efficiency policy is such that in the medium term (2020) the bulk of energy-saving investment has to be implemented. Beyond that date, the additional energy-efficiency requirements are smaller compared with the period until 2020. Furthermore, the already installed energy-saving capital operates during the period 2020–30 and brings about benefits related to the improved productivity of the energy-related production factors.

Table 2: General equilibrium employment effects of improved energy efficiency

Employment (% changes from reference case)	Flexible		Moderate		Rigid	
	2020	2030	2020	2030	2020	2030
Total employment	1.27	0.83	0.18	0.06	-1.28	-1.12
Agriculture	1.53	1.16	0.17	0.25	-1.70	-1.21
Coal	-18.54	-20.22	-19.22	-20.74	-20.18	-21.57
Oil	-12.11	-12.58	-12.53	-12.90	-13.12	13.41
Gas	-20.74	-22.89	-21.37	-23.39	-22.22	-24.16
Electricity	-18.38	-20.72	-19.48	-21.46	-20.96	-22.60
Ferrous and non ferrous metals	1.36	0.44	-0.12	-0.68	-2.05	-2.35
Chemical Products	0.24	0.51	-1.11	-0.52	-2.89	-2.07
Other energy intensive	1.75	1.33	0.47	0.35	-1.22	-1.11
Electric Goods	3.86	2.53	2.36	1.36	0.37	-0.39
Transport equipment	1.84	-0.53	0.27	-1.70	-1.79	-3.46
Other Equipment Goods	3.88	2.33	2.46	1.26	0.60	-0.34
Consumer Goods industries	1.98	1.58	0.51	0.52	-1.47	-1.11
Construction	2.67	2.07	1.70	1.36	0.41	0.26
Telecommunication Services	2.15	2.10	0.74	1.07	-1.15	-0.50
Transport Services	-0.17	-0.64	-1.57	-1.67	-3.45	-3.24
Services of credit and insurances	3.11	2.30	1.92	1.43	0.30	0.09
Other Market Services	1.47	1.05	0.26	0.18	-1.39	-1.15
Non Market Services	0.61	0.51	0.02	0.13	-0.77	-0.47

Source: Paroussos and Capros (2009).

Table 2 shows the simulation results under three different degrees of flexibility in the labour market – i.e. flexible, moderate and rigid. A flexible labour market reflects a 25% increase of the moderate labour supply elasticity and a rigid labour market reflects a 25% decrease.

Under the flexible and moderate variants, total employment rises above the baseline projection respectively by 1.27% and 0.18% in 2020 and by 0.83% and 0.06% in 2030. In contrast, under the rigid labour market variant, total employment falls below the baseline by 1.28% in 2020 and 1.12% in 2030.

Compared with the reference case, employment grows significantly in the sectors producing the energy-efficiency equipment (i.e. electric goods, other equipment goods, construction and services of credit and insurance) under the three different degrees of flexibility in the labour market. However, employment in the conventional energy-producing sectors (i.e. coal, oil, gas, electricity) decreases dramatically under all scenarios, up to 24% in the gas sector in 2030 under the rigid labour market variant.

These labour market effects are generated by changes in energy prices, changes in factor prices (and subsequent changes in international competitiveness) and are strengthened by multiplier effects. First, the additional investment in energy-saving equipment compared with the baseline scenario increases the price of electricity because the energy-saving investments are financed through a tax imposed on energy consumption. Second, in the moderate and rigid variant of the labour market, production costs rise in all sectors by an additional factor due to higher wages that reflect increased demand for labour caused by the increased production of energy-saving equipment. Third, the implementation of the energy-efficiency programme implies an increased demand for services and goods that are used for the construction of the energy-saving equipment. Since part of this equipment is produced within the EU, sectors like electrical goods, other equipment goods and services of credit and insurance increase their output and employment. This induces a demand push effect to the whole economy.[62]

The traditional power sector

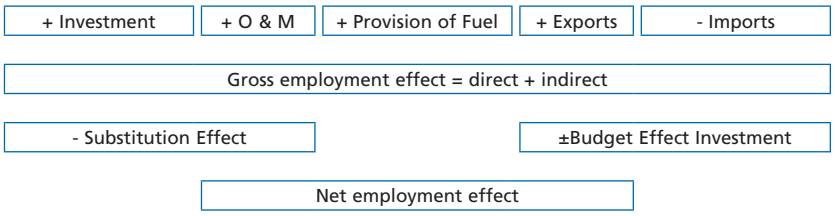
In the traditional power sector, improved energy efficiency will have a double impact on employment. First, technological innovation requires fewer employees to deliver the same amount of energy services. Moreover, it also induces an increase in the demand for skilled labour and a decrease in the demand for unskilled labour as the new technologies will be at the cutting edge of technological innovation – at least in the short run. However, the negative effect for the low-skilled workers will be tempered if account is taken of the fact that, in the initial phase of the transition, a significant number of low-skilled workers will be needed to build and install the new infrastructure.

(61) The research project on Models (managed by Directorate General for Research) should improve existing large-scale economic models by integrating energy and environment systems to evaluate environmental sustainability objectives and by developing specific extensions that should cover the labour market. The updated version of the GEM-E3 model incorporates labour market imperfections according to the efficiency wages methodology. For more information see: http://www.ecmodels.eu/index_files/Page522.htm.

(62) Through the Input – Output multiplier effect. The magnitude of this effect depends both on the amount and the specific structure of the energy-saving investment.

Second, as energy efficiency improves, the price of energy may fall.[63] This price decrease may then stimulate economic activity in the other sectors and create opportunities to reallocate labour from the energy sector to other sectors – provided the employees have the required skills, competences and knowledge. On balance, given the relatively low labour intensity of the energy sector, significant increases in employment may be expected.

Chart 6: **Main employment effects of policies supporting renewable energy**



Source: Kratzat and Lehr (2007) and Fraunhofer ISI et al. (2009).

4.2. More renewable energy and jobs

Increasing the use of RES is one of the EU's answers to the environmental challenges. A higher share of RES in final energy consumption will not only lower GHG emissions but also improve air quality by replacing the use of fossil fuels; increase the security of energy supply by diversifying sources of energy supplies; support regional development and thus promote social and territorial cohesion; and provide strong export opportunities for high technology equipment as growth in energy consumption outside the EU increases (European Commission, 1997; European Commission, 2006a). Last but not least, it will also provide opportunities to create new jobs that contribute to the sustainable development of the world economy.

The new Directive on renewable energy[64] seeks to ensure that, by 2020, at least 20% of the EU energy needs[65] are met by RES, and that the share of renewable energy in transport represents at least 10% of total EU transport petrol and diesel consumption. The strong growth in the use of renewable energy will be promoted by the removal of existing barriers including unnecessary administrative procedures, limited grid access, inadequate support by Member States etc. (European Commission, 2009c).[66]

Member States, regional and local authorities can use various policy instruments to increase the share of RES including feed-in tariffs, premium systems, green certificates, tax exemptions, obligations on fuel suppliers, public procurement and research technology and development (European Commission, 2006a).

Overall the increased use of RES should be beneficial not only to the environment but also to the economy and employment, in particular due to the existence of longer supply chains and a higher labour intensity in the environmentally friendly sectors (GHK et al., 2007). However, especially due to the 'additional costs' in the renewable energy sector[67], those positive developments can be counterbalanced and therefore the actual impact of renewable energy on net employment remains uncertain (European Commission, 2006a; Lehr et al., 2008; Heal, 2009).

The following subsection examines in more detail the employment effects of policies that promote renewable energy, and presents some key findings regarding the current and future labour market effects of these policies.

4.2.1. Employment impacts of RES

A rise in the use of RES will affect employment in several ways. Direct employment in the renewable energy industry will increase with the installation of additional capacity as well as with the operation and maintenance of the new infrastructure (Chart 6). In addition, employment will increase in the industries

(63) Provided wage costs increase by less than productivity. Alternatively, if real wages were to increase by the same proportion as productivity prices will not fall but the purchasing power of employees in the energy sector would increase giving them the opportunity to spend more on goods and services in the other sectors.

(64) Directive 2009/28/EC on the promotion of the use of energy from renewable sources and amending as subsequently repealing Directives 2001/77/EC and 2003/30/EC was approved as a part of the EU climate and energy package by the Council and European Parliament in December 2008 and is available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0016:0062:EN:PDF.

(65) i. e. power sector, transport, and heating and cooling.

(66) The EU already has indicative targets with respect to RES for 2010. Directive 2001/77/EC on the promotion of electricity produced from renewable energy source in the internal electricity market sets a 21% share of electricity produced from renewable energy and Directive 2003/30/EC on the promotion of the use of bio fuels or other renewable fuels for transport defined that 5.75% all transport fuels put on the market should come from renewable energy. However, the 2009 Progress report on renewable energy (European Commission, 2009c) showed that it is unlikely that the EU would reach either of these targets. It is expected to reach a 19% share in electricity and 4% share in the transport sector.

(67) The so-called 'additional costs' of RES are equal to the difference between the total cost of generating renewables and the reference cost of conventional energy production. These additional costs are predominantly influenced by the international prices of conventional energy sources (oil and other fossil fuels) and of CO_2 emissions (i.e. tradable permits) as well as by the cost of capital, choice of renewable technology, finance mix (i.e. incentives available to producers of green energy), and the degree of competition in the sector. For instance, higher oil prices ($78/barrel instead of $48/barrel) could decrease additional annual costs by approximately 40% (European Commission, 2006a). When the additional costs equal zero, the renewable energy becomes competitive and does not need financial support anymore (European Commission, 2006a).

that provide services (e.g. IT-service providers, transportation sector etc.) and that produce renewable technologies (e.g. steel-producing sector) for the renewable energy industry.

Direct and indirect employment will also be created in the production and supply of biofuels, which will also boost the demand for forest and agricultural products, and thus create additional employment opportunities.

Employment in the renewable energy sector in the EU already benefits significantly from a positive trade balance, which is expected to increase in the future as export markets grow faster than EU markets.[68] Success in foreign trade depends on both price and quality of products. If the EU becomes the leader in the market of renewable technologies, it could realise its first-mover advantage to expand its activities in this market segment and create opportunities for new jobs (Fraunhofer ISI et al., 2009).

The gross employment effects in the renewable energy sector will, however, be counterbalanced by the employment effects in the other sectors due to substitution and budget effects. As the production of energy from RES increases, the output of the industries that produce energy on the basis of non-renewable resources (e.g. coal and oil) will fall. As a consequence, investment, maintenance and operation in this sector will decrease, which will lead to a fall in its direct employment level as well as in the employment of the industries that supply inputs to the non-renewable energy sector. However, since the labour intensity of the conventional energy sector is lower than the labour intensity in the renewable sectors, the decreases in the conventional energy sector will be smaller than the increases in the renewable energy sector (Fraunhofer ISI et al., 2009).[69]

The budget effect is caused by the adjustments in prices and income that follow the overall change in the additional cost of renewable energy. This budget effect can be either positive or negative, depending largely on the intensity of the responses of the households and enterprises. Currently, the use of RES is more expensive than the use of conventional forms of energy. This means that a rise in the consumption of renewable energy will increase the total energy bill across the economy and lower the available income of households and enterprises to spend on other goods and services. This fall in demand will thus cause a decline in the output and the demand for labour of the sectors that produce these goods and services. The impact on employment of this effect could be significant given that the labour intensity in the production of consumption goods is higher than that of equipment (Fraunhofer ISI et al., 2009). However, the impact of this effect will be tempered as the increased activity and employment in the renewable sector will raise the available income of households and enterprises.

Apart from the employment effects mentioned above, an increase in the use of renewable energy can have some important additional effects. First, it will contribute to the stability of energy supply and prices since the supply of oil and gas depends primarily on imports from unstable regions. As such, a higher use of renewable energies will decrease the uncertainty concerning the supply and prices of energy, and reduce risk premia in the energy markets. This will give an extra boost to overall economic activity and employment. Second, since renewable energy production usually takes place closer to its place of consumption, it has the potential to create local employment in a more even manner, thereby strengthening social and territorial cohesion in the EU. However, it must be recognised that if the production of renewable energy is to grow as hoped and foreseen, it will need to be created everywhere possible. This includes the faraway places where the energy is not directly consumed (i.e. offshore wind, solar thermal in Southern Europe, Icelandic geothermal, Norwegian hydro power). This might lower the potential for local employment and have possibly negative impact on the employment, not least because of increasing costs of construction and transmission.

4.2.2. Future labour market outcomes from renewable deployment

The implementation of Directive 2009/28/EC is expected to have a significant positive effect on future employment as investments in infrastructure will be needed to extend the existing capacity (Chart 7).[70] This implies that significantly more wind farms, solar panels etc. than currently foreseen will be needed, which could have a detrimental impact on the environment and ecosystems.[71] According to World Energy Council (2007) the long-term potential is especially high for solar energy, marine technologies (wave and tidal power) and geothermal power. Hydro power is not expected to substantially increase its share in

(68) In Germany change in exports is more important for employment than energy price developments (see Lehr et al. 2008).

(69) In addition to that, employment in the European energy sector has been declining for some time due to mechanisation and greater imports. The average annual fall in employment was 6.9% for the mining and quarrying of energy producing materials (1997 to 2006), 3.3% for fuel processing, and 2.9% for the supply of electricity, gas, hot water and steam, in all cases a much faster contraction in employment than the industrial (NACE Sections C to E) average of 1.3% (Eurostat Business facts and figures, 2007 edition).

(70) For instance, European Commission 2009 estimates suggest that an overall 20% share of renewable energy in 2020 will require around a 33% share of renewable energy in the electricity sector, i.e. almost double the level in 2006 (15.7%).

(71) The positive experience gained so far with the use of spatial planning instruments can be very helpful in identifying potential locations (see for instance "Danish Offshore Wind – Key Environmental Issues", available at http://193.88.185.141/Graphics/Publikationer/Havvindmoeller/havvindmoellebog_nov_2006_skrm.pdf).

total energy production. There are also limits for wind power use due to intermittency and unpredictability of supply and because of the lack of suitable sites for wind farms.(72)

Fraunhofer ISI et al. (2009) estimate that total employment in the renewable sector could amount to some 2.3 million jobs in 2020. This figure would rise to 2.8 million jobs if accelerated deployment policies (ADP) to promote the use of energy from renewable sources were implemented.(73)

Investments and fuel use are the most important determinants of employment growth in this sector. The operation and maintenance of the infrastructure, once installed, are much less important for job growth (Chart 8) although such employment persists over time.

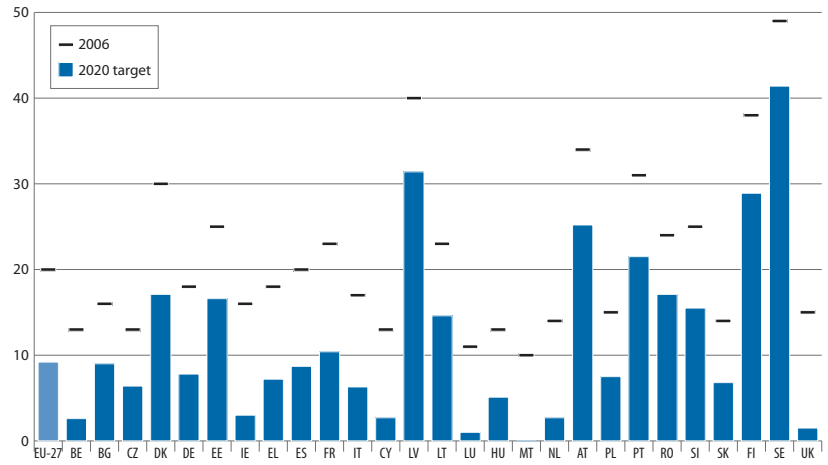
Chart 8 shows that in the future, especially after 2020, most employment gains at EU level, as well as at Member State level, can be expected to be generated by higher investments in RES technologies. The ambitious policy targets will contribute to the creation of high-skilled rather than low-skilled jobs because the higher investments will be significant directed towards knowledge-intensive generation technologies.

Kammen et al. (2004) have analysed the importance of investments and fuels use over the operation and maintenance for employment in the renewable energy sector on the basis of a review of 13 studies. They find that renewable energy generates more jobs per unit of installed capacity and per unit of power generated in construction, manufacturing and installation than conventional fossil-fuel power plants (Table 3).

(72) For more thorough discussion about the potential, acceptability, availability and accessibility of RES see WEC (2007).

(73) The renewable energy sector, as an example of a sector with positive employment prospects, was discussed also in the European Commission's (DG EMPL) May 2009 Monthly monitor on the EU employment situation and social outlook, available at: http://ec.europa.eu/social/main.jsp?langId=en&catId=89&newsId=505&furtherNews=yes

Chart 7: Share of energy from RES in final consumption with normalised hydro in 2006 and targets for 2020*



Source: EU Energy in figures 2009, Directorate-General for Energy and Transport (DG TREN).

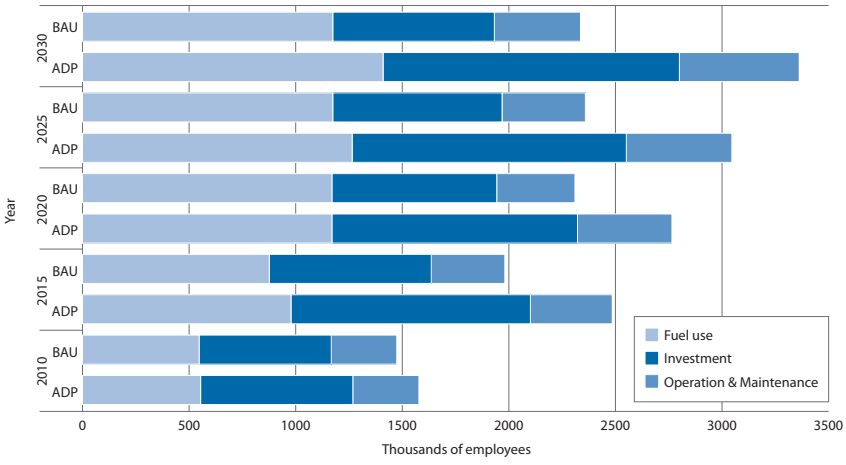
Note:
a) Including consumption of the energy branch and distribution losses for electricity and heat.

b) The share of renewables in final energy consumption is the sum of:

- The final consumption of renewables for heat production (including the final consumption of district heat from renewables),
- The gross electricity generation from renewables,
- Liquid biofuels for transport, divided by the final energy consumption (industry, transport, other sectors) of all energy sources, including consumption of the energy branch and distribution losses for electricity and heat production.

The normalised hydro production is calculated on the basis of the hydro installed capacity (excluding capacity for pumping). For 2006 the average 1992–2006 load factor is used, for 2005 the average 1991–2005 load factor is used, for 1997–04 the average 1990–2004 load factor is used (due to unavailability of data before 1990 for some MS).

Chart 8: Future gross employment in the EU-27 by economic activity



Source: Fraunhofer ISI et al. (2009).

Notes: ADP, accelerated deployment policy with moderate exports share; BAU, business as usual policy with moderate export share.

Table 3: **Average employment over the life of facility (jobs/MWa)***

	Construction, manufacturing, installation	Operation and maintenance and fuel processing	Total employment
Solar PV	5.76-6.21	1.20-4.80	7.41-10.56
Wind	0.43-2.51	0.27	0.71-2.79
Biomass	0.40	0.38-2.44	0.78-2.84
Coal	0.27	0.74	1.01
Gas	0.25	0.70	0.95

Source: Kammen et al. (2004).

Notes: * MWa – average installed megawatts, de-rated by the capacity factor of the technology: for a 1 MWa solar facility, the power output would be 0.21 MWa, because it operates on average only 21% of the time, while coal power plant is likely to operate 80% of the time.

The difference in employment between the renewable and conventional energy sources is not so clear with respect to operations and maintenance. Estimates show that fewer workers are needed to facilitate the operation of wind power plants than coal or gas plants. Differences with biomass depend to a large extent on the way the collection of biomass is organised.

Fraunhofer ISI et al. (2009) estimate that, to achieve 2.8 million jobs in 2020, the cumulative capital expenditure required in new RES plants would have to almost double in the period 2011–15 in comparison with 2006–10, amounting to €455 billion (BAU) and €692 billion (ADP) in the period 2006–20 (Table 4).(74)

Table 4: **Summary of main findings of renewable study, EU-27**

	2010	2020	2030
Gross employment – moderate export (mln. jobs)			
BAU	1.47	2.31	2.34
ADP	1.58	2.76	3.36
Net employment effects – BAU – moderate export ('000 jobs)			
Astra	326	201	300
Nemesis	198	115	188
Net employment effects – ADP – moderate export ('000 jobs)			
Astra	371	417	59
Nemesis	315	396	545
Additional generation costs for RES (bln. €2005/a)			
BAU	4.7	3.8	5.0
ADP	4.8	9.4	18.4
Yearly capital expenditures for new RES (bln. €2005/a)			
BAU	27.2	40.7	47.4
ADP	38.8	63.2	86.4
Avoided CO_2 emission (mln. t/a)			
BAU	710	935	1 120
ADP	723	1 334	1 792

Source: Fraunhofer ISI et al. (2009).

An increase in investment of 50% (as, for example, in the case of accelerated deployment in new RES plants) could, compared with the BAU, have a major impact on jobs, increasing the number of new jobs by 100% by 2020 according to simulation results obtained from the ASTRA model, and by more than 200% according to simulation results obtained from the NEMESIS model.(75)

While more ambitious targets and policies contribute to stronger emissions reductions, they also generate higher cumulative additional costs(76), thereby increasing the energy expenditure of households and the prices of goods. Because of this, however, the *net* employment gains will be less than the *gross* employment gains.

European Commission (2006b) estimates that the 20% target for renewable energy could reduce the annual emission of CO_2 by 600-900 million tonne in 2020, and increase employment by around 650 000 jobs compared to the BAU scenario.(77) Reaching the 20% target would require around €600-670 billion in investments in renewable energy during the period 2005–20, and would generate between €210 billion and 290 billion additional production costs over the same period.

With respect to biofuels, the European Commission (2006a) estimates that reaching a 14% share of bio fuel use in overall EU transport petrol and diesel consumption by 2020 would have a net positive employment effect of more than 140 000 jobs.

GHK et al. (2007) have considered a number of hypothetical policies and have modelled the impact of policies that change the nature of the current technology and, hence, the costs of inputs for a particular sector (or group of sectors). Overall the scenarios show that the greening of the economy would be beneficial for employment due to the longer supply chain and higher labour intensity of the environmentally friendly sectors. For instance a 10% substitution of biofuels for manufactured fuels would lead to some 140 000 new jobs as the labour intensity in the agriculture sector and

(74) €904 billion (BAU) and €1.535 billion (ADP) in period 2006–30.

(75) See study for more detailed discussion about the assumptions of both models.

(76) Estimated at €210 billion (ADP) and €80 billion (BAU) in 2006–30

(77) Under BAU conditions, the share of renewable energy will grow to between 10.4% and 12.6% in 2020.

the industries that supply biofuels is higher than the labour intensity in the industries that supply non-renewable energy. The 10% substitution of non-renewable electricity by renewable electricity would increase the employment in the renewable sector by over 180 000 as renewable energy requires inputs from a number of sectors at the design and installation stage. Employment in the non-renewable sector is estimated to decrease by some 125 000, and total number of net jobs created is estimated at close to 60 000.[78]

Table 5 shows the general equilibrium employment effects of an increase in the use of RES under three different degrees of flexibility in the labour market, i.e. flexible, moderate and rigid[79] simulated with the GEM-E3 model in the context of the EU-funded 'Models' project. Under this scenario the use of RES in total energy consumption of the EU increases to 20% in 2020 and 25% in 2030.

Table 5: General equilibrium employment effects of RES scenario, EU-27

Employment (% changes from reference case)	Flexible		Moderate		Rigid	
	2020	2030	2020	2030	2020	2030
Total employment	1.06	0.72	-0.02	-0.05	-1.47	-1.24
Agriculture	5.44	6.78	4.04	5.81	2.11	4.28
Coal	-14.62	-20.11	-15.34	-20.64	-16.35	-21.48
Oil	-4.07	-5.13	-4.53	-5.50	-5.19	-6.08
Gas	-12.10	-17.00	-12.79	-17.54	-13.74	-18.38
Electricity	-5.75	-8.46	-7.01	-9.32	-8.70	-10.63
Ferrous and non ferrous metals	0.86	0.34	-0.61	-0.80	-2.53	-2.48
Chemical Products	1.04	0.56	-0.30	-0.48	-2.09	-2.03
Other energy intensive	0.86	0.44	-0.40	-0.54	-2.07	-2.01
Electric Goods	0.77	0.27	-0.70	-0.90	-2.65	-2.64
Transport equipment	0.85	0.26	-0.70	-0.94	-2.76	-2.74
Other Equipment Goods	1.19	0.79	-0.21	-0.28	-2.05	-1.89
Consumer Goods industries	1.07	0.61	-0.38	-0.45	-2.32	-2.08
Construction	0.59	0.25	-0.36	-0.46	-1.63	-1.55
Telecommunication Services	1.33	0.91	-0.06	-0.11	-1.91	-1.66
Transport Services	1.00	0.55	-0.41	-0.50	-2.30	-2.10
Services of credit and insurances	1.04	0.66	-0.13	-0.21	-1.72	-1.54
Other Market Services	1.12	0.67	-0.08	-0.19	-1.71	-1.53
Non Market Services	0.61	0.43	0.02	0.05	-0.77	-0.54

Source: Paroussos and Capros (2009).

Notes: RES promotion scenario assumes steady rise in renewable energy sectors leading to 20% of total gross final energy consumption in 2020 supplied by RES. Higher use of RES is introduced into the model as structural shifts in many sectors (mainly power generation) as simulated by the PRIMES model.

Under the flexible variant, total employment rises above the baseline projection by 1.06% in 2020 and by 0.72% in 2030. In contrast, under the moderate and rigid labour market variants, total employment falls below the baseline respectively by -0.02% and -0.05% in 2020 and by -1.47% and -1.24% in 2030.

Compared with the reference case, employment grows significantly in agriculture due to increased biomass production under the three different degrees of flexibility in the labour market. However, employment in the conventional energy-producing sectors (i.e. coal, oil, gas, electricity) decreases under all scenarios, up to 21% in the coal sector in 2030 under the rigid labour market variant.

The deployment of RES requires more goods and services, as well as labour[80], in comparison with the baseline. However, these positive employment effects will be restricted by unfavourable price developments. First, the stronger demand tends to increase the real wage rate and the cost of capital. Second, the increasing use of biomass (for biofuels and also for direct combustion in all sectors) implies an increase in the demand for agricultural products and exerts upwards pressure on agricultural prices. This may further imply higher costs incurred by sectors using agricultural products as inputs (for example the food industry). Moreover, the additional RES deployment entails higher costs for electricity and other energy services.

As costs and prices increase, the international competitiveness of European industries declines, counterbalancing the stimulating effect of increased domestic activity. The net impact on employment is ambiguous, depending to a large extent on the degree of flexibility in the labour market. In the case of moderate and rigid labour market flexibility, the employment effects are negative since the effects of the strong increases in wages through the impact on international competitiveness outweigh the direct effects of increased domestic activity. In the case of flexible labour markets, employment will rise as the stimulating effect will dominate the loss of international competitiveness.

ECOTEC (2002b) underlines the potential for making RES more cost-competitive by investing in R&D that improves technological capabilities and raises the standards of plant performance, availability, reliability etc.

4.3. Carbon capture and storage and jobs

Carbon capture and storage (CCS) offers a potential additional way to limit the emission of GHG (at least in the medium run) provided it can be brought up to an operational level and deployed safely with the support

(78) More jobs can be also expected from increasing the share of organic farming and decreasing the output from conventional agricultural production due to the former higher labour intensity (43 834).

(79) See section 4.1.7. for the explanation.

(80) See also section 4.2.1.

of the public.[81] At the moment the techniques are not yet in place while, in the long run, there remains the problem of finding appropriate storage sites for carbon. Nevertheless, it is hoped that the satisfactory production and installation of the infrastructure would provide significant job opportunities. Moreover, the early development of cost-efficient CCS technologies in the EU may create a first-mover advantage that can be exploited if these techniques were to be deployed across the world. Few estimates concerning the employment effects of CCS are available, although it is estimated that CCS in Germany could create 45 000–66 000 jobs in the period 2016–30.[82]

4.4. Impacts on skills

Climate change will be one of key drivers in skills demand for coming decades.[83] However, building a low carbon economy is only possible by unlocking the skills, creativity, entrepreneurialism and capacity to innovate firms, the workforce and communities.[84] Thus, skill development should form part of an effective response to changing conditions, including climate change (ILO, 2008).

Changes in skills profiles can be characterised as falling along the following lines (GHK, 2009b):

- Some skills will become **obsolete** due to structural changes in the labour market and employment shifts both within and across sectors due to demands for a greener economy (e.g. as utility meter reading services are rendered obsolete by introduction of 'smart' household meters that automatically relay data to utility companies)

- Demand for some **new skills** will be created as new 'green-collar' occupations emerge to support adaptation to and mitigation of climate change (e.g. support and servicing of solar, wind and other renewable energy technologies)

- The skills required for existing jobs will have a **stronger green element** as existing occupational profiles change (e.g. bottle manufacturers learning new technical skills to reduce carbon emissions from production).

Good knowledge of science (such as engineering, environmental, biological), manufacturing capacities and solid R&D is required in building green industries and jobs (Szovics et al., 2008; Renner et al., 2008). According to Cedefop (2009) the green economy reinforces the trend towards a new skills paradigm where the importance of 'generic' skills is recognised to complement 'specific' skills. The former are gaining in importance since many green projects are undertaken by multidisciplinary teams, bringing together professionals from different working fields (Ecorys, 2008; Cedefop, 2009). Thus, skills are needed such as strategic planning and leadership, adaptability/transferability skills, systems analysis (primacy of design), risk analysis, coordination, communication, management skills and entrenepreurship. For example, communication skills will be needed in order to advise users about new technologies, while management skills will be required to lead teams.

The specific skills associated with the green economy are not entirely new skills (Szovics et al., 2008). They are add-on or a mixture of existing skills, with examples being knowledge of sustainable materials, relevant traditional skills for installation of new technologies (e.g. fitting or electrical skills for installation of solar tube or panel technologies), skills to measure carbon footprinting and environmental impact assessment skills (e.g. energy assessment).

The implementation of environmental and/or climate policy will lead to a large-scale redistribution of jobs **within** rather than between sectors. This is usually viewed as positive because it is considered easier for workers to change companies within the same sector than to find work in a different one. Other advantages of the intra-sectoral redistribution include lower retraining costs and shorter job search periods. However, job movements will occur in all sectors and it is difficult to see where these will occur, largely because jobs will be gained in companies able to take advantage of opportunities created whereas others will be lost where companies cannot adapt.

Green jobs cover all sorts of skill needs, including low and high skilled. However, studies show that environmental policies are likely to lead to a rising demand for increasingly qualified and educated workers both in terms of technological advances and innovation (Ecorys, 2008; UNEP, 2008; ETUC et al., 2007). Examples include research into new composites materials for wind energy and new 'low-carbon IT', such as design and management of control systems for building. Nevertheless, the forecast of future skill needs in Europe show (Cedefop, 2008) that there will be also growth in demand for several lower-skilled categories.

Table 6 summarises some of the characteristics of the future skill trends in certain sectors affected positively and negatively in the transition to a low carbon economy.

(81) See the European Commission's website http://ec.europa.eu/environment/climat/ccs/index_en.htm and the IPCC website http://www.ipcc.ch/ipccreports/special-reports.htm.

(82) A Prognos AG study financed by German utility company RWE, quoted in WWF (2009).

(83) According to 15 companies that were analysed in the recent study, supported by the European Commission, the climate change drivers will have much more significant impact on the skills than on the numbers of jobs (GHK 2009a). The study analysed the impact of climate change on employment and skills in 15 companies from seven sectors (energy, energy intensive – cement, energy intensive – food and drink, employment intensive – retail, employment intensive – construction, transport – air and transport – haulage).

(84) HM Government (2007).

Table 6: **Future skills in certain environment-related sectors**

Sector	Change in skills profile	Type of skills required
Recycling/waste treatment and recovery	New skills created	Rapid technological changes in this area are likely to create a growing need for new skills.
Construction	Stronger green element of existing jobs	Same generic skills of those already in building sector required but job will require 'add-on' in terms of e.g. renewable energy knowledge; installation; diagnostic techniques. Industry may experience increased demand in higher-skilled employees e.g. researchers and engineers but some jobs created as result of Energy Performance of Buildings Directive likely to be low-skilled.
Bio-based products	New skills / stronger green element of existing jobs	Modern biotechnology likely to require highly-skilled employees with intensive knowledge although still unclear as to whether the skills they need are 'new' or add-on to existing skills
Energy Efficiency	New skills / stronger green element of existing jobs	Legislation such as the European Building Performance Energy Directive will create a strong demand for energy assessors (creation of new skills).
Green Transport	Stronger green element of existing jobs	Legislation on fuel economy standards will create demand for natural gas vehicles (NGV), liquid petroleum gas (LPG), biofuels and diesel/electric hybrid vehicle.

Source: GHK (2009c).

Increasing environmental concerns will have an impact on all sectors of the economy and require not only the development of education and training programmes for emerging new professions, but also new skills to be taught as part of changing job profiles within existing professions (Nicaise, 2008).

5. Implications for labour market policies

As shown in the previous sections, both climate change and climate policies are expected to have no or a slight positive impact on the overall employment level (at least in the long run), but to have significantly different effects across economic sectors, skill types and regions in much the same way as the challenges raised by other contemporary drivers of change such as demographic aging, globalisation and new technologies. Moreover, there are also ways by which workplace organisation can affect greenhouse gas emissions and other areas of the environment (see Box 3). Both the adaptation to, and the mitigation of, climate change will lead to shifts in employment between or within sectors, occupations, regions and countries. Moreover, as in previous episodes of major technological change – e.g. the spread of computers and the Internet – the introduction of new green technologies will increase the demand for corresponding human skills and render others obsolete. In short, climate change carries both risks and opportunities for the labour market – some jobs will be lost but others will be gained.

Achieving a positive employment outcome will depend on an efficient application of both employment and climate policies. Broadly speaking, two distinct but interrelated policy elements can be identified for managing this process: first, extending and adapting existing and proven employment policies to the climate change context and, second, evaluating climate policies against their impact on employment and broadening the knowledge base on the impact of climate change and climate policies on employment.

5.1. Employment policies in the climate change context

While climate change is rather unique in that it poses a global problem that requires internationally coordinated responses, the resulting challenges for employment policy challenges are comparable with the other contemporary challenges mentioned above. Hence many or most of the labour market policy responses which have been developed in response to these other challenges are also likely to be relevant in the climate change context.

More concretely, the existing policy toolbox of the European Employment Strategy, in particular the employment guidelines and the flexicurity[85] concept, already provides a range of policies that lend themselves, with some adaptation, to an application in response to the climate change challenge.

The following elements seem to be of particular relevance.

- Easing transitions

Climate change and climate policies will lead to job losses in specific sectors or regions. To avoid an increase in structural unemployment due to these job losses, employment policies should focus on two aspects – namely the easing of transitions and the support of workers during transitions. In that context, the flexicurity approach, with its emphasis on implementing secure transitions between jobs, could be a useful platform.

Against the climate change background, policies for managing transitions may require particular support and focus on low-skilled workers. Likewise, energy-intensive industries, or SMEs, might merit specific attention and a coherent strategy.

- Investing in human capital and skills anticipation

The shift towards green technologies will increase demand for workers with the corresponding specific skills in developing and applying

(85) See European Commission (2007d) for more details on flexicurity.

these technologies. To avoid labour supply shortages[86], education and training systems will need to adapt to these changes in skill requirements. For example, changes in the energy (especially renewables) sector and the development of clean and energy-efficient technologies will call for new skills for both high- and low-skilled workers, not only with a view to development but also to the deployment, production, installation or maintenance of the products and services of the green economy. The new Directive on renewable energy (2009/28/EC) anticipates this need and requires Member States to establish new training and qualification regimes to ensure a skilled labour market grows in this sector.

One precondition for a successful adaptation of education and training systems is to identify and anticipate future labour market needs for green skills. This will require the development of viable tools for skills monitoring and anticipation, in line with the 'New Skills for New Jobs' initiative (European Commission, 2008i).

Current EU funding, particularly the Structural Funds, can play an important role in supporting investments both directed at raising human capital and available skills and at supporting companies in the creation of jobs in the growing sectors of the low carbon economy, as well as speeding up the process of greening existing workplaces.

(86) The problems of skill shortages is not limited only to the future. A number of sectors already face shortages (Ecorys 2008). E.g. there is a lack of qualified workers in Germany's renewables industry and the Confederation of British Industry reports the shortage of supply of technical specialists, designers, engineers and electricians in sectors going green. Acute shortage of engineers was reported also by wind energy companies in other EU countries (Blanco and Rodrigues, 2008). In addition to that, there is a shortage of other workers within certain fields, especially for position that require both, a high degree of experience and responsibility (e.g. project managers in wind energy promotion companies, O&M and site management activities).

- Promoting partnership and information sharing

From an employment policy perspective, the fight against climate change and the implementation of energy policies might be coupled with some information failures: workers may not be fully aware of the impact of economic developments on new job prospects; business investment decisions may be biased by the uncertainty of policy development; training and educational entities might lack the information about the new skills needs, etc. Measures to improve the flow of information about the policies in place and green job possibilities will be needed, and a major challenge will be to ensure that this leads to timely anticipation of possible restructuring processes.

This can be partly assured through effective social dialogue and involvement of all stakeholders. The Green Jobs Initiative, joining the efforts of UNEP, ILO, International Trade Union Confederation and International Organisation of Employers, can be seen as a positive example of how partnership can help shape both the understanding of the problem and the necessary policy responses. Moreover, the European social partners[87] have decided to work in 2009 and 2010 on the development of a joint approach to the social and employment aspects and consequences of climate change policies with a view to maximising opportunities and minimising negative effects and to identify possible joint actions.

Member States may also want to consider how best to steer structural fund spending towards more effective information systems and how to use instruments like the European Employment Services (EURES). Indeed, the role of public employment services in spreading information about careers and skills needs in this area may need to be revisited.

(87) European Trade Union Confederation, BusinessEurope, European Centre of Employers and Enterprises providing Public services, European Association of Craft, Small and Medium-sized Enterprises.

Box 3: Workplaces and climate change

Climate change and climate policies affect the structure and level of employment. But there are also ways by which workplaces affect greenhouse gas emissions and other areas of the environment. Workplaces consume energy, use resources and generate waste, transport and travel, and are thus one of the most obvious places where climate change issues need to be addressed.

The list of issues involved is long, including workplace heating, cooling and insulation, lighting and electrical equipment, increased use of renewable energy, carbon offsetting, work related transport, the reduction, re-use or recycling of waste and materials, and the saving of water. In a wider sense the greening of workplaces can also involve environmental considerations in relation to finance and investments, and more environmentally friendly procurement and supply chain policies.[1]

Several of these green workplace issues overlap with policies with respect to occupational safety and health. For example, natural ventilation can both reduce energy consumption and at the same time improve air quality at the workplace. Another example would be workplaces that maximise the use of natural light, thus saving energy while providing for a more pleasant work environment.

Moreover, climate change will have consequences for the health of the population at large and the working conditions of workers in certain areas.[2] For example, rising summer temperatures would make for a more challenging working environment for outdoor workers in activities such as construction or agriculture. More extreme weather conditions will also have an impact on the workload and occupational hazards of staff in health and emergency services. Adapting to these challenges could include better protection, equipment and clothing for outdoor workers and more flexible working time policies and dress codes.[3]

Efforts to adapt and mitigate the effects of climate change at the workplace level also relate to concerns

(1) For a discussion of these issues and recommendations for greener workplaces see TUC (2008).

(2) See for example UK Government (2008).

(3) See TUC (2009).

addressed in the context of corporate social responsibility (CSR), defined as "a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis."[4] Beyond merely complying with existing legal environmental and occupational safety and health requirements, CSR can be a good platform for companies to implement policies which use the potential of enterprises to support sustainable development.

In a 2006 Communication by the European Commission on CSR,[5] the Commission established the idea of CSR in support of sustainable growth and more and better jobs. Several priority areas for actions were identified and have been developed in, for example, 'laboratories' (long-term workshops) by the European Alliance for CSR.

These include, amongst others: the integration of social and environmental considerations in business operations, especially those in the supply chain; improving working conditions, also in cooperation with the supply chain; innovating in the environment field with a special focus on integrating eco-efficiency and energy savings in the product and service creation process; and improving and developing workers skills to enhance their employability.

One tool for businesses and institutions to improve their environmental performance is the EU's Eco-Management and Audit Scheme (EMAS). EMAS involves a comprehensive environmental review of an organisation's activities, product and services, the subsequent establishment of an environmental management system, and, as follow-up, audits of the environmental managements system. Participation in EMAS is voluntary, but allows participants to receive an official EMAS registration upon official verification. EMAS is compatible with the international ISO14001 standard on environmental management systems, but is more comprehensive in aspects such as a preliminary environmental review, publication requirements, auditing and commitments and requirements.[6]

(4) European Commission (2006e).

(5) European Commission (2006e).

(6) For more information about EMAS see http://ec.europa.eu/environment/emas/index_en.htm.

5.2. Assessment of climate policies against their employment impact

While the primary aim of climate policies is to keep global warming within sustainable levels, there is a need to do so in a way that is efficient not only with respect to meeting environmental aims but also with respect to the labour market.

Emission reductions can be achieved through a variety of instruments including emission trading and carbon taxes, regulations and standards, and subsidies for green technologies. Each of these instruments differs not only as to its environmental impact, but also regarding its economic, social and labour market effects. From a labour market perspective, and with a view to minimising negative employment effects, there is therefore a need to assess the impact of different climate policy options in the social and labour market fields.

It has to be recognised that the repercussions of specific climate change measures can be very complex and far-reaching, and that, while some instruments may be effective in environmental terms, they can be very costly in budgetary or employment terms. As with the discussion about effective active labour market policies[88], the systematic evaluation of the effects of climate policies in terms of their full range of potential impacts – environmental, economic and labour market – should be an important step in the process of improving policy design as a way of securing better overall outcomes, viewed from an economic, social and environmental perspective.

Impact assessments are already required for EU legislative proposals and initiatives with a clear economic, environmental and social impact, but any assessment of the labour market impact of climate policies is closely linked to the need for more and better data on the employment effects of climate change and climate policies (see also European Commission, 2009). There remains a substantial knowledge gap to be addressed through additional empirical research on issues such as:

- definitions and classifications for green jobs, notably in terms of key competences,
- quality statistical indicators on green industries, skills and occupations,
- labour market impacts and changes on skill needs arising from climate change adaptation and mitigation, both in the short and the medium to long run.

(88) European Commission (2006f).

5.3. The need for clear, predictable and coordinated climate policies

In recent years the consensus about the certainty of the scale of the challenges posed by climate change has strengthened considerably in the EU. Furthermore, for at least the last three years, there has been general agreement concerning the goal of limiting the rise in global temperature to 2°C above pre-industrial levels. This has led to considerable progress in the formulation of a policy framework, resulting in the adoption of the Climate and Energy Package at the end of 2008.

Nevertheless, there is still considerable uncertainty, not only about the exact employment impact of climate change, but also about the appropriate scale and balance of climate policy measures that are likely to be implemented in the future – and this is of particular relevance with respect to the policy stance in countries outside the EU. This uncertainty may then hinder the creation of more and better jobs as future business investments in more environmentally sustainable products and production methods, as well as policies to

adapt and restructure labour markets in response to climate change, require clear and predictable climate policies. Employers, workers and employment policy-makers need a clear climate policy framework within which they can find the most efficient responses in terms of investments in business and human capital, and in terms of successfully managing the restructuring process.

This involves clearly defined, certain and foreseeable measures regarding both greenhouse gas emissions targets and the instruments to achieve these targets – e.g. through emission trading schemes, carbon taxes, R&D subsidies etc. The global nature of the phenomenon and the risk of carbon leakage underline the need to intensify international cooperation and ensure fair and appropriate competition conditions concerning climate policies.

6. CONCLUSIONS

Global warming is the greatest and most far-reaching environmental challenge the world faces today. The EU's goal is to keep the increase in global average temperature to below 2° compared with the pre-industrial temperature levels, as there is strong scientific evidence that climate change beyond this point will cause dramatic changes to the environment, ecosystems and the economy. Fulfilling this target requires a reduction in GHG emissions by human activity and their stabilisation at a level that will not increase the risk of dangerous, unpredictable and irreversible climate change.

The transition to a competitive low-carbon economy will not only affect GHG emissions but also the security of energy supply, international competitiveness of European industries, quality of public health, and quantity as well as the quality of jobs.

From a labour market perspective, the most important driving forces behind the transition towards a competitive low-carbon economy are the various efforts to improve energy efficiency, to develop RES, to capture, store and process CO_2 and other harmful emissions, to modernise the European infrastructure (including transport networks and energy supply), to integrate environmental responsibility in business models, to promote environmental friendly land use and agriculture, and to create conditions conducive to climate-related research and innovation.

These drivers will have a significant impact on the structure of the economy because they will affect how and which products and services are produced, imported and exported. In addition, they will affect the demand for goods and services through their impact on the behaviour of consumers, employees and employers, and public authorities.

In terms of employment, the underlying structural changes are expected to have no or a slight positive impact on the overall employment level (at least in the long run), but to have significantly different effects across economic sectors, skill types and regions. For instance, model simulations show that energy-efficiency improvements in all energy demand-side sectors by up to 15% from the reference case in 2020 and by 20% in 2030 are expected to lead to overall employment gains of 0.18% and 0.06% in 2020 and 2030, respectively. But at the same time employment in the traditional energy sector is expected to decrease dramatically, up to 23% in the gas sector.[89]

The sectoral composition of employment will be affected as the creation of new green jobs may substitute for existing (inefficient) jobs, contribute to the greening of existing jobs, eliminate existing (inefficient) jobs, or establish new jobs. In addition, indirect knock-on effects may ripple through via price, wage and income effects and affect employment in the rest of the economy. However, not all employment effects will be permanent as for instance the labour intensities in the production of new products and new production processes will decline as technologies mature and an important part of the employment gains will disappear once the production and installation of new infrastructure has been completed. On the other hand, competitive markets should ensure that companies continue to innovate and invest in new technologies and production processes, thereby continuing to keep and create new jobs associated with the production and installation of new infrastructure.

The transition to a low-carbon economy is likely to affect low–skilled workers in a less favourable way than the high-skilled workers. In an initial phase high-skilled workers will benefit more as transitions to new activities call for the implementation of advanced technologies for which only the high-skilled have the necessary qualifications, with the introduction of new green technologies increasing the demand for corresponding skills, and rendering obsolete others. In the short term there may be some room to create new jobs for the low-skilled workers. However, it is expected that it is only in the medium term when technologies mature, that the lower-skilled workers will be able to fill these jobs to the fullest extent – provided they receive adequate training and education.

The employment effects of the transition will also contain a strong regional dimension, reflecting different initial starting points regarding regional weather conditions, the characteristics of local economic activity, as well as specific features of local labour markets. More particularly, although the overall adjustments in the agricultural and fisheries sector may be relatively small, the adjustments in some regions could be significant, notably in coastal and marine areas where fisheries is an important sector of employment.

(89) Assuming no changes in the rest of the economy, such as more flexible wages. See Table 2.

The improvement of energy efficiency and development of renewable energy are the main drivers affecting employment. The improvement of energy efficiency will have an impact on employment through several channels. First, a new infrastructure will have to be manufactured, installed and operated. This will affect not only directly related employment but also employment in the sectors that supply the green equipment and services. Second, improved energy efficiency will have considerable spill-over effects on employment across the economy through multiplier effects induced by changes in prices and income. Third, in an initial phase the new jobs associated with the development, installation and operation of the new technologies will often require highly skilled workers who are at the cutting edge of new technologies. In the medium term when technologies mature, lower-skilled workers will also be able to use these jobs and their opportunities will improve.

Direct employment in the renewable energy industry will increase with the production and installation of additional capacity as well as with the operation and maintenance of the new infrastructure. In addition, employment will grow in the industries that provide services and that produce renewable technologies for the renewable energy industry. For instance, model simulations show that total employment in the renewable sector could amount to some 2.3 million jobs in 2020 (Fraunhofer ISI et al., 2009). This figure would rise to 2.8 million jobs if accelerated deployment policies (ADP) to promote the use of energy from renewable sources were implemented. Also the estimated net employment gains are positive, ranging from 115 000 to 201 000 employees in 2020 (BAU) and from 396 000 to 417 000 employees in 2020 (ADP), with skilled jobs accounting for about a third of the net employment growth.

The analysis presented in this chapter shows that adaptation to and mitigation of climate change will lead to important shifts in employment between or within sectors, occupations, regions and countries, and that the scope for the creation of new green jobs and the greening of existing jobs is significant – provided that adequate policies are implemented. In view of these findings, there is a strong case to be made for promoting policies along flexicurity principles that ease transitions so that workers can be encouraged and helped to be receptive to experimental innovations as they move towards less polluting activities. In particular, adequate training and education schemes, inside and outside of enterprises, are required to avoid the emergence of skill gaps and shortages. Such policies should also be complemented by appropriate social policies based on respect for workers' rights, not least to information in line with existing EU Directives[90] and strengthened by social spending focused on items that support and accommodate the transition process in an active way.

In order to support the development of labour market policies that promote the creation of more and better jobs for all in a sustainable economy, further research should be aimed at strengthening the EU capacity for assessing the employment effects of a transition to a low-carbon economy. Furthermore, social dialogue should be reinforced in order to ensure that structural change in relation to climate change is achieved in a way that is efficient and acceptable from both an economic and social perspective.

Finally, it should be noted that the current economic downturn should not hinder the speed and direction of the transition process, certainly if one takes into consideration that tackling climate change and other environmental challenges (including the erosion of biodiversity, pollution and increasing waste volumes) can be combined with major opportunities to create new jobs.

(90) See inter alia Directive 2002/14/EC of the European Parliament and of the Council of 11 March 2002 establishing a general framework for informing and consulting employees in the European Community - Joint declaration of the European Parliament, the Council and the Commission on employee representation, available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32002L0014:EN:HTML

ANNEX 1: ENVIRONMENT-RELATED EMPLOYMENT IN EU AS A WHOLE AND IN THE MEMBER STATES

GHK et al. (2007) classified environment-related economic activities as:[91]

a) activities where the environment is a primary natural resource or input into the economic process; core natural resource activities (sustainable agriculture - organic farming, sustainable forestry – certified forests, renewable electricity, water extraction and supply) broad natural resource activities (all forms of farming, forestry, fishing, mining and quarrying, electricity generation - renewable and non-renewable energy, water)[92]

b) economic activities related to the management of the environment (pollution and resource management, that have been usually included in the formal definition of eco-industries)

c) economic activities dependent on environmental quality (environmentally related tourism).

Table A.1 summarises estimates for FTE EU-27 employment in the environment-related activities in 2000. The range of figures clearly demonstrates the sensitivity of the estimates to the selected definitions.

National shares of employment in environment-related activities significantly varied across the EU-27, ranging between around 1% (Lithuania) and as much as 7% (Austria) of total national employment.

Chart A.1 shows the share of employment in environment-related activities in total employment for each of the EU-27. The difference between direct and total employment reflects differences in the structure of the environmental sectors as well as differences in the structure of the national economy. For instance, in the UK the share is larger than in Greece because UK environment-related sectors buy more inputs from other domestic sectors and because they have a lower import to output ratio compared with Greece. The biggest multipliers were estimated for Bulgaria and Austria.

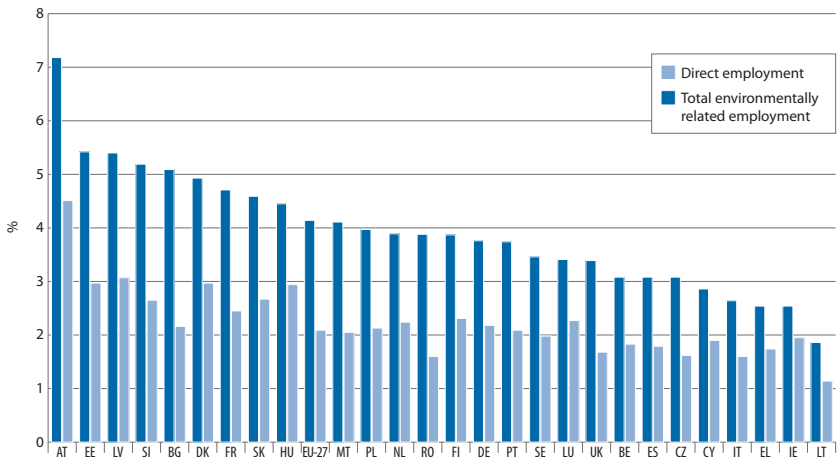
Estimated employment multipliers could be used to estimate the impact of additional investment in environment-related activities. However, as these multipliers are based on past economic structures and policies, one should be cautious interpreting the results.

Table A.1: **Employment impact of environment-related activities, EU-27, 2000 (in 000 FTE)**

		Direct employment	Indirect employment	Induced employment	Total employment
Economic activity based on natural resource use	Core	964	637	361	1961
	Broad	17472	8847	3356	29675
Environmental Management		1834	894	656	3385
Environmental Quality		1589	1084	646	3319
Total employment	Core natural resource based activities	4387	2615	1663	8665
	Broad natural based resource activities	20894	10826	4658	36378

Source: GHK et al. (2007).

Chart A.1: **Share of environment-related employment in Member States, including core natural resource-based activities, 2000**



Source: GHK et al. (2007), Eurostat National Accounts and DG EMPL calculations.

Note: a) Total environment-related employment include indirect and induced employment. b) Total employment for Romania is taken from Eurostat Labour Force Survey.

(91) The study suggested broader typology of economy-environment linkages however not all can be quantified.

(92) The value of economic activities that directly use environmental resources (e.g. agriculture, energy) could be stimulus to maintain the quantity and quality of environmental resources.

ANNEX 2:
SUMMARY OF FINDINGS FROM THE LITERATURE ON ESTIMATED EMPLOYMENT EFFECTS OF CLIMATE CHANGE-RELATED POLICY MEASURES[93]

Study	Country	Job estimates	Method	Remarks
Fraunhofer ISI et al. (2009)	EU	Gross employment (mln of jobs, first number refers to year 2020 and second to 2030) • 2.31 and 2.34 (BAU with moderate export expectations). • 2.76 and 3.36 (ADP with moderate export expectations). Net employment ('000 jobs, first number refers to year 2020 and second to 2030) • 201 and 300 (Astra, BAU with moderate export expectations). • 417 and 59 (Astra, ADP with moderate export expectations). • 115 and 188 (Nemesis, BAU with moderate export expectations). • 396 and 545 (Nemesis, ADP with moderate export expectations).	Direct and indirect job, modelling (Multireg, Astra, Nemesis, Green-X).	Impact of the RES promotion on employment. Analysis was done also for optimistic export share expectations.
ETUC (2007)	EU	Sectoral impacts on gross employment of measures to reduce CO_2 emissions: • Transport – 20% more jobs in 2030 compared to 1990. • Iron & steel – loss of 50 000 jobs. • Building & Construction – upto 200 000 man years.	Various: Literature review, stakeholder interviews and modelling (Modelling principally limited to first-order economic activity and employment effects.)	Includes estimates on the economic effects of climate change in the agriculture, tourist, insurance sector.
Thorning (2003)	EU	–1% in Germany, –0.4% in UK, –0.07% in NL and –0.7% in Spain (from baseline by 2010).	Review of existing studies.	• Reviews studies by the ICCF – negative impact of carbon emissions trading under Kyoto and more stringent targets on jobs. • Mandatory targets and timetables not working in the EU, have significantly negative effects on GDP and employment because of the cost of carbon permits. US voluntary approach is better as it balances multiple policy objectives.
Thorning (2002)	EU	• Germany: employment decreases by 1 million jobs annually during 2008–12. By 2020, employment could fall by 780 000 – 1.2 million jobs annually. • The Netherlands: decrease of 110 000 jobs annually during 2008–12. By 2020 employment falls by 80 000 – 150 000 annually. • UK: employment falls by 410 000 jobs annually during 2008–12. By 2020, could fall by 390 000–650 000 annually. • Spain: decrease of 850 000 jobs annually during 2008–12 and decrease of 600 000–800 000 jobs annually in 2020.	Modelling.	Employment decrease based on increase in energy prices. 2020 estimate of job losses depends on the stringency of targets set. Does not consider the Clean Development Mechanism (CDM) and Joint Implementation (JI) mechanism . When all greenhouse gases are included, the negative impact could be less in the UK than predicted. Assumes intra-country trading.
ILO (2003)	EU / Global	• Renewable energy: create 60 person years of employment. • California: 28 000 construction & 3 000 permanent jobs over 30 yrs / 120 000 person years of employment.	Review.	15–19 jobs created for each megawatt of wind capacity. 27% more jobs developed per kW hour of wind power vs. coal, and 66% more than natural gas plant.
European Commission (2006g)	EU	Renewable technologies: turnover of €20 billion and employment 300 000 people in 2008.	Using the energy system model POLES and the extended version of the general equilibrium model PACE.	
European Commission (2008g)	EU	GDP 0.5% higher than BAU and employment would grow by around 0.3%, which amounts to about 650 000 additional jobs.	The ASTRA employment and GDP model, quantifying the direct and indirect impacts of a given policy.	

(93) Based on GHK (2009c) and DG EMPL analysis.

Study	Country	Job estimates	Method	Remarks
GHK et al (2007)	EU	• 2.3 million directly employed in 'green jobs', 1% of EU workforce. 4.6 million direct & indirect jobs. • Core environmental activities linked to 4.4 million jobs, 21 million broader direct jobs.	Modelling (E3ME: a highly disaggregated, dynamic simulation model of Europe estimated by econometric methods capturing long-run equilibrium effects and dynamic adjustment effects).	• First estimate based on traditional definition of eco-industries. • Second estimate using broader definition.
European Commission (2008h)	EU	–0.5% change in employment in 2020.	Number of models – PRIMES, GAINS, GEM-E3, POLES and PACE.	Macro economic Impact at Member State level of auctioning in the EU Emissions Trading Scheme (EU ETS) and of distribution of auctioning rights and GHG reduction commitments for the sectors not covered by the EU ETS.
MITRE (2004)	EU-15	Continuation of current RES policies leads to an overall net employment of 1.4 million in the EU-15 by 2020, an advanced policy scenario results in 2.5 million jobs, including all indirect effects.	Uses an input-output approach where the RES sector has been integrated as an own vector in the input-output tables.	
BUNR (2006)	Germany	260 000 in 2006 in renewable energy.	Data include direct and indirect jobs, based on an input-output analysis.	
BUNR (2007)	Germany	400 000 in renewables by 2020 (gross estimate) 70 000 – 80 000 net jobs by 2020.	Direct and indirect job, input-output models and expected growth rates.	
Bühler et al. (2007)	Germany	500 000 in renewables by 2020 and 710 000 by 2030	Not available.	
ICCF (2005)	Italy Spain UK	Annual job losses at 221 000 by 2010. By 2025, job losses will be between 295 000 – 433 000 depending on target level. Annual job losses at 611 000 by 2010. By 2025, job losses will be between 626 000 – 708 000 depending on target level. Annual job losses at 336 000 by 2010. By 2025, job losses will be between 394 000 673 000 depending on target level.	Modelling.	Assume that an international CO_2 trading mechanisms is established and that companies can purchase emissions credits in the international market.
Global Insight (2003)	Italy	Annual job losses at 51 000 by 2010. By 2025, job losses will be 280 000.	Modelling.	
Scholtens (2001)	Netherlands	Increase in total employment of 21 500 labour years.	Empirical: analyses effects on the basis of existing information.	• Analyses impact of deductability of interest returns/dividend yields from 'specified' green projects during 1995–99 • makes a number of (conservative) assumptions based on experience with other projects (i.e. a multiplier of 2 and that production value of projects equals the funds invested).
Commission on Environmental Markets and Economic Performance (2007)	UK	• UK: 400 000 employed in environmental goods and services. • Germany: jobs increased from 160 000 to 235 000 between 2004 and 2006 in RE sector. Predicted to increase to 400 000 by 2020.	Review.	Skills gap is a big barrier to UK success in environmental markets.
Ernst & Young and BERR (2008)	UK	• 14 000 new jobs in manufacturing. • 6 000 over 10 years in chemical sector.	Empirical/Case Studies/ Modelling. Identify sectors of comparative advantage by analysing trade data and FDI flows; use of the Oxford Economic model/ Oxford Energy Industry Model to show impact on UK economy of different modes of developing green processes/products in different sectors. OEIM is an input-output model of the UK which analyses sectoral impacts of different policies.	• Only looks at 4 specific sectors using different transmission modes / policies for each, very specific. • Discontinuities not considered. • 14 000 job estimate is based on additional annual GDP from £1billion green R&D spend in manufacturing yielding greener products. • 6 000 job estimate based on a shift to greener production processes in the chemical sector.

Study	Country	Job estimates	Method	Remarks
ICCF (2005)	UK	Annual job losses at 336 000 by 2010. By 2025, job losses will be between 394 000 – 673 000 depending on target level.	Modelling.	Assume that an international CO_2 trading mechanisms is established and that companies can purchase emissions credits in the international market.
BERR and DIUS (2008)	UK	1 million jobs by 2030 in low carbon economy.	Empirical.	Environmental goods/services sector.
Selwyn. and Leverett (2006)	UK	UK • environmental industry employs 400 000 people. • 6 370 employed in RE UK industry in 2004. • between 69 000 and 160 000 employed in waste management industry in 2004/2005. International • US: 1.6 million jobs (environmental markets). • France: 34 701 employed in waste and wastewater treatment and 27 780 in waste management in 2006.	Review / Empirical: desk research and interviews with industry and government agency and use of workshops. Also uses previous reports / existing studies.	
SQW Energy (2008)	UK	• CURRENT: 4 800 FTEs (wind, wave, tidal sector). • FUTURE: projected total full time employment for 2014 between 12 000 and 18 000 (depending on scenario, wind wave and tidal). • FUTURE: projected between 23 100 – 56 900 FTEs in wind sector alone by 2020 (depending on growth scenario). • FUTURE new employees between 7 170 and 12 895 by 2014 and 18 710 and 54 210 by 2020 (depending on growth scenario).	Empirical / Modelling: Qualitative analysis of skills policy and quantitative assessment of employment issue – analysed employment by sector and occupational category to identify employment needs by various scenarios. 3 scenarios are modelled of sector growth.	• Sectors need 149 000 additional professionals and technicians by 2014 to satisfy growth and replace demand. • Wave and tidal show less projected growth: between 350 and 2 100 FTEs by 2020 depending on scenario. • increase in wind, wave and tidal sector by 2020 represents a 500–120% increase compared with 2008.

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Box 4: Special focus on jobs in long-term care

Another sector where, as with green jobs, the structural changes in EU economies are likely to have a significant impact on employment, is long-term care (LTC).

The continual population ageing and steady low fertility rates will pose a challenge to both the social models and the EU's labour market. The retirement from work of the baby-boom cohorts will not be satisfactorily replaced, in size, by the activity of younger cohorts; as such, total employment in Europe could start to fall. At the same time, ageing will inevitably increase pressure on governments for social services and pension schemes, which will be harder to sustain as the size of the active population will decrease. Additionally, women, as the main resource of family-based care, will be increasingly involved in the labour market: while female participation in employment is a welcome development, their absence from the home might undermine long-established models of informal, non-waged care, that is predominant across all social models in Europe though particularly relevant in the Mediterranean countries. This situation might be sharpened by the increasing rates in divorces and increased geographical mobility.

Indeed, "a combination of demographic and attitudinal changes to family care will impact heavily on the demand for formal social services for elderly people in the 21st century" (Munday, 2003). This growing demand represents an opportunity for substantial employment creation; at the same time, ensuring that the supply of the service matches demand in the context of the challenges described will not be enough. Quality must be implemented in a sector that is deeply unattractive as characterised by low wages, gender segregation, poor working conditions and high turnover.

Not surprisingly, LTC is an emerging topic in EU social policy, as one of the social services of general interests (SSGI) emphasised by the Renewed Social Agenda with the aim to ensure universal access to quality services in order to fully participate in social life and employment in a context of social and health protection and equality between men and women. To this purpose, in the past five years, following the publication of a Green Paper on services of general interest (2003) and a White Paper on this issue (2004), the European Commission has implemented and accelerated an agenda of reviewing and monitoring of national policies through consultations, studies and international cooperation projects; this is done in order to support and complement the efforts of Member States to develop the health and social services with the dual aim of responding to social needs and realising their job creation potential in an effective and cost-efficient manner.

Factors behind the growing needs for LTC

Projections estimate an older, though healthier, European population by 2060; the number of people reaching the age of 80 years is expected to triple, whereas fertility is expected to increase marginally between 2010 and 2050, under an assumption of no substantial variation in migration flows.(1) The old age-dependency ratio will increase from 25% of 2010 to 54% of 2060, which will double the fiscal burden for the working-age population (aged 15–64) and hamper the sustainability of publicly funded care measures and pension systems.(2) Total years of life expectancy need to be cross-referred with the percentage of healthy years in this group; indeed, both European Union Statistics on Income and Living Conditions (EU-SILC) 2004 and Organisation for Economic Co-operation and Development (OECD) assessments outline an average growing rate across the EU, with some differences among countries and among men and women.(3)

To this, it must be added that female employment rate is accelerating (having risen by 8 percentage points between 1997 and 2008). As said, this implies less time spent at home for wives and daughters, and the need to re-think informal, family-based care to children and the elderly.

(1) European Commission (2009d).

(2) Knickman and Snell (2002) point out that the pure old-dependency ratio ought to be set cross-referred with other actors needing care from the same resource pool – as children, who are reducing in numbers. Additionally, longevity tends to be characterised by better health conditions than before, and "an increasing share of persons in that age group contribute to providing care and supervision to both young people and the very old. This improves the ratio of potential carers to those needing care." (OECD, 2005).

(3) Disability is declining in Denmark, Finland, Italy and the Netherlands, while increasing in Belgium, Spain and Sweden. At the EU level, the rate of healthy years over years of life expectancy at 65 is 52.5% for females and 61.2% for males. However, there is no agreement in literature on this aspect, as the trend is not clear, and data available not comprehensive, across all countries. Data collection on disability is difficult, as it depends on different approaches by the Member States to the degrees of intensity of dependency (European Commission (2008f)). SILC 2004 provides recent data on self perceived health by age group. The trend is steady in the period 2005-2007: at the EU-27 level, across the three age groups 65–74, 75–84 and 85+, the majority declares to be in fair or good health conditions (41% and 23.5% on average), 23% feels in bad conditions, and only a minority declares very good (5%) or very bad (7.2%) conditions. The variables 'bad' and 'very bad' increase sharply for the eldest group, while the other decrease with age, but not substantially, and equally for men and women.

As for family composition, a rise in the rate of divorces is another aspect to consider, as it may disrupt the conventional certainty of family support to the elderly. The data available for the period 1970–2000 shows that this trend is common across Europe, with differences among countries. At Member State level, the crude divorce rate[4] grew from 0.9% in 1970 to 2.0% in 2005, with peaks in Austria, Belgium, Germany, Denmark, Finland, Luxembourg, the Netherlands, Sweden and the UK.

Employment volume of the health and social sectors

The LTC sector is therefore an interesting case from the employment point of view, both for its potential and for its complexity.[5] Health and social services have created almost 3.3 million jobs between 2000 and 2007 in the EU-27, boosting their share of the total EU workforce from 8.7% to 9.6%. In 2007, both sectors together employed 20.6 million workers in Europe. Ireland and the Netherlands were the countries with the greatest increases of workforce in the sector between 2000 and 2007, from 8% to 10.3%, and from 13.5% to 15.9%, respectively.

It should be noted that available data only accounts for formal workers, leaving out the consistent share of informal ones. Due to the difficulty of monitoring informal workers, and to low comparability among countries, it is difficult to quantify the exact occupational volume in LTC.[6] An occupational breakdown of the health and social services sector, however, reveals that at Member State level the share of personal care and related tasks accounts for the largest share of total jobs (25%); only in the new member states nursing and midwifery professionals account for a larger share (23% as opposed to 12% of personal carers).[7]

Different models of LTC in Europe

Five distinctive models of LTC have been identified in the literature:

- The **Anglo-Saxon** system, prevalent in the UK and in Ireland, is based on a high degree of private provision regulated by the state on the basis of a liberal approach to social policy. Private providers are contracted out; private provision of care is usually associated with lower pay and poorer working conditions. The UK features a high share of low-skilled workers in this sector, and of migrants, though the two groups do not overlap (foreigners are generally qualified health-care professionals who do not apply for personal care positions).[8]
- The **Continental** system, based on the corporatist welfare state, is generally applied in Germany, Austria, the Netherlands, Luxembourg, and, to a lesser extent, France and Belgium. Social protection is guaranteed by participation to labour market, so that inactive population needs to seek alternative care provisions by voluntary organisations. Germany, the Netherlands and France (together with Ireland, as mentioned) have the highest employment growth rate in the health and social sectors in the EU-27 between 2000 and 2007 (between 1.5% and 2.4%). Germany and Austria can generally count on semi- to high-skilled workers, though high labour costs have brought the development of a parallel market for underqualified helpers, exacerbating the polarisation of the market. France features a mostly native, vast low-skilled workforce, to the point that the employment policy in LTC is targeted on this category to increase participation to the labour market.[9] The Netherlands share the continental system but are close to the Scandinavian one in terms of higher salaries and qualifications.
- The **Scandinavian** system, linked to the Nordic countries (Sweden, Denmark, Norway and Finland), is based on high security and formal, state-provided care – with little involvement by the private sector. It is usually associated to high-quality standards of service, large and highly trained workforce, good employment conditions and a limited number of foreigners.
- The **Mediterranean** system brings together Italy, Spain, Portugal, Greece and Cyprus, relying heavily on family-based care and social assistance. Carers, therefore, tend to be informal workers, and, as well as many of those in the formal market, have low educational and skills levels. These countries also feature high shares of immigrant carers (whose high qualifications, if any, are not recognised, or are mismatched).[10]

(4) The ratio of the number of divorces during the year to the average population in that year (Eurostat).

(5) As defined by OECD (2005), "long-term care brings together a range of services for persons who are dependent on help with basic activities of daily living (ADL) over an extended period of time. Such activities include bathing, dressing, eating, getting in and out of bed or chair, moving around and using the bathroom." To simplify the terms of analysis, in this context long term care is assimilated to the single aspect of home help or care for the elderly, though it should be pointed out that in general the care recipients of "long term care" services are not only the elderly (65-80) and very elderly (80+), but also children, adults, persons with disabilities, or individuals affected by specific conditions as Alzheimer's disease (Cancedda (2001) and EMCC (2006)); though, as OECD (2005) outlines, LTC needs "are most prevalent in the oldest age groups (…) who are most at risk of long-standing chronic conditions causing physical or mental disability." LTC services, provided either in hospitals, institutions, nursing homes (acute and non-acute settings) or home, can be exemplified as medical visits, nursing, assistance, day care and transport, night care, service housing (apartments specifically designed to accommodate care recipients), tele-assistance, geriatric, transition and rehabilitation services (European Commission (2008f)). Therefore, both formal and informal care is considered in the analysis: as specified in the 2009 *Ageing report* of the European Commission, "[l]ongterm care is delivered informally by families and friends – mainly spouses, daughters and step-daughters – and formally by care assistants who are paid under some form of employment contract. To be considered informal, the provision of care cannot be paid as if purchasing a service, even though an informal care giver may receive income transfers and, possibly, some informal payments from the person receiving care. Formal care is given at home or in an institution (such as care centres and nursing homes). Cash benefits are payments, which can be used to purchase formal care at home or in an institution or which can be paid to informal caregivers as income support" (European Commission, 2009e).

(6) Fujisawa and Colombo (2009). The ISCO classification distinguishes between personal care (ISCO513), social work associate professionals (346), nursing and midwifery professionals (ISCO223), nursing and midwifery associate professionals (ISCO323), domestic and related helpers, cleaners and launderers (ISCO913), but the different definitions of carers in different systems make comparability difficult.

(7) Dijkgraaf et al. (2009).

(8) Simonazzi (2009a).

(9) Simonazzi (2009a).

(10) Simonazzi (2009a) and Bettio et al. (2006).

- The **Eastern European** system links all new Member States; this model is evolving following the pre-1989 system, and is mostly family-centred.[11] The health and social services sectors in the new Member States are much smaller than in the EU-15 (4.5% of gross domestic product as opposed to 7.1% for the EU)[12], though future income growth might increase this share.[13] There has been no consistent growth in employment in this sector between 2000 and 2007, which remained stable at around 2.4 million workers across the group. In Poland, Bulgaria, Latvia and Slovakia, however, employment in the health and social sectors has slightly decreased between 2000 and 2007.

The issue of quality of LTC jobs in Europe

As mentioned, home care to the elderly is an unattractive working sector: a mismatch exists between the social and cultural value of care and its rating in the labour market ladder (Cancedda, 2001; Simonazzi, 2009a). This holds true in general for the health and social sectors, but more acutely for home help for the elderly, which "lies at the bottom of the elderly care occupational pay and skill ladder."[14] Generally poor working conditions constitute a challenge to the increasing demand for carers across Europe, as shortages risk to be met by low-skilled, often irregular and mostly female workforce. Indeed, in general, workforce in health and social services is strongly dominated by women. The share of female workers per country in this sector in 2008 varied across Europe between 66.5% and 91.4% (Eurostat LFS). Male workers in this sector are rare, tending to occupy higher-skilled and paid positions (as in management and accountancy). This is a delicate issue as the increase in women participation to employment involves a further increase in the demand for home-based carers.

Several factors lie at the core of the unattractiveness of LTC jobs.

First of all is the family basis of home help to the elderly, traditionally carried out by unpaid wives and daughters, which has not provided the sector with a socially recognised degree of professionalism. The extent of the informal market fuels this perception. Additionally, it ties family components turned into informal carers to economic inactivity. Evandrou and Glaser (2003) point out that these individuals "lose out twice – first, in terms of losing out on current income opportunities and second, in terms of a smaller future pension income due to a lack of current pension contributions. Indeed, economic development policies increasingly pursue opportunities to increase economic activity rates. Ensuring adequate care provision to enable individuals, particularly women, to release themselves from domestic care responsibilities in order to become economically active would appear to be an essential requirement of such policies."[15]

Secondly, as care to the elderly is often carried out on an informal basis, the skills required to perform it (personal rapport, compassion, responsibility) may be overlooked. Also, they need to be accompanied by professional qualifications, which, just as often, are not recognised across countries, given the vast differences in certification requirements. Since the quality of the service depends heavily on the rapport between carer and care recipient, it is hard to measure, and even more so if the service is carried out on a voluntary, non-waged basis.

According to OECD findings, formal LTC workers have lower educational attainments than health-care workers, and the same could be estimated for informal carers. Low comparability of data and variations across countries make it difficult to establish a trend at European level, though educational attainment in the LTC roughly varies between basic and upper secondary education.[16]

Poor quality of waged, formal forms of LTC is also associated to low pay. In general, conditions are more favourable for public-employed carers than in the private sector, and for residential care staff as opposed to home helpers. Minimum wages accompany high stress on the job, as well as social, geographical and professional isolation,[17] as carers are not effectively represented by unions. To this, it must be added that most contracts tie workers in part-time arrangements, and do not guarantee long-term employment; consequentially, career paths are often non-existent, and years of experience not rewarded. LTC must also compete with other low-paid but less stressful sectors (as catering and retail), which exacerbates recruitment problems generating high turnover: however, in general, "high turnover and vacancies are due more to poor job quality than to job precariousness, given the existence of excess demand for care labour in most countries."[18]

Furthermore, as mentioned, home care to the elderly in many countries is supplied by migrant workers – generally middle-aged women from neighbouring countries,[19] and often this provision is informal and undeclared, a phenomenon in steady growth in Europe. It is highly unlikely that the quality of this service be controlled by state authorities, though national differences call for targeted interventions. For this group, waging does not differentiate between low-skilled or highly qualified workers, and their illegal status precludes them any form of social or health protection. Cooperation with their employers is therefore more difficult, and undeclared migrants in this sector are subjected to the precariousness and high turnover of the job more than others. Naturally, this negatively affects all the actors involved – the care recipient, their family, and the worker, although the low cost of illegal workers opened the informal market of care to middle-income families who can not afford formal care, thereby making the extent of the demand for carers, and the supply shortage, more visible.[20]

(11) EMCC (2006).

(12) Eurostat (2006).

(13) EMCC (2003).

(14) Dijkgraaf et al. (2009).

(15) EMCC (2006).

(16) Fujisawa and Colombo (2009).

(17) Cancedda (2001).

(18) Simonazzi (2009a).

(19) Fujisawa and Colombo (2009).

(20) Larsen et al. (eds) (2009).

In general, it can be said that in elderly care there has been increasing fragmentation of care work, with consequent specialisation on the basis of skills across personal, health care and domestic assistance separated into different occupational categories (which normally tend to overlap). However, the separation of these jobs has not led to the creation of a hierarchy of skills in a single but expanded occupation: rather, it created a segmented labour market. The function requiring the least formal qualification, domestic assistance, has been separated and assigned to workers who are at the periphery of the labour force (Christopherson, 1997). However, the shift to home care will require reorganisation of the entire care chain based on a redefinition of the services necessary to assist the elderly at home, a reallocation of investment in the infrastructure composed by hospitals, nursing homes, community services and (smart) houses, and an upgrading of the skills required in each segment, as well as the capability to provide targeted solutions.[21]

Conclusions

Across Europe, the trend appears to be towards home-based care (both formal and informal), supporting and integrating it via public provisions, but removing care away from institutions, unless in cases of severe disabilities requiring technical and continuous assistance. It is important, therefore, that family carers be recognised and incorporated into the care systems. This can be done by implementing care leaves and respite care (the latter are implemented in UK and Czech Republic),[22] counselling, support and information services through better coordination with the health systems. In any case, policies integrating formal structures with informal care are the tool to guarantee that women and family members in general have the possibility to participate in the labour market, by, at the same time, being allowed to take close and quality care of their elderly. Moreover, if families are not left alone as employers of care givers, working conditions and quality of the service are easier to safeguard.

A second implication of the shift to home care involves nursing homes: with the average period spent in residential care decreasing, the share of residents with greater nursing and health needs will increase. This will require the 're-medicalisation' of nursing homes, so as to cope with the greater nursing and medical needs of residents (OECD, 2005), and the conversion of a large proportion of residential houses into nursing homes. This will entail changes in organisation and in skills' demand for workers, with effects on costs and balance sheets.[23]

The supply of LTC workforce must grow, in order to face a rapidly increasing demand. Policies to boost LTC workforce include recruiting workers among the retired or unemployed population or attracting men into the sector to alleviate the gender imbalance. Foreign-born workers can be attracted under a system of competence accreditation, if recognition of qualification is not possible; the UK provides supervised probation periods, whereas some Italian regions opt for training to candidate carers.[24] Language training, when needed, is an essential part of training for foreign-born care givers, besides contributing to social inclusion of migrants.

Policies aiming at enhancing formal care employment include care/carer allowances (France implements a system of conditional cash allowance to hire an external regular carer), and tax exemptions or VAT reductions in case of formal care employment.[25] In general, it can be said that the differences in the conditions regulating cash transfers may have large effects on the quality of care work: when allowances are unconditional, and paid to the family carer (as in Italy, or through care insurance as in Germany and Austria), this encourages informal supply of workers, whereas a formal market is enhanced by in-kind provisions (Sweden), contracting-out (UK) and tied allowances (France).[26]

However, decisive interventions on ameliorating working conditions must be carried out in parallel in order to achieve attraction and retention of workers in this sector.

Salary increases are an option, but not necessarily the sole one; alternatives are benefits and incentives for workers related to transportation, childcare, bonuses and seniority wage increases.[27] In addition, workers need adequate training – which can also contribute in enhancing the social status of the LTC careers and attract graduates. Adequate training ought to focus on social skills as well as hard skills, and be flexible for trainees already in employment (the UK and Denmark have implemented training in modules targeted on workers, and recognise years of expertise as seniority). Denmark and the Netherlands also provide financial incentives for training.[28]

Synergies and cooperation between LTC and health and social sectors can provide isolated care givers with management and coordination, as well as with supervision and support. Also, coordination with the health systems can be effective in socially 'upgrading' the profession of the carer once it becomes integrated. This must be thought in a context of decentralisation of care at the local level, to better target care recipients and matching supply and demand of carers.

At the same time, the promotion of healthier lifestyles can contribute to independency and self-care, reducing the need for home helpers. The role played by ICT in this is to be investigated, not only as a source of knowledge and information, but also as a tool to improve efficiency in formal care. Cost-efficiency needs also be harmonised with measures aimed to reduce the risk of isolation that can derive from a higher use of ICT and the consequent loss of human contact.

(21) Simonazzi (2009b).

(22) EMCC (2006).

(23) Simonazzi (2009a).

(24) EMCC (2006) and Fujisawa and Colombo (2009).

(25) EMCC (2006) and Fujisawa and Colombo (2009).

(26) Simonazzi (2009a).

(27) Fujisawa and Colombo (2009).

(28) Fujisawa and Colombo (2009).

Statistical annex

1. Macro economic indicators

Annual percentage growth

European Union 27	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	3.0	3.0	3.9	2.0	1.3	1.3	2.5	2.0	3.2	2.9	0.9	-4.0	-0.1
Total employment	1.3	0.8	1.8	0.9	0.3	0.4	0.7	0.9	1.6	1.8	1.0	-2.4	-1.4
Labour productivity	1.7	2.3	2.3	1.5	1.5	1.8	2.6	1.7	2.2	1.6	0.4	-1.3	1.4
Annual average hours worked	:	:	:	-0.7	-1.2	-0.5	0.3	-0.1	-0.3	:	:	:	:
Productivity per hour worked	:	:	:	1.7	2.2	1.5	1.5	1.1	1.8	:	:	:	:
Harmonized CPI	4.6	3.0	3.5	3.2	2.5	2.1	2.3	2.3	2.3	2.4	3.7	0.9	1.3
Price deflator GDP	2.2	1.6	1.8	2.6	2.8	2.4	2.1	2.0	2.2	2.7	2.5	1.5	1.3
Nominal compensation per employee	3.1	4.8	5.8	3.4	3.0	1.4	2.9	2.8	2.8	3.4	0.7	-0.5	2.1
Real compensation per employee (GDP deflator)	1.2	2.5	2.4	1.4	0.5	1.1	0.5	0.6	0.4	0.6	0.7	0.4	0.3
Real compensation per employee (private consumption deflator)	1.4	2.8	1.5	1.5	1.3	1.4	0.5	0.5	0.4	0.8	0.2	1.1	0.3
Nominal unit labour costs	1.6	1.6	1.9	3.0	2.4	2.3	1.1	1.6	1.2	2.3	3.6	3.3	0.2
Real unit labour costs	-0.7	0.1	0.1	0.3	-0.6	-0.2	-1.5	-0.6	-1.2	-0.5	0.8	1.8	-1.1

European Union 15	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	3.0	3.0	3.9	1.9	1.2	1.2	2.3	1.8	3.0	2.6	0.6	-4.0	-0.1
Total employment	1.8	1.8	2.2	1.4	0.7	0.5	0.8	0.9	1.5	1.6	0.7	-2.4	-1.5
Labour productivity	1.5	1.5	2.0	0.7	0.7	1.1	1.9	1.1	1.7	1.1	-0.0	-1.5	1.5
Annual average hours worked	-0.4	-0.4	-0.7	-0.5	-0.9	-0.4	0.1	-0.3	-0.4	-0.3	-0.3	-0.8	-0.2
Productivity per hour worked	1.5	1.6	2.4	1.0	1.4	1.2	1.4	1.1	1.8	1.3	0.2	-0.8	1.6
Harmonized CPI	1.3	1.2	1.9	2.2	2.1	2.0	2.0	2.1	2.2	2.2	3.3	0.6	1.2
Price deflator GDP	1.6	1.2	1.4	2.4	2.6	2.3	1.9	2.0	2.1	2.4	2.3	1.3	1.2
Nominal compensation per employee	2.4	3.7	5.1	2.5	2.6	1.4	3.2	2.3	2.9	3.1	0.2	-0.1	1.9
Real compensation per employee (GDP deflator)	0.8	1.5	2.0	0.8	0.2	0.9	0.8	0.5	0.7	0.7	0.8	0.4	0.3
Real compensation per employee (private consumption deflator)	1.1	1.8	1.2	1.0	1.0	1.2	0.8	0.4	0.6	0.8	0.4	1.1	0.3
Nominal unit labour costs	0.9	1.3	1.6	2.7	2.4	2.3	1.1	1.5	1.2	2.1	3.2	3.3	0.1
Real unit labour costs	-0.6	0.0	0.2	0.2	-0.4	-0.1	-1.0	-0.6	-0.9	-0.4	0.8	1.9	-1.1

United States	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	4.2	4.5	3.7	0.8	1.6	2.5	3.6	2.9	2.8	2.0	1.1	-2.9	0.9
Total employment	1.4	1.5	2.5	0.0	-0.3	0.9	1.1	1.7	1.9	1.1	-0.5	-3.5	-0.9
Labour productivity	2.3	2.4	1.6	0.5	2.7	2.7	2.7	1.6	0.7	0.9	1.6	0.6	1.8
Annual average hours worked	0.7	0.5	-1.1	-1.3	-1.0	-1.4	0.1	-0.2	-0.1	-0.4	-0.4	:	:
Productivity per hour worked	2.0	2.5	2.3	2.0	3.0	3.1	2.5	1.4	0.9	1.3	2.0	:	:
Harmonized CPI	1.6	2.2	3.4	2.8	1.6	2.3	2.7	3.4	3.2	2.8	3.8	-0.7	0.3
Price deflator GDP	1.1	1.4	2.2	2.4	1.8	2.1	2.9	3.3	3.2	2.7	2.2	1.6	0.1
Nominal compensation per employee	5.4	4.2	5.7	2.4	3.6	4.3	4.3	3.6	4.0	3.7	3.3	3.5	0.4
Real compensation per employee (GDP deflator)	4.2	2.7	3.4	-0.0	1.8	2.1	1.4	0.3	0.7	1.0	1.1	1.9	0.3
Real compensation per employee (private consumption deflator)	4.4	2.5	3.1	0.3	2.1	2.3	1.6	0.6	1.2	1.1	-0.0	4.0	0.4
Nominal unit labour costs	3.0	1.8	4.0	1.9	0.8	1.6	1.6	2.0	3.3	2.8	1.7	2.9	-1.5
Real unit labour costs	1.8	0.3	1.8	-0.5	-0.9	-0.5	-1.3	-1.2	0.0	0.1	-0.5	1.3	-1.5

Japan	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	-2.0	-0.1	2.9	0.2	0.3	1.4	2.7	1.9	2.0	2.3	-0.7	-5.3	0.1
Total employment	-1.2	-1.4	-0.6	-0.8	-1.6	-0.3	0.2	0.4	0.4	0.4	-0.4	-3.0	-1.2
Labour productivity	-0.9	1.3	3.5	0.9	1.9	1.7	2.5	1.5	1.6	2.0	-0.3	-2.4	1.3
Annual average hours worked	-1.2	-1.7	0.6	-0.7	-0.6	0.0	-0.6	-0.7	0.5	0.2	-0.7	:	:
Productivity per hour worked	0.4	3.0	2.9	1.6	2.5	1.7	3.2	2.2	1.1	1.8	0.5	:	:
Harmonized CPI	0.6	-0.3	-0.7	-0.7	-0.9	-0.3	0.0	-0.3	0.3	0.0	1.4	-1.0	-0.5
Price deflator GDP	-0.0	-1.3	-1.7	-1.2	-1.5	-1.6	-1.1	-1.2	-0.9	-0.7	-0.9	1.4	-0.4
Nominal compensation per employee	-0.1	-1.1	0.4	-0.5	-1.6	-1.4	-1.3	-0.1	0.4	-0.4	0.5	-0.8	0.4
Real compensation per employee (GDP deflator)	-0.1	0.2	2.2	0.7	-0.0	0.2	-0.2	1.1	1.3	0.2	1.4	-2.1	0.8
Real compensation per employee (private consumption deflator)	-0.2	-0.5	1.5	0.6	-0.1	-0.5	-0.7	0.7	0.6	-0.1	0.1	0.6	1.0
Nominal unit labour costs	0.8	-2.3	-3.0	-1.4	-3.3	-3.1	-3.8	-1.6	-1.2	-2.3	0.8	1.7	-0.9
Real unit labour costs	0.8	-1.0	-1.3	-0.2	-1.8	-1.6	-2.7	-0.4	-0.3	-1.7	1.7	0.3	-0.5

Annual percentage growth

Belgium	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	1.7	3.4	3.7	0.8	1.5	1.0	3.0	1.8	3.0	2.8	1.1	-3.5	-0.2
Total employment	1.5	1.3	2.0	1.4	-0.1	0.0	0.7	1.3	1.4	1.8	1.6	-1.2	-1.5
Labour productivity	0.1	2.1	1.7	-0.6	1.7	0.9	2.3	0.5	1.6	0.9	-0.5	-2.3	1.2
Annual average hours worked	0.7	0.2	-1.7	1.5	0.1	-0.3	-1.7	1.0	0.4	-0.3	-0.4	-1.8	0.1
Productivity per hour worked	-0.6	1.9	3.5	-2.1	1.5	1.2	4.0	-0.5	1.2	1.3	-0.2	-0.5	1.1
Harmonized CPI	0.9	1.1	2.7	2.4	1.6	1.5	1.9	2.5	2.3	1.8	4.5	0.3	1.2
Price deflator GDP	2.1	0.4	1.8	2.0	1.9	1.6	2.4	2.4	2.3	2.4	1.7	2.2	1.3
Nominal compensation per employee	1.3	3.5	2.0	3.6	3.8	1.7	1.9	2.1	3.3	3.8	3.4	2.1	1.8
Real compensation per employee (GDP deflator)	-0.7	3.1	0.2	1.6	1.9	0.0	-0.5	-0.4	1.0	1.3	1.7	-0.2	0.6
Real compensation per employee (private consumption deflator)	0.1	3.4	-1.4	1.3	2.5	0.1	-0.7	-0.8	0.5	0.9	-0.9	1.7	0.6
Nominal unit labour costs	1.2	1.4	0.3	4.3	2.1	0.7	-0.4	1.5	1.7	2.8	3.9	4.5	0.6
Real unit labour costs	-0.9	1.0	-1.5	2.2	0.3	-0.9	-2.7	-0.9	-0.6	0.4	2.2	2.2	-0.7

Bulgaria	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	4.0	2.3	5.4	4.1	5.6	5.0	6.6	6.2	6.3	6.2	6.0	-1.6	-0.1
Total employment	-0.2	-2.1	4.9	-0.8	0.2	3.0	2.6	2.7	3.3	2.8	3.3	-2.2	-1.0
Labour productivity	:	:	:	4.9	5.3	2.0	3.9	3.5	2.9	3.3	2.7	0.6	0.9
Annual average hours worked	:	:	:	0.7	-0.0	-0.7	1.4	-0.3	-0.3	0.5	-0.0	0.4	0.4
Productivity per hour worked	8.7	5.7	9.9	4.1	5.4	2.7	2.5	3.8	3.2	2.8	2.7	0.2	0.5
Harmonized CPI	18.7	2.6	10.3	7.4	5.8	2.3	6.1	6.0	7.4	7.6	12.0	3.9	3.6
Price deflator GDP	23.7	3.7	6.7	6.7	3.3	1.8	5.1	3.8	8.5	7.9	11.4	4.9	3.1
Nominal compensation per employee	52.5	6.0	-9.9	14.9	5.9	5.1	4.9	5.9	7.4	17.9	19.3	6.5	4.2
Real compensation per employee (GDP deflator)	23.3	2.2	-15.6	7.7	2.5	3.2	-0.2	2.1	-1.0	9.4	7.1	1.6	1.1
Real compensation per employee (private consumption deflator)	31.6	3.7	-13.8	8.4	1.7	4.8	0.5	0.7	1.6	10.5	7.4	3.4	1.2
Nominal unit labour costs	46.4	1.4	-10.3	9.6	0.5	3.0	1.0	2.4	4.4	14.2	16.2	5.9	3.3
Real unit labour costs	18.4	-2.2	-15.9	2.7	-2.7	1.2	-4.0	-1.3	-3.8	5.9	4.3	0.9	0.2

Czech Republic	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	-0.8	1.3	3.6	2.5	1.9	3.6	4.5	6.3	6.8	6.1	2.7	-2.7	0.3
Total employment	-1.5	-3.4	-0.2	0.5	0.6	-1.3	0.3	1.0	1.9	2.7	0.9	-1.7	-1.3
Labour productivity	1.0	3.9	4.1	2.1	1.6	4.7	4.3	5.2	4.9	3.3	1.5	-1.1	1.6
Annual average hours worked	0.3	1.6	-0.1	-4.4	-1.1	0.1	0.4	0.6	-0.2	-0.6	-0.3	-0.3	-0.1
Productivity per hour worked	0.5	3.2	3.9	6.7	2.4	4.9	3.7	4.6	5.0	4.0	2.1	-0.8	1.7
Harmonized CPI	9.7	1.8	3.9	4.5	1.4	-0.1	2.6	1.6	2.1	3.0	6.3	1.1	1.6
Price deflator GDP	11.1	2.8	1.5	4.9	2.8	0.9	4.5	-0.3	1.1	3.4	1.7	1.6	1.4
Nominal compensation per employee	8.7	7.1	6.5	8.2	7.7	8.6	5.7	4.9	6.0	6.4	6.5	3.1	3.4
Real compensation per employee (GDP deflator)	-2.1	4.1	4.9	3.2	4.8	7.6	1.1	5.2	4.9	2.9	4.7	1.5	1.9
Real compensation per employee (private consumption deflator)	-0.1	5.1	3.3	4.1	6.4	9.0	2.3	4.0	4.6	3.4	0.8	2.1	1.8
Nominal unit labour costs	7.7	3.0	2.3	6.0	6.0	3.8	1.3	-0.3	1.1	3.0	4.9	4.2	1.8
Real unit labour costs	-3.1	0.2	0.8	1.0	3.1	2.8	-3.1	0.0	-0.0	-0.4	3.1	2.6	0.3

Denmark	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	2.2	2.6	3.5	0.7	0.5	0.4	2.3	2.4	3.3	1.6	-1.2	-3.3	0.3
Total employment	1.5	0.8	0.5	0.9	0.0	-1.1	-0.6	1.0	2.0	2.7	0.8	-2.2	-2.0
Labour productivity	0.7	1.7	3.0	-0.2	0.4	1.5	2.9	1.4	1.3	-1.0	-2.0	-1.0	2.3
Annual average hours worked	1.1	0.7	1.0	0.5	-0.4	-0.2	0.2	0.0	0.4	0.9	0.7	-2.0	-0.4
Productivity per hour worked	-0.4	0.9	2.0	-0.7	0.8	1.7	2.7	1.4	0.9	-1.9	-2.7	1.0	2.7
Harmonized CPI	1.3	2.1	2.7	2.3	2.4	2.0	0.9	1.7	1.9	1.7	3.6	0.9	1.4
Price deflator GDP	1.2	1.7	3.0	2.5	2.3	1.6	2.3	2.9	2.0	2.0	4.0	1.5	1.4
Nominal compensation per employee	4.1	3.9	3.5	4.2	3.8	3.7	3.3	3.6	3.6	3.1	4.9	3.1	2.5
Real compensation per employee (GDP deflator)	2.9	2.2	0.5	1.7	1.4	2.0	1.0	0.7	1.6	1.2	0.9	1.5	1.1
Real compensation per employee (private consumption deflator)	2.6	2.0	0.8	1.8	2.0	2.4	2.1	2.1	1.7	1.3	1.7	2.1	1.1
Nominal unit labour costs	3.4	2.1	0.5	4.4	3.3	2.2	0.4	2.2	2.2	4.2	7.1	4.1	0.2
Real unit labour costs	2.2	0.5	-2.4	1.9	1.0	0.6	-1.9	-0.7	0.3	2.2	3.0	2.6	-1.2

Germany	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	2.0	2.0	3.2	1.2	0.0	-0.2	1.2	0.8	3.2	2.5	1.3	-5.4	0.3
Total employment	1.2	1.4	1.9	0.4	-0.6	-0.9	0.4	-0.1	0.6	1.7	1.4	-1.5	-2.2
Labour productivity	1.9	1.5	2.3	1.4	1.1	1.5	1.7	1.3	2.9	0.9	-0.2	-3.9	2.5
Annual average hours worked	-0.4	-0.8	-1.3	-1.0	-0.9	-0.4	0.2	-0.5	-0.3	0.1	-0.1	-2.0	-0.6
Productivity per hour worked	1.2	1.4	2.6	1.8	1.5	1.2	0.6	1.4	2.9	0.7	-0.0	-1.9	3.1
Harmonized CPI	0.6	0.6	1.4	1.9	1.4	1.0	1.8	1.9	1.8	2.3	2.8	0.3	0.7
Price deflator GDP	0.6	0.4	-0.7	1.2	1.4	1.2	1.0	0.7	0.5	1.9	1.5	1.2	0.7
Nominal compensation per employee	2.1	2.0	3.0	2.3	1.9	2.6	1.5	0.5	1.5	1.1	2.0	1.0	0.9
Real compensation per employee (GDP deflator)	1.6	1.6	3.7	1.1	0.5	1.4	0.5	-0.2	1.0	-0.8	0.5	-0.2	0.2
Real compensation per employee (private consumption deflator)	1.6	1.7	2.0	0.5	0.7	1.0	0.1	-0.9	0.4	-0.7	-0.1	0.5	0.2
Nominal unit labour costs	0.3	0.5	0.7	0.9	0.9	1.0	-0.2	-0.8	-1.4	0.2	2.2	5.1	-1.5
Real unit labour costs	-0.3	0.2	1.4	-0.3	-0.5	-0.2	-1.1	-1.4	-1.9	-1.7	0.7	3.8	-2.2

Annual percentage growth

Estonia	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	5.4	-0.1	9.6	7.5	7.9	7.6	7.2	9.4	10.0	7.2	-3.6	-10.3	-0.8
Total employment	-1.9	-4.4	-1.5	0.8	1.3	1.5	-0.0	2.0	5.4	0.8	0.2	-7.0	-2.9
Labour productivity	7.7	4.8	12.8	6.7	6.3	6.7	7.2	7.5	4.1	6.4	-3.7	-3.6	2.2
Annual average hours worked	:	:	:	-0.4	0.2	0.1	0.6	0.7	-0.5	-0.1	-1.5	-2.5	0.0
Productivity per hour worked	:	:	:	7.1	6.3	5.9	6.7	6.5	4.8	6.5	-2.3	-1.1	2.2
Harmonized CPI	8.8	3.1	3.9	5.6	3.6	1.4	3.0	4.1	4.4	6.7	10.6	0.6	0.5
Price deflator GDP	6.6	6.6	4.9	5.3	3.3	4.2	3.6	5.5	7.6	10.2	6.7	-0.1	-0.8
Nominal compensation per employee	13.9	8.6	15.7	9.5	9.1	12.2	11.9	11.1	14.1	24.8	10.1	0.5	-3.5
Real compensation per employee (GDP deflator)	6.9	1.8	10.3	4.0	5.6	7.6	8.0	5.3	6.1	13.3	3.2	0.6	-2.7
Real compensation per employee (private consumption deflator)	5.1	4.1	10.9	3.1	6.2	9.9	9.7	7.3	8.4	16.2	0.8	-0.2	-4.1
Nominal unit labour costs	5.8	3.6	2.6	2.6	2.7	5.1	4.4	3.3	9.6	17.3	14.3	4.2	-5.6
Real unit labour costs	-0.8	-2.8	-2.2	-2.5	-0.6	0.9	0.8	-2.1	1.9	6.4	7.2	4.3	-4.8

Ireland	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	8.4	10.7	9.2	5.8	6.4	4.5	4.7	6.4	5.7	6.0	-2.3	-9.0	-2.6
Total employment	8.6	6.2	4.6	3.0	1.8	2.0	3.1	4.7	4.3	3.6	-0.9	-9.0	-4.0
Labour productivity	-0.2	4.2	4.4	2.7	4.6	2.5	1.6	1.6	1.4	2.4	-1.4	-0.1	1.5
Annual average hours worked	-4.2	-0.6	-0.4	-0.4	-1.0	-0.9	-0.2	-0.1	-0.3	-0.3	0.0	-1.0	-0.5
Productivity per hour worked	4.2	4.9	4.8	3.1	5.6	3.4	1.7	1.7	1.7	2.7	-1.4	1.0	2.0
Harmonized CPI	2.1	2.5	5.3	4.0	4.7	4.0	2.3	2.2	2.7	2.9	3.1	-1.3	0.4
Price deflator GDP	6.6	4.0	6.1	5.5	4.6	2.5	2.0	2.3	3.4	1.4	-0.3	-1.2	-0.3
Nominal compensation per employee	4.8	4.5	8.0	7.5	5.0	5.7	5.3	6.4	4.6	6.0	5.5	-4.1	-2.4
Real compensation per employee (GDP deflator)	-1.7	0.5	1.8	1.9	0.5	3.2	3.2	3.9	1.2	4.6	5.8	-2.9	-2.1
Real compensation per employee (private consumption deflator)	0.8	1.3	3.1	3.1	-0.1	1.8	3.7	4.7	2.3	3.0	2.4	-2.6	-2.7
Nominal unit labour costs	4.9	0.3	3.5	4.6	0.4	3.2	3.7	4.7	3.2	3.6	7.0	-4.0	-3.9
Real unit labour costs	-1.6	-3.6	-2.4	-0.8	-3.9	0.7	1.7	2.3	-0.2	2.2	7.3	-2.9	-3.6

Greece	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	3.4	3.4	4.5	4.2	3.4	5.6	4.9	2.9	4.5	4.0	2.9	-0.9	0.1
Total employment	:	:	:	0.1	2.3	1.0	2.3	1.0	2.1	1.3	1.2	-1.1	-0.1
Labour productivity	:	:	:	4.1	1.2	4.5	2.5	1.9	2.3	2.7	1.7	0.3	0.2
Annual average hours worked	:	:	:	0.1	-0.8	0.5	-2.5	0.8	3.3	-0.0	0.0	-0.5	-0.5
Productivity per hour worked	:	:	:	4.0	1.9	4.0	5.1	1.1	-1.0	2.8	1.7	0.8	0.7
Harmonized CPI	4.5	2.1	2.9	3.7	3.9	3.4	3.0	3.5	3.3	3.0	4.2	1.8	2.3
Price deflator GDP	5.2	3.0	5.7	3.1	3.4	3.7	3.3	3.4	3.2	2.9	3.4	2.1	2.7
Nominal compensation per employee	5.3	6.5	6.0	3.7	11.4	5.1	5.1	4.9	1.0	9.1	7.5	4.4	1.9
Real compensation per employee (GDP deflator)	0.1	3.4	0.3	0.6	7.8	1.4	1.7	1.5	-2.2	6.1	3.9	2.3	-0.7
Real compensation per employee (private consumption deflator)	0.8	4.1	-1.5	1.0	8.6	1.7	1.8	1.4	-2.5	5.8	3.2	2.4	-0.2
Nominal unit labour costs	6.1	3.0	1.3	-0.3	10.2	0.6	2.5	2.9	-1.3	6.3	5.7	4.1	1.7
Real unit labour costs	0.8	0.0	-4.2	-3.4	6.5	-3.0	-0.8	-0.5	-4.4	3.3	2.2	2.0	-0.9

Spain	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	4.5	4.7	5.0	3.6	2.7	3.1	3.3	3.6	3.9	3.7	1.2	-3.2	-1.0
Total employment	4.5	4.6	5.1	3.2	2.4	3.1	3.5	4.1	3.9	3.0	-0.6	-5.3	-2.7
Labour productivity	0.1	0.1	0.0	0.4	0.4	0.7	0.6	0.4	0.6	0.8	1.8	2.3	1.8
Annual average hours worked	0.2	0.0	-0.1	-0.2	-0.3	-0.9	-0.9	-1.3	-0.9	-1.1	-0.3	-0.4	-0.4
Productivity per hour worked	-0.2	0.1	0.1	0.7	0.6	0.9	0.7	0.8	0.9	1.8	2.1	2.7	2.2
Harmonized CPI	1.8	2.2	3.5	2.8	3.6	3.1	3.1	3.4	3.6	2.8	4.1	-0.1	1.4
Price deflator GDP	2.5	2.6	3.5	4.2	4.3	4.1	4.0	4.3	4.3	3.2	2.2	1.1	1.8
Nominal compensation per employee	2.0	2.0	2.9	3.6	3.3	3.6	3.0	3.7	4.0	4.5	6.1	3.4	2.7
Real compensation per employee (GDP deflator)	-0.5	-0.6	-0.6	-0.6	-1.0	-0.5	-1.0	-0.6	-0.2	1.3	3.8	2.3	0.9
Real compensation per employee (private consumption deflator)	0.1	-0.2	-0.8	0.1	0.5	0.5	-0.5	0.2	0.5	1.1	3.0	3.2	1.0
Nominal unit labour costs	1.8	1.9	2.8	3.2	2.9	2.9	2.4	3.3	3.4	3.7	4.3	1.1	0.9
Real unit labour costs	-0.6	-0.7	-0.6	-1.0	-1.4	-1.2	-1.5	-0.9	-0.8	0.5	2.0	0.0	-0.9

France	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	3.5	3.3	3.9	1.9	1.0	1.1	2.5	1.9	2.2	2.3	0.4	-3.0	-0.2
Total employment	1.5	2.0	2.7	1.8	0.6	0.1	0.1	0.6	1.0	1.4	0.5	-2.2	-1.2
Labour productivity	2.2	1.3	1.0	-0.2	0.2	1.0	2.3	1.3	1.2	0.8	-0.1	-0.8	1.1
Annual average hours worked	-0.7	-0.4	-2.4	-0.8	-2.6	-0.3	1.9	-0.2	-1.5	1.1	0.4	1.0	1.0
Productivity per hour worked	2.7	1.7	3.7	0.9	3.1	1.3	0.5	1.5	2.7	-0.1	-0.5	-1.8	0.1
Harmonized CPI	0.7	0.6	1.8	1.8	1.9	2.2	2.3	1.9	1.9	1.6	3.2	0.2	0.9
Price deflator GDP	0.9	0.0	1.4	2.0	2.4	1.9	1.6	2.0	2.4	2.5	2.5	1.4	1.2
Nominal compensation per employee	2.1	2.3	2.2	2.0	3.1	2.8	3.4	3.1	3.2	2.5	2.7	1.3	1.5
Real compensation per employee (GDP deflator)	1.2	2.2	0.8	0.0	0.7	0.9	1.8	1.0	0.8	0.0	0.2	-0.2	0.4
Real compensation per employee (private consumption deflator)	1.9	2.8	-0.1	0.3	2.1	0.9	1.5	1.3	1.1	0.5	-0.1	1.0	0.6
Nominal unit labour costs	-0.1	0.9	1.1	2.3	2.9	1.7	1.1	1.8	2.0	1.8	2.8	2.0	0.4
Real unit labour costs	-1.0	0.9	-0.3	0.3	0.5	-0.1	-0.5	-0.3	-0.3	-0.7	0.3	0.6	-0.7

Annual percentage growth

Italy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	1.4	1.5	3.7	1.8	0.5	-0.0	1.5	0.7	2.0	1.6	-1.0	-4.4	0.1
Total employment	1.0	1.1	1.9	2.0	1.7	1.5	0.4	0.6	2.0	1.2	0.3	-2.1	-0.4
Labour productivity	0.5	0.9	1.8	0.0	-0.8	-0.6	1.2	0.5	0.5	0.6	-0.9	-1.1	0.7
Annual average hours worked	0.9	-0.2	-0.8	-1.0	-0.7	-0.3	0.0	-0.4	-0.2	0.1	-0.8	-1.3	-0.2
Productivity per hour worked	-0.5	0.6	2.5	0.8	-0.6	-1.2	1.1	0.5	0.3	0.2	-0.5	-1.0	0.8
Harmonized CPI	2.0	1.7	2.6	2.3	2.6	2.8	2.3	2.2	2.2	2.0	3.5	0.8	1.8
Price deflator GDP	2.6	1.8	1.9	3.0	3.3	3.1	2.6	2.1	1.8	2.4	2.8	1.9	1.5
Nominal compensation per employee	-1.6	2.6	2.3	3.2	2.7	3.7	3.3	3.2	2.7	2.2	3.3	2.1	1.5
Real compensation per employee (GDP deflator)	-4.1	0.8	0.4	0.2	-0.5	0.6	0.6	1.1	0.8	-0.2	0.4	0.2	-0.0
Real compensation per employee (private consumption deflator)	-3.4	0.8	-1.0	0.5	-0.1	0.9	0.7	0.9	0.0	-0.1	0.0	1.4	-0.3
Nominal unit labour costs	-2.1	1.7	0.5	3.1	3.6	4.4	2.1	2.7	2.2	1.5	4.2	3.3	0.8
Real unit labour costs	-4.6	-0.1	-1.4	0.2	0.3	1.2	-0.5	0.6	0.3	-0.8	1.4	1.3	-0.8

Cyprus	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	5.0	4.8	5.0	4.0	2.1	1.9	4.2	3.9	4.1	4.4	3.7	0.3	0.7
Total employment	1.6	1.8	1.7	2.2	2.1	3.8	3.8	3.6	1.8	3.2	2.6	-0.4	0.1
Labour productivity	3.4	2.9	3.3	1.8	0.0	-1.8	0.4	0.3	2.3	1.2	1.0	0.7	0.6
Annual average hours worked	0.3	0.6	0.9	1.3	-1.4	-0.4	-1.9	-1.6	0.9	-0.3	0.1	2.2	1.7
Productivity per hour worked	3.1	2.3	2.4	0.5	1.4	-1.4	2.4	2.0	1.5	1.5	0.9	-1.5	-1.1
Harmonized CPI	2.3	1.1	4.9	2.0	2.8	4.0	1.9	2.0	2.2	2.2	4.4	1.1	2.0
Price deflator GDP	2.9	2.3	3.8	3.4	1.2	5.1	3.3	2.4	3.0	3.4	4.8	5.3	2.5
Nominal compensation per employee	3.1	4.5	6.0	3.8	4.8	7.7	1.9	1.8	3.0	2.1	4.0	5.4	4.3
Real compensation per employee (GDP deflator)	0.1	2.1	2.1	0.3	3.6	2.4	-1.3	-0.6	-0.0	-1.3	-0.8	0.1	1.8
Real compensation per employee (private consumption deflator)	1.5	2.3	2.3	1.4	2.3	3.5	0.2	-0.8	0.7	-0.7	-0.7	3.9	2.0
Nominal unit labour costs	-0.3	1.5	2.6	1.9	4.8	9.7	1.5	1.4	0.6	0.9	3.0	4.7	3.7
Real unit labour costs	-3.2	-0.8	-1.1	-1.4	3.6	4.3	-1.7	-0.9	-2.3	-2.4	-1.8	-0.6	1.2

Latvia	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	4.8	3.3	6.9	8.0	6.5	7.2	8.7	10.6	12.2	10.0	-4.6	-13.1	-3.2
Total employment	-0.3	-1.8	-2.9	2.2	1.6	1.7	1.1	1.7	4.7	3.6	0.7	-8.9	-3.3
Labour productivity	5.1	5.1	10.1	5.7	4.8	5.4	7.5	8.7	7.2	6.2	-5.3	-4.6	0.1
Annual average hours worked	:	0.5	-0.7	1.4	-1.1	-0.7	-1.1	-1.4	0.0	-1.6	-0.5	-1.0	-0.5
Productivity per hour worked	:	4.7	10.9	4.3	6.0	6.1	8.7	10.3	7.2	7.9	-4.8	-3.6	0.6
Harmonized CPI	4.3	2.1	2.6	2.5	2.0	2.9	6.2	6.9	6.6	10.1	15.3	4.6	-0.7
Price deflator GDP	4.3	4.0	4.2	1.7	3.6	3.6	7.0	10.2	9.9	20.3	15.2	-2.2	-3.6
Nominal compensation per employee	6.2	7.5	6.9	3.4	4.0	11.3	14.3	25.3	23.6	34.8	16.7	-9.0	-3.0
Real compensation per employee (GDP deflator)	1.8	3.4	2.6	1.7	0.4	7.5	6.9	13.7	12.4	12.1	1.3	-6.9	0.6
Real compensation per employee (private consumption deflator)	1.5	5.4	3.5	1.2	1.6	8.2	6.7	15.2	16.6	22.3	0.9	-10.8	-2.0
Nominal unit labour costs	1.1	2.3	-3.0	-2.2	-0.8	5.6	6.4	15.2	15.3	27.0	23.2	-4.6	-3.1
Real unit labour costs	-3.1	-1.7	-6.9	-3.9	-4.2	2.0	-0.6	4.6	4.9	5.6	7.0	-2.4	0.5

Lithuania	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	7.5	-1.5	4.2	6.7	6.9	10.2	7.4	7.8	7.8	8.9	3.0	-11.0	-4.7
Total employment	-0.8	-2.2	-4.0	-3.8	3.6	2.2	-0.0	2.5	1.8	2.8	-0.5	-7.7	-2.4
Labour productivity	8.4	0.8	8.5	11.0	3.1	7.8	7.4	5.2	5.9	6.0	3.5	-3.6	-2.4
Annual average hours worked	3.0	-3.0	6.6	-0.8	-1.6	-0.9	1.3	3.4	-0.8	1.1	1.6	-2.5	-2.1
Productivity per hour worked	5.2	3.9	1.8	11.9	4.8	8.8	6.0	1.7	6.8	4.8	1.9	-1.0	-0.3
Harmonized CPI	5.4	1.5	1.1	1.6	0.3	-1.1	1.2	2.7	3.8	5.8	11.1	3.6	-0.4
Price deflator GDP	4.0	-0.9	0.5	-0.4	0.2	-0.8	2.5	6.6	6.5	8.8	10.3	2.3	-1.2
Nominal compensation per employee	15.5	2.6	-0.7	7.1	5.0	8.9	10.9	11.5	16.7	16.9	14.5	-10.3	-8.8
Real compensation per employee (GDP deflator)	11.1	3.5	-1.2	7.5	4.8	9.8	8.2	4.6	9.5	7.4	3.8	-12.3	-7.7
Real compensation per employee (private consumption deflator)	9.2	3.2	1.0	4.6	5.1	9.9	11.2	9.7	12.1	10.6	4.3	-12.9	-7.8
Nominal unit labour costs	6.6	1.8	-8.5	-3.5	1.8	1.0	3.3	6.0	10.1	10.3	10.6	-7.0	-6.6
Real unit labour costs	2.5	2.7	-9.0	-3.2	1.6	1.8	0.8	-0.6	3.4	1.4	0.3	-9.1	-5.4

Luxembourg	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	6.5	8.4	8.4	2.5	4.1	1.5	4.5	5.2	6.4	5.2	-0.9	-3.0	0.1
Total employment	4.5	5.0	5.6	5.5	3.2	1.8	2.2	2.9	3.6	4.5	4.7	0.5	-0.8
Labour productivity	1.9	3.3	2.7	-2.9	0.8	-0.3	2.3	2.2	2.7	0.7	-5.3	-3.5	0.9
Annual average hours worked	-0.4	-0.2	-0.4	-1.0	-2.4	-1.6	0.1	-1.3	-0.3	0.4	-0.2	-1.5	0.0
Productivity per hour worked	2.3	3.4	3.2	-1.9	3.4	1.3	2.2	3.5	3.1	0.3	-5.1	-2.0	0.9
Harmonized CPI	1.0	1.0	3.8	2.4	2.1	2.5	3.2	3.8	3.0	2.7	4.1	-0.6	2.0
Price deflator GDP	-0.4	5.3	2.0	0.1	2.1	6.0	1.9	4.5	5.4	2.0	1.6	1.9	1.6
Nominal compensation per employee	0.9	4.0	5.3	3.5	3.1	1.1	3.7	3.7	3.1	4.3	1.5	1.7	1.5
Real compensation per employee (GDP deflator)	1.3	-1.3	3.3	3.4	0.9	-4.6	1.8	-0.8	-2.2	2.2	-0.1	-0.2	-0.1
Real compensation per employee (private consumption deflator)	-0.8	1.5	1.3	1.5	2.5	-1.0	1.3	0.9	0.9	2.2	-3.3	1.6	-0.4
Nominal unit labour costs	-1.0	0.7	2.5	6.5	2.2	1.4	1.4	1.4	0.4	3.6	7.2	5.4	0.6
Real unit labour costs	-0.6	-4.4	0.5	6.4	0.1	-4.4	-0.4	-2.9	-4.8	1.5	5.5	3.4	-1.0

Annual percentage growth

Hungary	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	4.9	4.2	5.2	4.1	4.4	4.3	4.7	3.9	4.0	1.2	0.6	-6.3	-0.3
Total employment	1.8	3.4	1.3	0.3	0.0	1.3	-0.7	-0.0	0.7	-0.1	-0.5	-3.0	-2.0
Labour productivity	3.1	1.2	3.7	3.6	4.4	3.4	5.2	3.5	3.0	1.4	1.1	-3.5	1.8
Annual average hours worked	-0.3	0.7	-0.3	-2.1	0.4	-1.4	7.7	-0.2	-0.5	-0.2	-0.7	-1.0	0.2
Productivity per hour worked	3.4	0.0	4.1	6.1	4.0	4.4	-2.2	4.1	3.8	1.6	1.8	-2.5	1.6
Harmonized CPI	14.2	10.0	10.0	9.1	5.2	4.7	6.8	3.5	4.0	7.9	6.0	4.4	4.1
Price deflator GDP	12.6	8.4	9.9	8.3	7.8	5.8	4.5	2.3	4.0	5.9	3.8	4.6	3.2
Nominal compensation per employee	13.9	5.2	15.3	15.0	13.3	9.9	11.2	7.1	4.5	6.8	7.0	1.4	5.8
Real compensation per employee (GDP deflator)	1.1	-3.0	5.0	6.2	5.1	3.9	6.4	4.7	0.5	0.9	3.0	-3.1	2.5
Real compensation per employee (private consumption deflator)	0.2	-4.6	5.7	6.3	9.1	5.6	6.3	3.2	1.1	0.6	1.3	-3.2	2.2
Nominal unit labour costs	10.4	3.9	11.3	10.9	8.5	6.2	5.7	3.5	1.4	5.4	5.8	5.1	4.0
Real unit labour costs	-2.0	-4.2	1.2	2.5	0.7	0.4	1.1	1.2	-2.5	-0.5	1.9	0.4	0.7

Malta	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	3.4	4.1	6.4	-1.6	2.6	-0.3	0.4	4.1	3.8	3.7	2.1	-0.9	0.2
Total employment	:	:	:	1.8	0.6	1.0	-0.6	1.3	1.3	3.1	2.5	-0.5	0.2
Labour productivity	:	:	:	-3.3	2.0	-1.3	1.0	2.7	2.5	0.6	-0.4	-0.4	0.0
Annual average hours worked	:	:	:	5.5	2.2	0.7	-0.5	0.0	-0.7	-0.0	-1.2	-0.3	0.4
Productivity per hour worked	:	:	:	-8.3	-0.2	-2.0	1.5	2.7	3.2	0.6	0.9	-0.1	-0.4
Harmonized CPI	3.7	2.3	3.0	2.5	2.6	1.9	2.7	2.5	2.6	0.7	4.7	1.0	1.8
Price deflator GDP	2.0	1.2	2.8	3.3	3.2	3.0	1.7	2.5	3.1	2.7	2.2	2.4	1.8
Nominal compensation per employee	5.0	5.3	2.6	5.4	3.1	4.6	1.1	2.3	3.8	1.6	3.4	2.9	2.7
Real compensation per employee (GDP deflator)	2.9	4.0	-0.2	2.1	-0.1	1.6	-0.6	-0.2	0.7	-1.0	1.1	0.5	0.9
Real compensation per employee (private consumption deflator)	2.0	4.0	4.3	2.8	1.3	3.7	-1.2	-0.3	1.4	0.0	0.4	1.9	0.9
Nominal unit labour costs	2.1	0.7	-1.3	9.0	1.0	6.0	0.1	-0.4	1.3	1.0	3.7	3.4	2.7
Real unit labour costs	0.1	-0.5	-4.0	5.6	-2.1	3.0	-1.6	-2.9	-1.7	-1.6	1.5	1.0	0.8

Netherlands	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	3.9	4.7	3.9	1.9	0.1	0.3	2.2	2.0	3.4	3.6	2.0	-3.5	-0.4
Total employment	2.6	2.6	2.2	2.1	0.5	-0.5	-0.9	0.5	1.7	2.6	1.4	-1.2	-2.6
Labour productivity	1.0	2.3	2.0	0.3	0.3	1.4	3.3	2.1	1.7	1.3	0.8	-2.5	2.5
Annual average hours worked	-0.8	-0.2	-0.1	-0.8	-1.1	-0.5	-0.1	-0.4	0.1	-0.6	-0.2	-0.2	-0.1
Productivity per hour worked	2.1	2.3	1.8	0.7	0.7	1.4	3.3	2.0	1.6	1.6	0.8	-2.1	2.4
Harmonized CPI	1.8	2.0	2.3	5.1	3.9	2.2	1.4	1.5	1.7	1.6	2.2	1.4	0.9
Price deflator GDP	1.9	1.8	4.1	5.1	3.8	2.2	0.7	2.4	1.8	1.6	2.7	1.6	1.1
Nominal compensation per employee	3.8	4.0	5.0	5.4	5.2	4.2	3.5	1.7	2.4	3.4	3.8	3.5	2.4
Real compensation per employee (GDP deflator)	1.9	2.2	0.9	0.3	1.3	2.0	2.8	-0.7	0.7	1.8	1.0	1.9	1.3
Real compensation per employee (private consumption deflator)	1.7	2.0	1.2	0.9	2.1	1.8	2.5	-0.4	0.2	1.5	1.1	2.2	1.3
Nominal unit labour costs	2.8	1.7	2.9	5.0	4.8	2.7	0.2	-0.4	0.7	2.1	2.9	6.2	-0.0
Real unit labour costs	0.9	-0.1	-1.1	-0.1	1.0	0.5	-0.5	-2.7	-1.1	0.5	0.2	4.5	-1.1

Austria	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	3.6	3.3	3.7	0.5	1.6	0.8	2.5	2.5	3.5	3.5	2.0	-4.0	-0.1
Total employment	1.0	1.5	0.9	0.7	-0.1	-0.1	1.4	1.5	1.4	1.8	1.8	-2.1	-0.9
Labour productivity	2.7	2.2	2.4	0.2	1.6	0.6	2.2	1.2	2.4	2.0	0.2	-1.3	0.8
Annual average hours worked	0.2	-0.5	0.5	-0.1	-0.2	0.7	-0.7	-1.0	-0.5	-0.5	-0.0	-1.7	-0.3
Productivity per hour worked	2.4	2.3	2.2	-0.1	1.9	0.2	1.8	2.0	2.6	2.2	0.3	-0.3	1.1
Harmonized CPI	0.8	0.5	2.0	2.3	1.7	1.3	2.0	2.1	1.7	2.2	3.2	0.5	1.1
Price deflator GDP	0.4	0.4	1.1	1.9	1.3	1.2	1.7	2.1	1.6	2.1	2.0	1.4	1.0
Nominal compensation per employee	2.7	2.2	2.3	1.6	1.9	2.0	1.6	2.5	3.4	3.0	3.1	2.8	1.4
Real compensation per employee (GDP deflator)	2.3	1.8	1.1	-0.3	0.5	0.7	-0.1	0.3	1.8	0.9	1.1	1.4	0.4
Real compensation per employee (private consumption deflator)	2.1	1.8	-0.3	-0.2	1.2	0.3	-0.3	-0.1	1.3	0.3	0.5	2.4	0.3
Nominal unit labour costs	0.0	-0.1	-0.1	1.4	0.2	1.3	-0.6	1.2	1.0	1.0	2.9	4.1	0.6
Real unit labour costs	-0.4	-0.4	-1.2	-0.5	-1.1	0.1	-2.2	-0.9	-0.7	-1.1	0.8	2.7	-0.4

Poland	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	5.0	4.5	4.3	1.2	1.4	3.9	5.3	3.6	6.2	6.8	4.9	-1.4	0.8
Total employment	1.2	-3.9	-1.6	-2.2	-3.0	-1.2	1.2	2.2	3.2	4.4	4.4	-2.3	-1.4
Labour productivity	3.8	8.8	5.9	3.5	4.6	5.1	4.1	1.4	2.9	2.3	0.4	1.0	2.3
Annual average hours worked	-1.2	-0.4	-0.7	-0.7	0.3	0.2	0.0	0.7	-0.3	-0.5	-1.1	-0.1	-0.1
Productivity per hour worked	5.0	9.3	6.6	4.2	4.3	4.9	4.0	0.7	3.2	2.7	1.6	1.1	2.4
Harmonized CPI	11.8	7.2	10.1	5.3	1.9	0.7	3.6	2.2	1.3	2.6	4.2	2.6	1.9
Price deflator GDP	11.1	6.0	7.3	3.5	2.2	0.4	4.1	2.6	1.5	4.0	3.0	1.9	1.6
Nominal compensation per employee	14.0	13.7	10.8	10.2	2.3	1.6	1.9	1.7	1.8	4.9	6.9	3.4	2.1
Real compensation per employee (GDP deflator)	2.6	7.3	3.3	6.5	0.0	1.2	-2.1	-0.9	0.3	0.9	3.8	1.5	0.5
Real compensation per employee (private consumption deflator)	3.1	7.2	0.7	6.2	-1.0	1.2	-1.1	-0.4	0.6	2.4	2.9	0.8	0.2
Nominal unit labour costs	9.9	4.5	4.6	6.5	-2.2	-3.3	-2.1	0.3	-1.1	2.6	6.5	2.4	-0.2
Real unit labour costs	-1.1	-1.4	-2.5	2.9	-4.4	-3.7	-6.0	-2.3	-2.5	-1.3	3.3	0.5	-1.7

Annual percentage growth

Portugal	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	4.9	3.8	3.9	2.0	0.8	-0.8	1.5	0.9	1.4	1.9	-0.0	-3.7	-0.8
Total employment	2.8	1.4	2.1	1.8	0.6	-0.6	-0.1	-0.3	0.5	-0.0	0.4	-1.4	-0.6
Labour productivity	2.0	2.4	1.8	0.2	0.2	-0.2	1.6	1.2	0.9	1.9	-0.5	-2.3	-0.2
Annual average hours worked	-0.7	0.7	7.2	-0.8	-0.5	-0.6	0.3	-0.0	-0.5	-9.0	-0.1	-1.0	-0.5
Productivity per hour worked	2.7	1.7	-5.0	1.0	0.7	0.4	1.3	1.3	1.4	12.0	-0.4	-1.3	0.3
Harmonized CPI	2.2	2.2	2.8	4.4	3.7	3.3	2.5	2.1	3.0	2.4	2.7	-0.3	1.7
Price deflator GDP	3.8	3.3	3.0	3.7	3.9	3.2	2.4	2.5	2.8	3.0	2.0	2.2	1.6
Nominal compensation per employee	5.5	5.2	6.4	4.0	3.6	3.5	2.6	4.7	2.1	3.4	3.1	-0.6	2.1
Real compensation per employee (GDP deflator)	1.7	1.9	3.3	0.3	-0.3	0.3	0.2	2.1	-0.7	0.4	1.1	-2.8	0.5
Real compensation per employee (private consumption deflator)	3.1	2.9	2.9	0.6	0.5	0.5	0.1	1.9	-1.0	0.6	0.5	-0.4	0.6
Nominal unit labour costs	3.4	2.7	4.5	3.8	3.4	3.7	1.0	3.4	1.3	1.4	3.6	1.7	2.3
Real unit labour costs	-0.3	-0.5	1.4	0.1	-0.5	0.5	-1.4	0.8	-1.5	-1.5	1.6	-0.5	0.7

Romania	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	-4.8	-1.2	2.4	5.7	5.1	5.2	8.5	4.2	7.9	6.2	7.1	-4.0	0.0
Total employment	-2.3	-4.5	2.5	-0.8	-2.7	-0.0	-1.7	-1.5	0.7	0.4	0.3	-2.2	0.6
Labour productivity	-2.5	3.5	-0.1	6.5	8.0	5.3	10.3	5.8	7.1	5.8	6.8	-1.9	-0.6
Annual average hours worked	:	:	:	:	:	-1.6	0.5	0.4	0.9	:	:	:	:
Productivity per hour worked	:	:	:	:	:	7.0	9.8	5.4	6.2	:	:	:	:
Harmonized CPI	59.1	45.8	45.7	34.5	22.5	15.3	11.9	9.1	6.6	4.9	7.9	5.8	3.5
Price deflator GDP	55.3	49.4	43.3	37.8	22.7	23.4	15.5	12.2	10.6	12.7	14.0	9.7	6.6
Nominal compensation per employee	89.3	42.6	67.7	53.7	23.2	28.0	13.7	28.6	12.4	22.4	22.0	8.5	7.5
Real compensation per employee (GDP deflator)	21.9	-4.5	17.0	11.5	0.5	3.7	-1.6	14.6	1.7	8.6	7.0	-1.1	0.8
Real compensation per employee (private consumption deflator)	26.8	-0.5	21.8	14.2	2.4	10.5	0.8	20.3	7.2	16.7	12.0	2.2	3.4
Nominal unit labour costs	94.3	37.8	67.8	44.3	14.1	21.5	3.1	21.6	4.9	15.7	14.3	10.5	8.1
Real unit labour costs	25.1	-7.7	17.1	4.7	-7.0	-1.5	-10.8	8.4	-5.1	2.6	0.2	0.7	1.4

Slovenia	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	3.6	5.4	4.4	2.8	4.0	2.8	4.3	4.5	5.8	6.8	3.5	-3.4	0.7
Total employment	-0.2	1.4	1.3	0.5	1.5	-0.4	0.3	-0.1	1.5	3.0	2.9	-4.7	-0.6
Labour productivity	3.8	3.9	3.1	2.4	2.4	3.2	4.0	4.6	4.2	3.7	0.6	1.3	1.4
Annual average hours worked	0.2	-0.7	-1.1	0.2	-0.2	-1.2	0.7	0.0	-0.9	0.0	-0.1	-0.5	0.2
Productivity per hour worked	3.5	4.6	4.2	2.1	2.6	4.4	3.2	4.6	5.2	3.7	0.7	1.9	1.2
Harmonized CPI	7.9	6.1	8.9	8.6	7.5	5.7	3.7	2.5	2.5	3.8	5.5	0.7	2.0
Price deflator GDP	7.0	6.6	5.3	8.7	7.7	5.6	3.4	1.6	2.1	4.2	3.8	1.9	2.0
Nominal compensation per employee	8.7	8.7	10.2	11.8	8.8	7.9	7.8	5.5	5.3	6.5	6.7	2.3	3.1
Real compensation per employee (GDP deflator)	1.6	2.0	4.6	2.9	1.1	2.2	4.3	3.9	3.2	2.1	2.8	0.4	1.0
Real compensation per employee (private consumption deflator)	1.7	2.2	2.8	3.9	1.0	2.5	4.7	3.4	3.0	2.2	1.2	1.6	1.1
Nominal unit labour costs	4.8	4.6	7.0	9.2	6.3	4.5	3.7	0.9	1.0	2.6	6.0	1.0	1.7
Real unit labour costs	-2.0	-1.9	1.5	0.5	-1.3	-1.0	0.3	-0.7	-1.0	-1.5	2.1	-0.9	-0.4

Slovakia	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	4.4	0.0	1.4	3.4	4.8	4.7	5.2	6.5	8.5	10.4	6.4	-2.6	0.7
Total employment	-0.5	-2.5	-2.0	0.6	0.1	1.1	-0.2	1.4	2.3	2.1	2.9	-1.7	0.4
Labour productivity	4.9	2.6	3.4	2.8	4.7	3.6	5.4	5.1	6.1	8.1	3.4	-0.9	0.2
Annual average hours worked	-1.6	-0.0	0.4	-1.4	-3.1	-3.2	3.3	2.0	0.3	0.2	-0.6	-0.2	0.2
Productivity per hour worked	6.6	2.7	3.0	4.3	8.0	7.1	2.0	3.1	5.8	7.9	3.9	-0.7	0.0
Harmonized CPI	6.7	10.4	12.2	7.2	3.5	8.4	7.5	2.8	4.3	1.9	3.9	2.0	2.4
Price deflator GDP	5.1	7.4	9.4	5.0	3.9	5.3	5.9	2.4	2.9	1.1	2.9	3.6	3.7
Nominal compensation per employee	9.8	6.9	13.3	5.8	8.7	8.2	8.5	9.7	7.6	8.8	8.7	4.9	5.5
Real compensation per employee (GDP deflator)	4.5	-0.5	3.6	0.8	4.6	2.7	2.4	7.1	4.5	7.6	5.7	1.3	1.8
Real compensation per employee (private consumption deflator)	3.9	-2.8	4.7	0.2	5.7	1.5	1.0	6.9	2.6	6.0	4.2	2.5	2.5
Nominal unit labour costs	4.7	4.1	9.6	2.9	3.9	4.4	2.9	4.3	1.5	0.6	5.2	5.9	5.2
Real unit labour costs	-0.3	-3.0	0.2	-2.0	-0.0	-0.9	-2.8	1.9	-1.4	-0.5	2.2	2.2	1.5

Finland	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	5.2	3.9	5.1	2.7	1.6	1.8	3.7	2.8	4.9	4.2	1.0	-4.7	0.2
Total employment	2.0	2.5	2.2	1.5	1.0	0.1	0.4	1.3	1.8	2.2	1.6	-2.9	-0.8
Labour productivity	3.2	1.4	2.8	1.2	0.6	1.7	3.3	1.4	3.1	2.0	-0.6	-1.8	1.0
Annual average hours worked	-0.5	0.2	-0.9	-0.9	-0.3	-0.5	0.2	-0.3	-0.2	-0.2	-0.3	-0.4	-0.2
Productivity per hour worked	3.8	1.2	3.7	2.1	1.0	2.2	3.0	1.7	3.4	2.2	-0.3	-1.4	1.2
Harmonized CPI	1.3	1.3	2.9	2.7	2.0	1.3	0.1	0.8	1.3	1.6	3.9	1.3	1.1
Price deflator GDP	3.4	0.9	2.6	3.0	1.3	-0.4	0.6	0.5	1.3	3.2	1.8	1.7	1.5
Nominal compensation per employee	4.5	2.2	3.7	4.7	1.8	2.8	3.6	3.8	2.9	3.4	5.3	3.8	3.6
Real compensation per employee (GDP deflator)	1.0	1.3	1.1	1.7	0.5	3.2	2.9	3.3	1.5	0.2	3.5	2.0	2.0
Real compensation per employee (private consumption deflator)	2.3	0.7	-0.6	2.1	-0.3	3.2	2.6	3.2	1.3	1.1	1.9	2.3	2.2
Nominal unit labour costs	1.2	0.8	0.9	3.4	1.2	1.1	0.3	2.3	-0.2	1.5	5.9	5.7	2.5
Real unit labour costs	-2.1	-0.1	-1.6	0.5	-0.1	1.5	-0.3	1.9	-1.6	-1.7	4.1	3.9	0.9

Annual percentage growth

Sweden	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	3.8	4.6	4.4	1.1	2.4	1.9	4.1	3.3	4.2	2.6	-0.2	-4.0	0.8
Total employment	1.7	2.1	2.5	2.1	0.0	-0.6	-0.7	0.3	1.7	2.2	0.9	-2.4	-2.3
Labour productivity	2.1	2.4	1.9	-1.0	2.4	2.5	4.9	3.0	2.5	0.4	-1.1	-1.6	3.1
Annual average hours worked	-0.1	0.5	-1.4	-1.4	-1.4	-0.8	1.5	-0.0	-0.4	1.0	0.6	-0.5	-0.2
Productivity per hour worked	2.2	1.9	3.3	0.4	3.9	3.4	3.3	3.1	2.9	-0.6	-1.7	-1.1	3.3
Harmonized CPI	1.0	0.5	1.3	2.7	1.9	2.3	1.0	0.8	1.5	1.7	3.3	1.6	0.7
Price deflator GDP	0.6	0.9	1.5	2.3	1.6	1.9	0.2	0.9	1.7	3.0	3.2	1.6	0.9
Nominal compensation per employee	2.4	1.4	7.2	4.2	2.9	3.1	4.0	3.1	2.1	5.1	1.6	2.1	2.0
Real compensation per employee (GDP deflator)	1.8	0.4	5.7	1.9	1.3	1.2	3.7	2.2	0.4	2.1	-1.6	0.4	1.1
Real compensation per employee (private consumption deflator)	1.9	-0.0	6.2	2.0	1.2	1.4	3.1	1.9	1.1	3.9	-1.2	0.8	1.1
Nominal unit labour costs	0.3	-1.1	5.2	5.3	0.6	0.6	-0.8	0.1	-0.4	4.7	2.6	3.7	-1.1
Real unit labour costs	-0.3	-2.0	3.7	2.9	-1.0	-1.3	-1.1	-0.8	-2.1	1.7	-0.5	2.1	-2.0

United Kingdom	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	3.6	3.5	3.9	2.5	2.1	2.8	3.0	2.2	2.9	2.6	0.7	-3.8	0.1
Total employment	1.0	1.4	1.2	0.8	0.8	1.0	1.1	1.0	0.9	0.7	0.7	-2.4	-0.9
Labour productivity	2.6	2.1	2.7	1.6	1.3	1.8	1.9	1.1	2.0	1.9	0.0	-1.4	1.1
Annual average hours worked	-0.4	-0.7	-0.7	0.2	-1.1	-1.1	-0.3	0.2	-0.4	0.1	-0.9	-0.6	-0.6
Productivity per hour worked	2.9	2.8	3.4	1.4	2.4	3.0	2.2	0.9	2.4	1.8	0.9	-0.9	1.7
Harmonized CPI	1.6	1.3	0.8	1.2	1.3	1.4	1.3	2.1	2.3	2.3	3.6	1.0	1.3
Price deflator GDP	2.2	2.1	1.2	2.1	3.1	3.1	2.5	2.0	2.8	2.9	2.6	0.8	1.4
Nominal compensation per employee	6.3	4.5	5.7	5.1	3.2	4.8	3.8	3.3	4.2	4.9	2.3	0.9	1.5
Real compensation per employee (GDP deflator)	4.0	2.3	4.4	2.9	0.1	1.7	1.3	1.2	1.4	2.0	-0.3	0.1	0.1
Real compensation per employee (private consumption deflator)	3.9	3.2	4.5	3.1	1.7	2.9	2.0	0.9	1.5	1.9	-0.2	-0.1	0.3
Nominal unit labour costs	3.7	2.4	2.9	3.4	1.9	3.0	1.9	2.1	2.2	3.0	2.3	2.4	0.4
Real unit labour costs	1.4	0.3	1.7	1.3	-1.2	-0.1	-0.6	0.1	-0.6	0.1	-0.3	1.6	-1.0

Croatia	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	2.1	-1.5	3.0	3.8	5.4	5.0	4.2	4.2	4.7	5.5	2.4	-3.0	1.5
Total employment	10.2	-1.4	-0.5	0.5	0.8	3.9	1.5	0.7	3.9	3.5	1.1	-1.0	0.5
Labour productivity	-7.3	-0.1	3.6	3.3	4.6	1.0	2.7	3.5	0.8	1.9	1.3	-2.0	1.0
Annual average hours worked	:	:	:	:	:	:	:	:	:	:	:	:	:
Productivity per hour worked	:	:	:	:	:	:	:	:	:	:	:	:	:
Harmonized CPI	6.4	4.0	4.6	3.8	1.7	1.8	2.0	3.3	3.2	2.9	6.1	3.1	3.7
Price deflator GDP	8.2	3.7	4.5	4.0	3.5	3.9	3.8	3.3	3.4	4.0	6.4	4.3	3.6
Nominal compensation per employee	5.9	7.5	5.7	1.5	10.3	-2.9	14.6	5.5	3.9	5.3	9.3	3.7	5.0
Real compensation per employee (GDP deflator)	-2.1	3.6	1.1	-2.4	6.5	-6.6	10.5	2.1	0.5	1.2	2.7	-0.6	1.3
Real compensation per employee (private consumption deflator)	-0.5	3.7	0.4	-2.8	7.8	-4.8	12.4	2.0	0.9	2.2	3.0	0.5	1.3
Nominal unit labour costs	14.2	7.6	2.0	-1.7	5.4	-3.9	11.6	1.9	3.0	3.3	7.9	5.8	3.9
Real unit labour costs	5.6	3.8	-2.4	-5.5	1.9	-7.5	7.6	-1.3	-0.4	-0.7	1.4	1.4	0.3

Macedonia FYR	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	3.4	4.3	4.5	-4.5	0.9	2.8	4.1	4.1	4.0	5.9	5.0	-0.3	1.5
Total employment	3.4	-0.6	0.3	-1.7	-0.6	-1.9	-2.2	2.1	3.2	4.3	3.2	-1.0	-0.5
Labour productivity	-0.0	5.0	4.2	-2.9	1.4	4.8	6.4	2.0	0.8	1.5	1.7	0.8	2.1
Annual average hours worked	:	:	:	:	:	:	:	:	:	:	:	:	:
Productivity per hour worked	:	:	:	:	:	:	:	:	:	:	:	:	:
Harmonized CPI	0.8	-1.1	5.8	5.5	1.8	1.2	-0.4	0.5	3.2	2.2	8.3	0.8	1.7
Price deflator GDP	1.4	2.7	8.2	3.6	3.4	0.3	1.3	3.8	4.3	7.6	7.2	4.7	2.7
Nominal compensation per employee	3.0	6.2	4.9	-0.2	4.5	8.0	-2.9	-3.3	11.7	-4.8	10.1	1.7	1.7
Real compensation per employee (GDP deflator)	1.6	3.4	-3.0	-3.7	1.0	7.7	-4.1	-6.8	7.0	-11.5	2.7	-2.9	-1.0
Real compensation per employee (private consumption deflator)	2.2	6.5	-3.4	-5.2	2.3	4.3	-3.8	-4.1	8.5	-7.0	2.6	1.0	-1.0
Nominal unit labour costs	3.0	1.2	0.6	2.7	3.1	3.0	-8.7	-5.2	10.8	-6.3	8.2	1.0	-0.3
Real unit labour costs	1.6	-1.5	-7.0	-0.8	-0.4	2.7	-9.9	-8.6	6.2	-12.9	1.0	-3.6	-3.0

Turkey	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Real GDP	3.1	-3.4	6.8	-5.7	6.2	5.3	9.4	8.4	6.9	4.7	0.9	-3.7	2.2
Total employment	2.8	2.1	:	:	:	-1.0	3.0	1.4	1.3	1.1	1.8	-2.8	0.8
Labour productivity	0.3	-5.4	:	:	:	6.3	6.1	6.9	5.5	3.5	-0.9	-0.9	1.3
Annual average hours worked	:	:	:	:	:	:	:	:	:	:	:	:	:
Productivity per hour worked	:	:	:	:	:	:	:	:	:	:	:	:	:
Harmonized CPI	82.1	61.4	53.2	56.8	47.0	25.3	10.1	8.1	9.3	8.8	10.4	7.3	6.3
Price deflator GDP	75.7	54.2	49.2	52.9	37.4	23.3	12.4	7.1	9.3	6.2	11.7	4.5	5.5
Nominal compensation per employee	76.2	84.4	44.9	43.6	37.9	27.9	16.5	11.6	12.7	12.7	5.1	-0.2	3.4
Real compensation per employee (GDP deflator)	0.3	19.6	-2.9	-6.1	0.3	3.7	3.6	4.2	3.1	6.1	-5.9	-4.5	-1.9
Real compensation per employee (private consumption deflator)	-4.1	20.2	-6.4	-4.1	-0.5	3.7	5.1	3.1	2.6	5.8	-4.8	-6.6	-2.8
Nominal unit labour costs	75.7	94.9	32.9	51.8	28.8	20.3	9.8	4.4	6.8	8.9	6.0	0.7	2.1
Real unit labour costs	-0.0	26.4	-11.0	-0.7	-6.3	-2.4	-2.3	-2.5	-2.3	2.5	-5.1	-3.6	-3.2

Source: DG ECFIN 's AMECO database and European Commission 2009 Spring Forecasts.

2. LABOUR MARKET INDICATORS

Introduction to labour market indicators tables

The figures in the following 'key employment indicators' tables refer to data available up to end of July 2009.

The source for the indicator values are Eurostat, EU Labour Force Survey (annual averages), except for the following indicators which are from Eurostat, National Accounts:

3. Total employment levels (except for EL, PL, SK, SI (2004,2005) and RO)
10. Share of self-employed in total employment
13. Share of total employment in Services
14. Share of total employment in Industry
15. Share of total employment in Agriculture

Notes for particular Member States/ tables

(a) Missing quarters are estimated by Eurostat before the transition to a continuous quarterly survey takes place in each country.

(b) General comments and breaks in series on EU LFS indicators

Indicators 20-23	Harmonised unemployment series, based on EU LFS estimated monthly results
Break in series	IT 2004, AT 2004, RO 2002, SE 2005, UK 1999 ES 2005 due to the questionnaire revision, the impact has been estimated at +0,4 percentage point on employment rate (16-64 years old), +0.2 p.p. on activity rate (16-64 years old) and -0,4 p.p. on unemployment rate DE 1999-2004 national estimates, 2005 break in series

(c) Comments on specific indicators

Indicator 1	Estimate: LT 1998-2001, MT 2000-2001, PL 1998-2005
Indicator 3	UK figures in unit of 1000 jobs
Indicators 3, 10	Estimate: Indicator 3: EL 1997-1999 (based on the unit of 1000 jobs), SK 2008 Break in series: PL 2005 Forecast: PL 2008, RO 2007-2008, HR 2005-2008, TR 2000-2008
Indicator 9	based on EU LFS spring results Estimate: BE (1999-2000), IE (2005-2006)
Indicators 13-15	AT (until 2002) and UK figures in unit of 1000 jobs Estimate: SK 2008 Break in series: PL 2005
Indicator 20	Break in series: SE 2005

Labour market indicators: European Union 27

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	:	:	474 647	477 983	479 214	480 395	482 081	484 303	486 302	488 328	490 446
2. Population aged 15-64	:	:	319 598	320 968	322 184	323 183	324 209	326 311	327 846	329 164	330 375
3. Total employment (000)	204 134	206 271	209 443	211 487	212 262	213 049	214 506	216 557	220 108	224 072	226 330
4. Population in employment aged 15-64	194 513	197 212	198 900	200 792	200 901	202 299	204 104	207 403	211 410	215 354	217 843
5. Employment rate (% population aged 15-64)	61.2	61.8	62.2	62.6	62.4	62.6	63.0	63.6	64.5	65.4	65.9
6. Employment rate (% population aged 15-24)	36.7	37.1	37.5	37.5	36.7	36.1	36.2	36.1	36.6	37.4	37.6
7. Employment rate (% population aged 25-54)	74.9	75.6	76.0	76.2	76.0	76.2	76.7	77.2	78.2	79.1	79.6
8. Employment rate (% population aged 55-64)	36.2	36.5	36.9	37.7	38.5	40.0	40.7	42.3	43.5	44.7	45.6
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	17.2	16.8	16.7	16.6	16.5	16.6	16.4	16.3	16.0	15.8	15.7
11. Part-time employment (% total employment)	15.9	15.9	16.2	16.2	16.2	16.5	17.2	17.8	18.1	18.2	18.2
12. Fixed term contracts (% total employees)	11.5	11.8	12.3	12.4	12.3	12.7	13.3	14.0	14.4	14.5	14.0
13. Employment in Services (% total employment)	64.4	65.3	66.0	66.3	67.0	67.5	68.1	68.5	69.0	69.1	69.4
14. Employment in Industry (% total employment)	27.9	27.3	26.9	26.7	26.1	25.7	25.5	25.2	25.1	25.1	24.9
15. Employment in Agriculture (% total employment)	7.7	7.4	7.2	7.0	6.9	6.8	6.4	6.3	5.9	5.7	5.7
16. Activity rate (% population aged 15-64)	:	:	68.6	68.6	68.6	68.9	69.3	69.8	70.3	70.5	70.9
17. Activity rate (% of population aged 15-24)	:	:	45.9	45.6	45.0	44.3	44.4	44.3	44.2	44.2	44.5
18. Activity rate (% of population aged 25-54)	:	:	82.6	82.5	82.6	82.9	83.4	83.8	84.3	84.4	84.8
19. Activity rate (% of population aged 55-64)	:	:	39.7	40.3	41.1	42.7	43.6	45.3	46.4	47.3	48.1
20. Total unemployment (000)	:	:	19 508	19 201	20 211	20 517	20 907	20 759	19 241	16 943	16 768
21. Unemployment rate (% labour force 15+)	:	:	8.7	8.5	8.9	9.0	9.0	8.9	8.2	7.1	7.0
22. Youth unemployment rate (% labour force 15-24)	:	:	17.3	17.3	17.9	18.0	18.4	18.3	17.1	15.3	15.4
23. Long term unemployment rate (% labour force)	:	:	4.0	3.9	4.0	4.1	4.2	:	3.7	3.0	2.6
24. Youth unemployment ratio (% population aged 15-24)	:	:	8.4	8.1	8.3	8.2	8.2	8.2	7.6	6.8	6.9

Male											
1. Total population (000)	:	:	230 855	232 675	233 412	234 113	234 972	236 223	237 355	238 413	239 469
2. Population aged 15-64	:	:	159 064	159 854	160 528	161 127	161 703	162 803	163 680	164 336	164 919
3. Total employment (000)	117 158	117 564	118 751	119 445	119 449	119 552	119 874	120 683	122 373	124 285	125 018
4. Population in employment aged 15-64	111 481	112 379	112 695	113 303	112 936	113 347	113 840	115 343	117 288	119 186	120 042
5. Employment rate (% population aged 15-64)	70.3	70.7	70.8	70.9	70.4	70.3	70.4	70.8	71.7	72.5	72.8
6. Employment rate (% population aged 15-24)	40.3	40.7	40.8	40.7	39.7	39.0	39.1	39.0	39.6	40.4	40.4
7. Employment rate (% population aged 25-54)	85.2	85.5	85.6	85.5	84.9	84.8	84.8	85.2	86.0	86.8	86.9
8. Employment rate (% population aged 55-64)	47.0	46.9	47.1	47.7	48.4	49.9	50.3	51.6	52.7	53.9	55.0
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	19.5	19.2	19.1	19.1	19.2	19.6	19.4	19.3	19.0	18.9	18.8
11. Part-time employment (% total employment)	6.3	6.4	6.5	6.6	6.6	6.7	7.1	7.4	7.7	7.7	7.9
12. Fixed term contracts (% total employees)	11.1	11.3	11.6	11.7	11.6	12.0	12.8	13.6	13.9	13.8	13.3
13. Employment in Services (% total employment)	54.7	55.7	56.3	56.6	57.1	57.5	58.0	58.2	58.5	58.5	58.8
14. Employment in Industry (% total employment)	37.0	36.4	36.0	35.9	35.4	35.0	34.8	34.7	34.8	35.0	34.7
15. Employment in Agriculture (% total employment)	8.3	7.8	7.7	7.5	7.5	7.5	7.2	7.1	6.7	6.5	6.5
16. Activity rate (% population aged 15-64)	:	:	77.2	77.0	76.8	76.9	77.0	77.3	77.6	77.7	78.0
17. Activity rate (% of population aged 15-24)	:	:	49.5	49.2	48.6	47.9	47.8	47.8	47.6	47.6	47.9
18. Activity rate (% of population aged 25-54)	:	:	91.9	91.6	91.4	91.5	91.5	91.7	92.0	91.9	92.0
19. Activity rate (% of population aged 55-64)	:	:	50.7	51.1	51.7	53.3	54.0	55.3	56.2	57.1	57.9
20. Total unemployment (000)	:	:	9 737	9 728	10 405	10 588	10 782	10 685	9 827	8 589	8 678
21. Unemployment rate (% labour force 15+)	:	:	7.8	7.7	8.3	8.4	8.5	8.3	7.6	6.6	6.6
22. Youth unemployment rate (% labour force 15-24)	:	:	16.6	16.8	17.8	18.0	18.2	18.3	16.9	15.1	15.5
23. Long term unemployment rate (% labour force)	:	:	3.5	3.5	3.6	3.8	3.8	:	3.5	2.8	2.4
24. Youth unemployment ratio (% population aged 15-24)	:	:	8.7	8.5	8.9	8.9	8.8	8.8	8.1	7.2	7.4

Female											
1. Total population (000)	:	:	243 789	245 306	245 801	246 280	247 107	248 078	248 947	249 914	250 977
2. Population aged 15-64	:	:	160 533	161 114	161 656	162 055	162 507	163 507	164 165	164 828	165 456
3. Total employment (000)	86 976	88 707	90 692	92 042	92 813	93 498	94 632	95 874	97 735	99 787	101 313
4. Population in employment aged 15-64	83 037	84 837	86 206	87 489	87 965	88 952	90 264	92 060	94 123	96 168	97 801
5. Employment rate (% population aged 15-64)	52.0	53.0	53.7	54.3	54.4	54.9	55.5	56.3	57.3	58.3	59.1
6. Employment rate (% population aged 15-24)	33.0	33.6	34.1	34.2	33.8	33.2	33.2	33.1	33.5	34.3	34.6
7. Employment rate (% population aged 25-54)	64.6	65.7	66.3	66.9	67.1	67.7	68.5	69.2	70.3	71.5	72.3
8. Employment rate (% population aged 55-64)	26.1	26.7	27.4	28.2	29.1	30.7	31.6	33.6	34.9	36.0	36.9
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	14.0	13.7	13.5	13.3	12.9	12.9	12.6	12.5	12.2	12.1	11.9
11. Part-time employment (% total employment)	28.7	28.5	28.9	28.6	28.5	29.0	30.0	30.9	31.2	31.2	31.1
12. Fixed term contracts (% total employees)	12.2	12.5	13.0	13.3	13.2	13.5	13.9	14.5	15.0	15.2	14.9
13. Employment in Services (% total employment)	77.4	77.9	78.3	78.6	79.4	80.1	80.7	81.3	81.8	82.1	82.5
14. Employment in Industry (% total employment)	15.6	15.3	15.2	15.0	14.5	14.1	13.8	13.4	13.2	13.1	12.9
15. Employment in Agriculture (% total employment)	7.0	6.7	6.5	6.4	6.1	5.8	5.4	5.3	5.0	4.8	4.7
16. Activity rate (% population aged 15-64)	:	:	60.1	60.2	60.5	61.0	61.7	62.4	63.0	63.4	63.9
17. Activity rate (% of population aged 15-24)	:	:	42.3	41.9	41.4	40.7	40.8	40.7	40.7	40.7	41.0
18. Activity rate (% of population aged 25-54)	:	:	73.3	73.4	73.7	74.4	75.4	75.9	76.5	76.9	77.6
19. Activity rate (% of population aged 55-64)	:	:	29.5	30.1	31.1	32.8	33.8	35.8	37.2	38.1	38.8
20. Total unemployment (000)	:	:	9 771	9 473	9 806	9 928	10 126	10 074	9 414	8 354	8 090
21. Unemployment rate (% labour force 15+)	:	:	9.8	9.4	9.7	9.7	9.8	9.6	8.9	7.8	7.5
22. Youth unemployment rate (% labour force 15-24)	:	:	18.2	17.8	18.0	18.0	18.6	18.4	17.4	15.6	15.2
23. Long term unemployment rate (% labour force)	:	:	4.6	4.4	4.5	4.5	4.6	:	4.0	3.3	2.8
24. Youth unemployment ratio (% population aged 15-24)	:	:	8.2	7.7	7.7	7.5	7.6	7.6	7.2	6.4	6.3

Source: Eurostat.

Note: Indicator 1: 2000-2005 estimate; Indicator 20: 2005 estimate.

Labour market indicators: European Union 15

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	368 337	369 708	371 160	373 352	375 166	377 474	379 336	381 678	383 814	386 028	388 245
2. Population aged 15-64	247 585	248 341	248 630	249 702	250 689	252 221	252 986	254 903	256 261	257 584	258 776
3. Total employment (000)	160 384	163 325	166 900	169 278	170 454	171 240	172 591	174 234	176 866	179 717	181 064
4. Population in employment aged 15-64	152 118	155 322	157 710	159 967	160 995	162 582	164 046	166 722	169 612	172 511	174 185
5. Employment rate (% population aged 15-64)	61.4	62.5	63.4	64.1	64.2	64.5	64.8	65.4	66.2	67.0	67.3
6. Employment rate (% population aged 15-24)	38.2	39.6	40.5	40.9	40.6	40.1	40.1	40.0	40.4	41.0	41.0
7. Employment rate (% population aged 25-54)	74.6	75.7	76.5	77.0	77.1	77.3	77.7	78.2	79.0	79.7	80.0
8. Employment rate (% population aged 55-64)	36.6	37.1	37.8	38.8	40.2	41.7	42.5	44.2	45.3	46.5	47.4
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	15.1	14.7	14.5	14.4	14.3	14.4	14.5	14.4	14.4	14.3	14.1
11. Part-time employment (% total employment)	17.3	17.6	17.7	17.9	18.1	18.5	19.4	20.2	20.8	20.9	21.0
12. Fixed term contracts (% total employees)	13.0	13.4	13.7	13.5	13.1	13.2	13.7	14.3	14.7	14.8	14.4
13. Employment in Services (% total employment)	68.9	69.6	70.1	70.5	71.1	71.6	72.1	72.5	72.8	73.0	73.5
14. Employment in Industry (% total employment)	26.6	26.1	25.8	25.4	25.0	24.6	24.2	23.9	23.6	23.5	23.2
15. Employment in Agriculture (% total employment)	4.5	4.3	4.1	4.0	3.9	3.8	3.7	3.7	3.5	3.4	3.4
16. Activity rate (% population aged 15-64)	68.3	68.9	69.2	69.2	69.7	70.2	70.6	71.3	71.8	72.1	72.5
17. Activity rate (% of population aged 15-24)	47.4	48.2	48.2	47.9	47.8	47.6	47.6	48.0	48.1	48.2	48.4
18. Activity rate (% of population aged 25-54)	81.7	82.2	82.4	82.4	82.8	83.3	83.8	84.2	84.7	84.9	85.3
19. Activity rate (% of population aged 55-64)	40.1	40.3	40.8	41.5	42.9	44.6	45.5	47.2	48.3	49.3	50.0
20. Total unemployment (000)	15 999	14 882	13 541	12 886	13 679	14 471	14 859	15 149	14 520	13 311	13 674
21. Unemployment rate (% labour force 15+)	9.3	8.5	7.7	7.2	7.6	7.9	8.1	8.1	7.7	7.0	7.1
22. Youth unemployment rate (% labour force 15-24)	18.1	16.4	14.8	14.1	14.6	15.3	15.9	16.3	15.7	14.7	15.2
23. Long term unemployment rate (% labour force)	4.4	3.9	3.4	3.1	3.1	3.3	3.4	:	3.2	2.8	2.6
24. Youth unemployment ratio (% population aged 15-24)	9.2	8.5	7.7	6.9	7.2	7.5	7.5	7.9	7.6	7.1	7.4

Male											
1. Total population (000)	179 733	180 510	180 986	182 231	183 258	184 521	185 457	186 744	187 941	189 113	190 236
2. Population aged 15-64	123 821	124 227	124 114	124 742	125 286	126 111	126 505	127 457	128 238	128 902	129 476
3. Total employment (000)	93 074	94 261	95 731	96 686	96 779	96 821	97 059	97 487	98 691	99 971	100 161
4. Population in employment aged 15-64	88 222	89 549	90 310	91 196	91 241	91 732	92 012	93 033	94 387	95 692	96 059
5. Employment rate (% population aged 15-64)	71.2	72.1	72.8	73.1	72.8	72.7	72.7	73.0	73.6	74.2	74.2
6. Employment rate (% population aged 15-24)	41.7	43.1	44.0	44.3	43.6	43.0	43.0	42.9	43.3	43.8	43.5
7. Employment rate (% population aged 25-54)	85.8	86.5	87.2	87.3	86.8	86.6	86.5	86.7	87.3	87.8	87.6
8. Employment rate (% population aged 55-64)	47.3	47.5	48.0	48.9	50.1	51.6	52.2	53.3	54.1	55.3	56.2
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	17.8	17.5	17.3	17.2	17.2	17.5	17.6	17.5	17.5	17.5	17.3
11. Part-time employment (% total employment)	6.0	6.1	6.1	6.2	6.6	6.7	7.2	7.7	8.2	8.3	8.5
12. Fixed term contracts (% total employees)	12.3	12.6	12.8	12.5	12.2	12.3	12.9	13.7	14.0	14.0	13.5
13. Employment in Services (% total employment)	58.8	59.4	59.9	60.3	60.7	61.2	61.6	61.8	62.0	62.2	62.7
14. Employment in Industry (% total employment)	36.0	35.5	35.2	35.0	34.6	34.2	33.9	33.7	33.6	33.6	33.2
15. Employment in Agriculture (% total employment)	5.2	5.0	4.9	4.8	4.7	4.6	4.5	4.5	4.4	4.2	4.2
16. Activity rate (% population aged 15-64)	78.1	78.3	78.3	78.3	78.4	78.6	78.6	79.0	79.2	79.3	79.6
17. Activity rate (% of population aged 15-24)	51.0	51.7	51.6	51.4	51.2	51.0	50.9	51.3	51.3	51.2	51.5
18. Activity rate (% of population aged 25-54)	92.6	92.7	92.7	92.4	92.4	92.5	92.4	92.6	92.8	92.8	92.8
19. Activity rate (% of population aged 55-64)	51.7	51.5	51.7	52.2	53.4	55.1	55.8	56.9	57.7	58.5	59.3
20. Total unemployment (000)	7 973	7 365	6 645	6 411	6 929	7 389	7 565	7 759	7 346	6 677	7 049
21. Unemployment rate (% labour force 15+)	8.2	7.5	6.7	6.4	6.9	7.3	7.4	7.5	7.1	6.4	6.7
22. Youth unemployment rate (% labour force 15-24)	17.0	15.3	13.7	13.4	14.3	15.2	15.6	16.2	15.5	14.5	15.6
23. Long term unemployment rate (% labour force)	3.7	3.3	2.9	2.7	2.7	3.0	3.1	:	3.0	2.6	2.4
24. Youth unemployment ratio (% population aged 15-24)	9.3	8.6	7.7	7.1	7.6	8.0	7.9	8.4	8.0	7.5	8.0

Female											
1. Total population (000)	188 602	189 197	190 174	191 121	191 909	192 953	193 878	194 935	195 873	196 915	198 009
2. Population aged 15-64	123 764	124 113	124 516	124 960	125 404	126 110	126 482	127 446	128 023	128 683	129 300
3. Total employment (000)	67 310	69 064	71 169	72 592	73 674	74 419	75 532	76 747	78 175	79 746	80 903
4. Population in employment aged 15-64	63 898	65 774	67 401	68 771	69 754	70 850	72 035	73 690	75 226	76 819	78 126
5. Employment rate (% population aged 15-64)	51.6	53.0	54.1	55.0	55.6	56.2	57.0	57.8	58.8	59.7	60.4
6. Employment rate (% population aged 15-24)	34.7	36.0	37.0	37.4	37.5	37.2	37.1	37.1	37.5	38.1	38.4
7. Employment rate (% population aged 25-54)	63.2	64.7	65.8	66.7	67.3	67.9	68.9	69.6	70.6	71.6	72.4
8. Employment rate (% population aged 55-64)	26.3	27.1	28.0	29.1	30.7	32.2	33.2	35.5	36.9	38.1	39.0
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	11.3	10.9	10.7	10.5	10.4	10.5	10.5	10.5	10.4	10.3	10.2
11. Part-time employment (% total employment)	33.0	33.2	33.2	33.3	33.3	33.8	35.1	36.1	36.7	36.7	36.6
12. Fixed term contracts (% total employees)	13.8	14.3	14.7	14.6	14.3	14.3	14.5	15.1	15.6	15.6	15.4
13. Employment in Services (% total employment)	82.4	83.1	83.4	83.8	84.4	84.9	85.4	85.8	86.2	86.4	86.6
14. Employment in Industry (% total employment)	14.0	13.6	13.4	13.1	12.7	12.3	11.9	11.6	11.3	11.1	11.0
15. Employment in Agriculture (% total employment)	3.6	3.3	3.2	3.1	2.9	2.8	2.7	2.7	2.5	2.5	2.4
16. Activity rate (% population aged 15-64)	58.6	59.5	60.0	60.2	61.0	61.7	62.7	63.5	64.3	64.8	65.5
17. Activity rate (% of population aged 15-24)	43.8	44.6	44.8	44.2	44.3	44.1	44.3	44.6	44.7	44.9	45.2
18. Activity rate (% of population aged 25-54)	70.7	71.6	72.1	72.3	73.1	74.0	75.2	75.8	76.5	77.0	77.8
19. Activity rate (% of population aged 55-64)	29.0	29.6	30.3	31.1	32.8	34.4	35.5	37.9	39.4	40.5	41.2
20. Total unemployment (000)	8 026	7 517	6 897	6 475	6 749	7 082	7 293	7 390	7 173	6 634	6 625
21. Unemployment rate (% labour force 15+)	10.7	9.9	8.9	8.3	8.5	8.7	8.9	8.9	8.5	7.8	7.6
22. Youth unemployment rate (% labour force 15-24)	19.4	17.7	16.0	14.9	14.9	15.4	16.2	16.4	15.9	14.9	14.9
23. Long term unemployment rate (% labour force)	5.2	4.6	4.1	3.6	3.5	3.7	3.8	:	3.5	3.1	2.8
24. Youth unemployment ratio (% population aged 15-24)	9.1	8.5	7.8	6.8	6.8	6.9	7.2	7.5	7.3	6.8	6.8

Source: Eurostat.

Note: Indicator 20: 2005 estimate.

Labour market indicators: Belgium

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	10 175	10 214	10 239	10 263	10 310	10 356	10 396	10 477	10 546	10 614	10 708
2. Population aged 15-64	6 702	6 710	6 719	6 728	6 758	6 791	6 818	6 876	6 941	7 008	7 073
3. Total employment (000)	3 960	4 012	4 092	4 150	4 145	4 146	4 175	4 230	4 288	4 365	4 436
4. Population in employment aged 15-64	3 850	3 980	4 068	4 033	4 047	4 047	4 114	4 199	4 233	4 348	4 414
5. Employment rate (% population aged 15-64)	57.4	59.3	60.5	59.9	59.9	59.6	60.3	61.1	61.0	62.0	62.4
6. Employment rate (% population aged 15-24)	26.8	28.2	29.1	29.7	29.4	27.4	27.8	27.5	27.6	27.5	27.4
7. Employment rate (% population aged 25-54)	74.3	76.2	77.4	76.6	76.5	76.5	77.3	78.3	78.4	79.7	80.5
8. Employment rate (% population aged 55-64)	22.9	24.6	26.3	25.1	26.6	28.1	30.0	31.8	32.0	34.4	34.5
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	17.7	17.4	17	16.6	16.5	16.4	16.3	16.2	16.2	16.1	16.0
11. Part-time employment (% total employment)	16.5	18.4	18.9	18.5	19.1	20.5	21.4	22.0	22.2	22.1	22.6
12. Fixed term contracts (% total employees)	8.2	9.9	9.1	8.8	8.1	8.4	8.7	8.9	8.7	8.6	8.3
13. Employment in Services (% total employment)	74.2	74.7	75.0	75.2	76.0	76.6	77.1	77.5	77.7	78.0	78.3
14. Employment in Industry (% total employment)	23.3	22.8	22.7	22.5	21.9	21.4	20.9	20.5	20.3	20.1	19.9
15. Employment in Agriculture (% total employment)	2.5	2.5	2.3	2.2	2.2	2.1	2.0	2.0	2.0	1.9	1.8
16. Activity rate (% population aged 15-64)	63.5	64.9	65.1	64.2	64.8	64.9	65.9	66.7	66.5	67.1	67.1
17. Activity rate (% of population aged 15-24)	33.8	35.7	35.3	35.7	35.7	35.0	35.3	35.0	34.7	33.9	33.4
18. Activity rate (% of population aged 25-54)	81.2	82.3	82.4	81.2	81.9	82.3	83.4	84.6	84.5	85.3	85.7
19. Activity rate (% of population aged 55-64)	24.1	25.9	27.1	25.9	27.7	28.9	31.2	33.3	33.6	35.9	36.1
20. Total unemployment (000)	400	370	302	286	331	362	379	390	383	353	333
21. Unemployment rate (% labour force 15+)	9.3	8.5	6.9	6.6	7.5	8.2	8.4	8.5	8.3	7.5	7.0
22. Youth unemployment rate (% labour force 15-24)	22.1	21.0	16.7	16.8	17.7	21.8	21.2	21.5	20.5	18.8	18.0
23. Long term unemployment rate (% labour force)	5.6	4.8	3.7	3.2	3.7	3.7	4.1	4.4	4.2	3.8	3.3
24. Youth unemployment ratio (% population aged 15-24)	7.0	7.5	6.2	6.1	6.3	7.6	7.5	7.5	7.1	6.4	6.0

Male											
1. Total population (000)	4 977	4 994	5 006	5 018	5 042	5 067	5 086	5 127	5 162	5 197	5 246
2. Population aged 15-64	3 375	3 380	3 384	3 388	3 403	3 420	3 443	3 459	3 491	3 524	3 557
3. Total employment (000)	2 332	2 325	2 367	2 401	2 382	2 360	2 374	2 384	2 405	2 435	2 455
4. Population in employment aged 15-64	2 265	2 302	2 351	2 331	2 323	2 300	2 337	2 361	2 371	2 421	2 439
5. Employment rate (% population aged 15-64)	67.1	68.1	69.5	68.8	68.3	67.3	67.9	68.3	67.9	68.7	68.6
6. Employment rate (% population aged 15-24)	30.4	31.2	32.8	33.2	32.2	29.9	30.1	29.7	30.4	29.9	29.7
7. Employment rate (% population aged 25-54)	85.6	86.3	87.3	86.5	86.1	85.0	85.8	86.1	85.9	87.0	87.0
8. Employment rate (% population aged 55-64)	32.1	33.8	36.4	35.1	36.0	37.8	39.1	41.7	40.9	42.9	42.8
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	19.3	18.8	18.8	18.6	18.5	18.3	18.7	18.7	18.9	18.9	19.1
11. Part-time employment (% total employment)	3.9	5.1	5.5	5.2	5.6	6.4	6.8	7.6	7.4	7.5	7.9
12. Fixed term contracts (% total employees)	6.0	7.3	6.7	6.3	5.8	6.2	6.4	6.8	6.9	6.8	6.6
13. Employment in Services (% total employment)	64.5	64.6	65.1	65.5	66.4	67.1	67.5	68.2	67.8	68.4	68.0
14. Employment in Industry (% total employment)	32.4	32.4	31.9	31.7	30.9	30.3	30.0	29.4	29.7	29.2	29.5
15. Employment in Agriculture (% total employment)	3.1	3.0	3.0	2.8	2.7	2.6	2.6	2.4	2.5	2.4	2.5
16. Activity rate (% population aged 15-64)	72.8	73.4	73.7	73.2	73.2	72.9	73.4	73.9	73.4	73.6	73.3
17. Activity rate (% of population aged 15-24)	37.0	38.4	38.7	39.6	38.9	38.4	37.7	37.6	37.4	36.1	36.0
18. Activity rate (% of population aged 25-54)	91.8	92.0	91.8	91.0	91.3	90.9	91.8	92.2	91.9	92.5	92.3
19. Activity rate (% of population aged 55-64)	33.9	35.3	37.5	36.3	37.5	38.9	40.4	43.4	42.7	44.4	44.4
20. Total unemployment (000)	189	178	141	147	167	192	191	196	191	174	170
21. Unemployment rate (% labour force 15+)	7.7	7.1	5.6	5.9	6.7	7.7	7.5	7.6	7.4	6.7	6.5
22. Youth unemployment rate (% labour force 15-24)	20.2	19.4	14.5	16.0	17.2	22.2	20.2	21.0	18.8	17.1	17.3
23. Long term unemployment rate (% labour force)	4.5	4.0	3.1	2.9	3.2	3.4	3.7	3.9	3.7	3.3	3.0
24. Youth unemployment ratio (% population aged 15-24)	6.6	7.2	5.9	6.4	6.7	8.5	7.6	7.9	7.0	6.2	6.2

Female											
1. Total population (000)	5 198	5 220	5 233	5 245	5 267	5 289	5 310	5 350	5 384	5 417	5 462
2. Population aged 15-64	3 327	3 331	3 336	3 341	3 355	3 371	3 375	3 417	3 450	3 484	3 517
3. Total employment (000)	1 629	1 688	1 725	1 749	1 762	1 786	1 800	1 846	1 883	1 930	1 981
4. Population in employment aged 15-64	1 585	1 678	1 717	1 702	1 724	1 746	1 777	1 838	1 862	1 927	1 975
5. Employment rate (% population aged 15-64)	47.6	50.4	51.5	51.0	51.4	51.8	52.6	53.8	54.0	55.3	56.2
6. Employment rate (% population aged 15-24)	23.0	25.1	25.4	26.0	26.5	24.7	25.4	25.2	24.7	25.0	25.0
7. Employment rate (% population aged 25-54)	62.8	65.8	67.2	66.5	66.8	67.8	68.5	70.4	70.7	72.3	73.8
8. Employment rate (% population aged 55-64)	14.0	15.7	16.6	15.5	17.5	18.7	21.1	22.1	23.2	26.0	26.3
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	15.4	15.5	14.5	13.9	13.8	13.8	13.1	13.1	12.7	12.5	12.1
11. Part-time employment (% total employment)	34.5	36.9	37.4	36.9	37.4	39.1	40.5	40.5	41.1	40.6	40.9
12. Fixed term contracts (% total employees)	11.2	13.2	12.3	12.0	11.2	11.1	11.7	11.4	10.9	10.8	10.2
13. Employment in Services (% total employment)	87.5	88.2	88.5	88.4	88.7	88.8	89.4	89.3	90.0	89.8	90.6
14. Employment in Industry (% total employment)	10.7	10.0	10.1	10.1	9.8	9.8	9.2	9.3	8.7	8.9	8.3
15. Employment in Agriculture (% total employment)	1.8	1.8	1.4	1.4	1.5	1.4	1.4	1.4	1.3	1.3	1.0
16. Activity rate (% population aged 15-64)	54.0	56.3	56.4	55.1	56.3	56.9	58.2	59.5	59.5	60.4	60.8
17. Activity rate (% of population aged 15-24)	30.5	32.8	31.8	31.7	32.4	31.4	32.8	32.3	31.9	31.6	30.8
18. Activity rate (% of population aged 25-54)	70.3	72.4	72.7	71.2	72.4	73.6	74.8	76.8	77.0	78.0	79.0
19. Activity rate (% of population aged 55-64)	14.8	16.8	17.1	15.9	18.2	19.2	22.1	23.4	24.6	27.5	27.9
20. Total unemployment (000)	211	192	161	138	164	170	188	194	192	179	163
21. Unemployment rate (% labour force 15+)	11.6	10.3	8.5	7.5	8.6	8.9	9.5	9.5	9.3	8.5	7.6
22. Youth unemployment rate (% labour force 15-24)	24.5	23.0	19.5	17.8	18.3	21.3	22.4	22.1	22.6	20.9	18.7
23. Long term unemployment rate (% labour force)	7.1	5.9	4.6	3.5	4.3	4.2	4.7	5.0	4.9	4.3	3.7
24. Youth unemployment ratio (% population aged 15-24)	7.5	7.8	6.5	5.7	5.9	6.7	7.3	7.1	7.2	6.6	5.8

Source: Eurostat.

Labour market indicators: Bulgaria

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	:	:	6 835	7 884	7 877	7 821	7 786	7 747	7 706	7 673	7 640
2. Population aged 15-64	:	:	5 491	5 375	5 357	5 308	5 306	5 283	5 238	5 198	5 169
3. Total employment (000)	3 468	3 318	3 239	3 215	3 222	3 317	3 403	3 495	3 612	3 714	3 836
4. Population in employment aged 15-64	:	:	2 768	2 672	2 709	2 785	2 877	2 947	3 072	3 209	3 306
5. Employment rate (% population aged 15-64)	:	:	50.4	49.7	50.6	52.5	54.2	55.8	58.6	61.7	64.0
6. Employment rate (% population aged 15-24)	:	:	19.7	19.8	19.4	20.7	21.5	21.6	23.2	24.5	26.3
7. Employment rate (% population aged 25-54)	:	:	68.5	67.2	67.6	69.2	71.2	73.0	75.7	79.4	81.3
8. Employment rate (% population aged 55-64)	:	:	20.8	24.0	27.0	30.0	32.5	34.7	39.6	42.6	46.0
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	27.2	27.8	28.2	29.3	29.2	28.7	28.5	27.8	27.2	26.6	26.3
11. Part-time employment (% total employment)	:	:	:	3.2	2.5	2.3	2.4	2.1	2.0	1.7	2.3
12. Fixed term contracts (% total employees)	:	:	:	6.3	5.3	6.5	7.4	6.4	6.2	5.2	5.0
13. Employment in Services (% total employment)	45.8	48.6	48.1	48.7	48.7	50.3	51.1	51.6	51.6	52.0	52.5
14. Employment in Industry (% total employment)	29.6	27.1	27.6	27.2	27.4	26.6	26.6	27.0	28.0	28.3	28.3
15. Employment in Agriculture (% total employment)	24.7	24.3	24.4	24.1	23.9	23.1	22.3	21.4	20.4	19.7	19.3
16. Activity rate (% population aged 15-64)	:	:	60.7	62.5	61.9	60.9	61.8	62.1	64.5	66.3	67.8
17. Activity rate (% of population aged 15-24)	:	:	30.5	33.2	30.9	28.8	28.9	27.9	28.9	28.9	30.1
18. Activity rate (% of population aged 25-54)	:	:	80.6	81.9	80.7	79.1	79.9	80.2	82.3	84.5	85.5
19. Activity rate (% of population aged 55-64)	:	:	24.0	29.2	31.8	33.9	36.2	38.0	43.0	45.7	48.7
20. Total unemployment (000)	362	402	561	663	608	449	400	334	306	240	200
21. Unemployment rate (% labour force 15+)	:	:	16.4	19.5	18.2	13.7	12.1	10.1	9.0	6.9	5.6
22. Youth unemployment rate (% labour force 15-24)	:	:	33.7	38.8	37.0	28.2	25.8	22.3	19.5	15.1	12.7
23. Long term unemployment rate (% labour force)	:	:	9.4	12.1	12.0	9.0	7.2	6.0	5.0	4.1	2.9
24. Youth unemployment ratio (% population aged 15-24)	:	:	10.8	13.4	11.5	8.1	7.5	6.2	5.6	4.4	3.8

Male											
1. Total population (000)	:	:	3 270	3 818	3 820	3 792	3 775	3 754	3 731	3 714	3 700
2. Population aged 15-64	:	:	2 684	2 647	2 643	2 616	2 623	2 614	2 590	2 578	2 562
3. Total employment (000)	:	:	1 724	1 683	1 693	1 756	1 805	1 866	1 920	1 977	2 046
4. Population in employment aged 15-64	:	:	1 469	1 394	1 418	1 466	1 520	1 569	1 626	1 701	1 756
5. Employment rate (% population aged 15-64)	:	:	54.7	52.7	53.7	56.0	57.9	60.0	62.8	66.0	68.5
6. Employment rate (% population aged 15-24)	:	:	21.8	20.1	20.5	21.7	23.2	23.9	25.4	27.1	29.3
7. Employment rate (% population aged 25-54)	:	:	70.8	68.4	69.0	71.4	73.5	75.7	78.6	82.5	84.7
8. Employment rate (% population aged 55-64)	:	:	33.2	34.2	37.0	40.5	42.2	45.5	49.5	51.8	55.8
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	33.9	35.2	34.9	34.7	34.4	32.9	32.8	32.2	31.1
11. Part-time employment (% total employment)	:	:	:	2.9	2.1	1.9	2.1	1.7	1.5	1.3	2.0
12. Fixed term contracts (% total employees)	:	:	:	6.6	5.9	7.0	7.7	6.7	6.3	5.0	5.6
13. Employment in Services (% total employment)	:	:	40.7	41.9	42.2	43.8	44.6	44.7	43.9	44.3	:
14. Employment in Industry (% total employment)	:	:	30.4	29.0	29.0	28.8	29.0	30.0	31.8	32.1	:
15. Employment in Agriculture (% total employment)	:	:	28.8	29.0	28.8	27.5	26.4	25.3	24.3	23.6	:
16. Activity rate (% population aged 15-64)	:	:	66.2	67.0	66.4	65.4	66.4	67.0	68.8	70.6	72.5
17. Activity rate (% of population aged 15-24)	:	:	34.9	35.6	34.2	31.5	31.8	31.1	31.3	31.7	34.0
18. Activity rate (% of population aged 25-54)	:	:	83.3	84.2	83.0	81.8	82.9	83.3	85.1	87.5	88.8
19. Activity rate (% of population aged 55-64)	:	:	38.4	41.7	43.7	45.6	47.2	49.9	53.6	55.3	58.7
20. Total unemployment (000)	190	213	303	364	336	246	222	183	156	121	104
21. Unemployment rate (% labour force 15+)	:	:	16.7	20.2	18.9	14.1	12.6	10.3	8.7	6.5	5.5
22. Youth unemployment rate (% labour force 15-24)	:	:	36.1	42.0	40.1	31.0	27.0	23.4	18.9	14.5	13.7
23. Long term unemployment rate (% labour force)	:	:	9.5	12.6	12.5	9.3	7.3	6.1	4.8	3.7	2.7
24. Youth unemployment ratio (% population aged 15-24)	:	:	13.1	15.4	13.8	9.8	8.6	7.3	5.9	4.6	4.7

Female											
1. Total population (000)	:	:	3 566	4 066	4 057	4 030	4 010	3 993	3 975	3 958	3 941
2. Population aged 15-64	:	:	2 807	2 729	2 714	2 692	2 683	2 669	2 647	2 621	2 607
3. Total employment (000)	:	:	1 515	1 532	1 529	1 561	1 598	1 629	1 692	1 737	1 789
4. Population in employment aged 15-64	:	:	1 299	1 278	1 290	1 319	1 357	1 378	1 446	1 508	1 551
5. Employment rate (% population aged 15-64)	:	:	46.3	46.8	47.5	49.0	50.6	51.7	54.6	57.6	59.5
6. Employment rate (% population aged 15-24)	:	:	17.7	19.4	18.4	19.6	19.6	19.4	21.0	21.8	23.1
7. Employment rate (% population aged 25-54)	:	:	66.3	65.9	66.1	67.1	68.8	70.3	72.8	76.2	77.9
8. Employment rate (% population aged 55-64)	:	:	10.3	14.7	18.2	21.0	24.2	25.5	31.1	34.5	37.7
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	21.7	22.8	22.9	22.0	21.9	21.9	20.8	20.1	20.8
11. Part-time employment (% total employment)	:	:	:	3.6	3.0	2.6	2.7	2.5	2.5	2.1	2.7
12. Fixed term contracts (% total employees)	:	:	:	5.9	4.7	6.0	7.0	6.2	6.1	5.5	4.4
13. Employment in Services (% total employment)	:	:	56.8	56.8	56.4	58.0	58.7	59.7	60.6	61.0	:
14. Employment in Industry (% total employment)	:	:	24.2	25.0	25.4	24.1	23.8	23.5	23.5	23.9	:
15. Employment in Agriculture (% total employment)	:	:	19.0	18.2	18.2	17.9	17.5	16.8	15.9	15.1	:
16. Activity rate (% population aged 15-64)	:	:	55.6	58.1	57.5	56.5	57.2	57.3	60.2	62.1	63.1
17. Activity rate (% of population aged 15-24)	:	:	26.3	30.9	27.6	26.1	25.9	24.5	26.4	26.0	26.1
18. Activity rate (% of population aged 25-54)	:	:	78.0	79.6	78.4	76.4	76.8	77.2	79.4	81.4	82.1
19. Activity rate (% of population aged 55-64)	:	:	11.8	18.0	21.5	23.8	26.8	27.8	33.9	37.2	40.2
20. Total unemployment (000)	173	189	258	299	272	203	178	152	149	120	96
21. Unemployment rate (% labour force 15+)	:	:	16.2	18.6	17.3	13.2	11.5	9.8	9.3	7.3	5.8
22. Youth unemployment rate (% labour force 15-24)	:	:	30.7	35.3	33.2	24.8	24.3	21.0	20.3	15.9	11.4
23. Long term unemployment rate (% labour force)	:	:	9.2	11.4	11.4	8.6	7.1	6.0	5.3	4.5	3.1
24. Youth unemployment ratio (% population aged 15-24)	:	:	8.6	11.5	9.3	6.5	6.3	5.2	5.3	4.1	3.0

Source: Eurostat.

Labour market indicators: Czech Republic

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	10 250	10 235	10 222	10 176	10 171	10 179	10 196	10 229	10 265	10 320	10 422
2. Population aged 15-64	7 070	7 089	7 116	7 121	7 149	7 182	7 231	7 270	7 307	7 347	7 410
3. Total employment (000)	5 125	4 949	4 941	4 963	4 991	4 923	4 940	4 992	5 088	5 224	5 305
4. Population in employment aged 15-64	4 759	4 653	4 625	4 631	4 677	4 647	4 639	4 710	4 769	4 856	4 934
5. Employment rate (% population aged 15-64)	67.3	65.6	65.0	65.0	65.4	64.7	64.2	64.8	65.3	66.1	66.6
6. Employment rate (% population aged 15-24)	41.5	38.3	36.4	34.2	32.2	30.0	27.8	27.5	27.7	28.5	28.1
7. Employment rate (% population aged 25-54)	83.7	81.9	81.6	82.1	82.5	81.7	81.4	82.0	82.5	83.5	83.8
8. Employment rate (% population aged 55-64)	37.1	37.5	36.3	37.1	40.8	42.3	42.7	44.5	45.2	46.0	47.6
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	16.1	17.1	17.4	17.4	18.1	19.1	18.8	18.2	18.2	18.1	18.0
11. Part-time employment (% total employment)	5.7	5.6	5.3	4.9	4.9	5.0	4.9	4.9	5.0	5.0	4.9
12. Fixed term contracts (% total employees)	6.7	7.6	8.1	8.0	8.1	9.2	9.1	8.6	8.7	8.6	8.0
13. Employment in Services (% total employment)	53.0	55.0	56.0	56.2	56.9	57.5	57.6	57.9	58.0	58.3	58.6
14. Employment in Industry (% total employment)	41.4	39.8	39.1	39.2	38.8	38.3	38.4	38.3	38.3	38.1	38.0
15. Employment in Agriculture (% total employment)	5.6	5.2	4.8	4.6	4.3	4.2	4.0	3.8	3.7	3.6	3.5
16. Activity rate (% population aged 15-64)	72.0	72.0	71.3	70.8	70.6	70.2	70.0	70.4	70.3	69.9	69.7
17. Activity rate (% of population aged 15-24)	47.7	46.7	44.4	41.5	38.7	36.8	35.2	34.0	33.5	31.9	31.1
18. Activity rate (% of population aged 25-54)	88.5	88.6	88.4	88.4	88.2	87.8	87.8	88.3	88.2	87.8	87.3
19. Activity rate (% of population aged 55-64)	38.6	39.4	38.2	39.0	42.4	44.2	45.1	46.9	47.7	48.2	49.5
20. Total unemployment (000)	327	444	445	409	373	398	426	410	372	277	230
21. Unemployment rate (% labour force 15+)	6.4	8.6	8.7	8.0	7.3	7.8	8.3	7.9	7.2	5.3	4.4
22. Youth unemployment rate (% labour force 15-24)	12.8	17.7	17.8	17.3	16.9	18.6	21.0	19.2	17.5	10.7	9.9
23. Long term unemployment rate (% labour force)	2.0	3.2	4.2	4.2	3.7	3.8	4.2	4.2	3.9	2.8	2.2
24. Youth unemployment ratio (% population aged 15-24)	6.2	8.4	8.0	7.3	6.5	6.8	7.4	6.5	5.9	3.4	3.1

Male											
1. Total population (000)	4 964	4 954	4 949	4 932	4 934	4 941	4 959	4 987	5 012	5 045	5 107
2. Population aged 15-64	3 517	3 524	3 538	3 545	3 563	3 582	3 616	3 646	3 671	3 696	3 739
3. Total employment (000)	2 884	2 777	2 771	2 787	2 813	2 780	2 788	2 835	2 890	2 978	3 036
4. Population in employment aged 15-64	2 671	2 607	2 589	2 595	2 632	2 619	2 615	2 671	2 704	2 764	2 820
5. Employment rate (% population aged 15-64)	76.0	74.0	73.2	73.2	73.9	73.1	72.3	73.3	73.7	74.8	75.4
6. Employment rate (% population aged 15-24)	47.3	42.3	39.3	37.1	35.3	32.3	30.1	31.3	31.5	32.8	32.4
7. Employment rate (% population aged 25-54)	91.3	89.5	89.3	89.7	90.2	89.7	89.2	89.8	90.4	91.7	92.1
8. Employment rate (% population aged 55-64)	53.2	53.6	51.7	52.6	57.2	57.5	57.2	59.3	59.5	59.6	61.9
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	20.3	21.6	21.8	21.9	22.9	24.1	23.9	23.0	22.8	22.8	22.6
11. Part-time employment (% total employment)	2.6	2.4	2.2	2.2	2.2	2.3	2.3	2.1	2.2	2.3	2.2
12. Fixed term contracts (% total employees)	5.7	6.2	7.1	7.2	7.0	7.9	7.8	7.6	7.5	7.3	6.5
13. Employment in Services (% total employment)	42.6	44.4	45.7	46.3	46.8	47.2	47.4	47.9	48.0	48.0	48.1
14. Employment in Industry (% total employment)	50.8	49.3	48.4	48.0	47.9	47.6	47.7	47.4	47.6	47.6	47.7
15. Employment in Agriculture (% total employment)	6.7	6.3	5.9	5.7	5.3	5.1	4.9	4.7	4.4	4.4	4.2
16. Activity rate (% population aged 15-64)	80.0	79.9	79.1	78.6	78.6	78.0	77.9	78.4	78.3	78.1	78.1
17. Activity rate (% of population aged 15-24)	53.5	51.4	48.3	45.2	42.3	39.6	38.7	38.9	37.7	36.7	35.9
18. Activity rate (% of population aged 25-54)	95.1	95.1	94.9	94.9	94.8	94.4	94.6	94.8	94.8	95.0	94.8
19. Activity rate (% of population aged 55-64)	55.1	56.2	54.5	55.0	59.3	59.9	60.2	62.1	62.7	62.5	64.2
20. Total unemployment (000)	143	207	207	189	169	174	201	187	169	124	103
21. Unemployment rate (% labour force 15+)	5.0	7.3	7.3	6.7	6.0	6.2	7.1	6.5	5.8	4.2	3.5
22. Youth unemployment rate (% labour force 15-24)	11.5	17.4	18.5	17.6	16.6	18.3	22.2	19.3	16.6	10.6	9.8
23. Long term unemployment rate (% labour force)	1.5	2.4	3.5	3.4	3.0	2.9	3.4	3.4	3.1	2.1	1.7
24. Youth unemployment ratio (% population aged 15-24)	6.3	9.1	9.1	8.1	7.0	7.3	8.6	7.5	6.3	3.9	3.5

Female											
1. Total population (000)	5 286	5 281	5 273	5 244	5 238	5 238	5 237	5 242	5 252	5 275	5 315
2. Population aged 15-64	3 554	3 565	3 578	3 576	3 586	3 601	3 615	3 624	3 636	3 651	3 671
3. Total employment (000)	2 241	2 173	2 169	2 176	2 178	2 144	2 152	2 157	2 199	2 246	2 269
4. Population in employment aged 15-64	2 087	2 045	2 036	2 036	2 045	2 028	2 024	2 039	2 065	2 092	2 114
5. Employment rate (% population aged 15-64)	58.7	57.4	56.9	56.9	57.0	56.3	56.0	56.3	56.8	57.3	57.6
6. Employment rate (% population aged 15-24)	35.8	34.3	33.5	31.4	29.2	27.6	25.4	23.4	23.7	23.9	23.5
7. Employment rate (% population aged 25-54)	76.0	74.2	73.7	74.4	74.7	73.5	73.4	74.0	74.5	74.9	75.2
8. Employment rate (% population aged 55-64)	22.9	23.2	22.4	23.1	25.9	28.4	29.4	30.9	32.1	33.5	34.4
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	10.7	11.3	11.7	11.7	12.0	12.7	12.2	11.8	12.3	11.8	11.9
11. Part-time employment (% total employment)	9.9	9.9	9.3	8.5	8.3	8.5	8.3	8.6	8.7	8.5	8.5
12. Fixed term contracts (% total employees)	7.7	9.1	9.4	8.9	9.3	10.7	10.7	9.8	10.1	10.2	9.8
13. Employment in Services (% total employment)	66.6	68.6	69.2	69.0	70.0	70.7	70.9	71.1	71.2	72.1	72.5
14. Employment in Industry (% total employment)	29.2	27.6	27.3	27.8	26.9	26.3	26.2	26.1	26.0	25.3	25.1
15. Employment in Agriculture (% total employment)	4.2	3.8	3.5	3.2	3.1	3.0	2.8	2.7	2.8	2.5	2.5
16. Activity rate (% population aged 15-64)	64.0	64.1	63.6	63.2	62.7	62.5	62.2	62.4	62.3	61.5	61.0
17. Activity rate (% of population aged 15-24)	42.0	42.0	40.6	37.9	35.2	34.0	31.5	28.9	29.2	26.9	26.1
18. Activity rate (% of population aged 25-54)	81.9	82.0	81.8	81.8	81.5	81.0	80.9	81.6	81.3	80.3	79.6
19. Activity rate (% of population aged 55-64)	23.9	24.4	23.7	24.6	27.2	30.0	31.3	32.9	34.0	35.2	36.1
20. Total unemployment (000)	184	237	237	220	205	224	225	224	202	153	127
21. Unemployment rate (% labour force 15+)	8.1	10.3	10.3	9.7	9.0	9.9	9.9	9.8	8.9	6.7	5.6
22. Youth unemployment rate (% labour force 15-24)	14.4	18.1	17.0	16.9	17.2	18.8	19.5	19.1	18.7	11.0	9.9
23. Long term unemployment rate (% labour force)	2.5	4.2	5.2	5.1	4.6	5.0	5.3	5.3	4.9	3.6	2.8
24. Youth unemployment ratio (% population aged 15-24)	6.2	7.8	7.0	6.5	6.1	6.4	6.1	5.5	5.4	2.9	2.6

Source: Eurostat.

Labour market indicators: Denmark

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	5 255	5 277	5 298	5 321	5 339	5 359	5 379	5 396	5 415	5 431	5 483
2. Population aged 15-64	3 523	3 525	3 532	3 545	3 538	3 548	3 559	3 566	3 569	3 573	3 591
3. Total employment (000)	2 723	2 746	2 760	2 785	2 787	2 756	2 739	2 767	2 822	2 898	2 922
4. Population in employment aged 15-64	2 646	2 680	2 694	2 700	2 684	2 666	2 693	2 706	2 762	2 757	2 804
5. Employment rate (% population aged 15-64)	75.1	76.0	76.3	76.2	75.9	75.1	75.7	75.9	77.4	77.1	78.1
6. Employment rate (% population aged 15-24)	65.3	65.5	66.0	62.3	63.5	59.6	62.3	62.3	64.6	65.3	67.0
7. Employment rate (% population aged 25-54)	83.1	83.9	84.2	84.4	84.1	83.5	83.7	84.5	86.1	86.3	88.0
8. Employment rate (% population aged 55-64)	52.0	54.5	55.7	58.0	57.9	60.2	60.3	59.5	60.7	58.6	57.0
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	7.1	7.0	6.8	6.6	6.7	6.7	6.4	6.3	6.1	6.2	6.3
11. Part-time employment (% total employment)	22.3	21.6	21.3	20.1	20.0	21.3	22.2	22.1	23.6	24.1	24.6
12. Fixed term contracts (% total employees)	9.9	9.6	9.7	9.2	9.1	9.3	9.5	9.8	8.9	8.7	8.4
13. Employment in Services (% total employment)	72.6	73.2	73.6	74.0	74.6	75.2	75.9	76.1	76.3	76.3	76.3
14. Employment in Industry (% total employment)	23.7	23.2	23.0	22.7	22.1	21.6	21.0	20.9	20.8	20.9	20.8
15. Employment in Agriculture (% total employment)	3.8	3.6	3.5	3.3	3.3	3.2	3.1	3.0	2.9	2.9	2.9
16. Activity rate (% population aged 15-64)	79.7	80.6	80.0	79.9	79.6	79.5	80.1	79.8	80.6	80.2	80.8
17. Activity rate (% of population aged 15-24)	71.3	72.3	70.7	68.0	68.6	65.6	67.9	68.1	69.9	70.9	72.5
18. Activity rate (% of population aged 25-54)	87.7	88.2	87.9	87.9	87.8	87.8	88.2	88.1	88.9	89.0	90.2
19. Activity rate (% of population aged 55-64)	55.1	57.5	58.2	60.5	60.4	63.3	63.9	62.8	63.2	60.8	58.7
20. Total unemployment (000)	137	147	122	130	131	155	160	140	114	111	98
21. Unemployment rate (% labour force 15+)	4.9	5.2	4.3	4.5	4.6	5.4	5.5	4.8	3.9	3.8	3.3
22. Youth unemployment rate (% labour force 15-24)	7.3	9.1	6.2	8.3	7.4	9.2	8.2	8.6	7.7	7.9	7.6
23. Long term unemployment rate (% labour force)	1.3	1.1	0.9	0.9	0.9	1.1	1.2	1.1	0.8	0.6	0.5
24. Youth unemployment ratio (% population aged 15-24)	5.9	6.8	4.8	5.7	5.1	6.0	5.6	5.9	5.4	5.6	5.5

Male											
1. Total population (000)	2 584	2 609	2 620	2 632	2 640	2 650	2 662	2 671	2 682	2 688	2 716
2. Population aged 15-64	1 780	1 783	1 783	1 792	1 786	1 794	1 798	1 799	1 803	1 803	1 809
3. Total employment (000)	1 470	1 479	1 479	1 490	1 490	1 483	1 465	1 478	1 505	1 544	1 554
4. Population in employment aged 15-64	1 423	1 441	1 441	1 438	1 429	1 429	1 433	1 436	1 464	1 460	1 481
5. Employment rate (% population aged 15-64)	79.9	80.8	80.8	80.2	80.0	79.6	79.7	79.8	81.2	81.0	81.9
6. Employment rate (% population aged 15-24)	64.8	68.2	68.5	64.5	65.5	61.5	63.4	63.9	65.0	66.3	68.3
7. Employment rate (% population aged 25-54)	88.5	88.6	88.5	88.2	88.4	87.9	87.6	88.3	90.1	90.2	91.3
8. Employment rate (% population aged 55-64)	61.3	62.6	64.1	65.5	64.5	67.3	67.3	65.6	67.1	64.9	64.3
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	9.3	9.3	9.0	9.2	9.2	9.0	8.7	8.5	8.1	8.5	8.7
11. Part-time employment (% total employment)	11.1	10.4	10.2	10.2	11.1	11.6	12.1	12.7	13.3	13.5	14.2
12. Fixed term contracts (% total employees)	9.2	8.6	8.5	7.7	7.9	8.2	8.7	8.5	8.0	7.6	7.6
13. Employment in Services (% total employment)	61.5	62.3	62.7	63.2	64.1	64.5	65.2	65.7	65.6	66.6	66.5
14. Employment in Industry (% total employment)	33.0	32.4	32.5	31.9	31.1	30.8	30.2	29.9	30.1	29.4	29.2
15. Employment in Agriculture (% total employment)	5.5	5.3	4.9	4.9	4.8	4.7	4.6	4.4	4.3	4.0	4.3
16. Activity rate (% population aged 15-64)	83.8	84.9	84.2	83.8	83.6	83.8	84.0	83.6	84.1	83.9	84.4
17. Activity rate (% of population aged 15-24)	70.6	74.9	73.4	70.2	70.7	67.7	69.7	70.0	70.5	72.3	73.3
18. Activity rate (% of population aged 25-54)	92.0	92.3	91.7	91.4	91.9	91.8	91.5	91.7	92.3	92.5	93.4
19. Activity rate (% of population aged 55-64)	64.4	65.5	66.7	68.4	67.1	70.4	71.3	68.7	69.6	66.9	66.0
20. Total unemployment (000)	59	70	59	63	65	74	78	68	52	54	47
21. Unemployment rate (% labour force 15+)	3.9	4.6	3.9	4.1	4.3	4.8	5.1	4.4	3.3	3.5	3.0
22. Youth unemployment rate (% labour force 15-24)	7.1	9.3	6.6	8.1	7.3	9.2	8.9	8.6	7.9	8.2	6.9
23. Long term unemployment rate (% labour force)	0.9	1.0	0.8	0.8	0.7	1.2	1.1	1.1	0.7	0.5	0.4
24. Youth unemployment ratio (% population aged 15-24)	5.8	6.7	5.0	5.7	5.2	6.2	6.2	6.1	5.6	6.0	5.1

Female											
1. Total population (000)	2 671	2 669	2 678	2 689	2 699	2 708	2 717	2 725	2 733	2 742	2 768
2. Population aged 15-64	1 743	1 743	1 749	1 752	1 752	1 753	1 762	1 767	1 767	1 770	1 782
3. Total employment (000)	1 253	1 267	1 281	1 295	1 297	1 273	1 274	1 290	1 317	1 354	1 368
4. Population in employment aged 15-64	1 223	1 239	1 253	1 261	1 256	1 237	1 261	1 270	1 297	1 296	1 323
5. Employment rate (% population aged 15-64)	70.2	71.1	71.6	72.0	71.7	70.5	71.6	71.9	73.4	73.2	74.3
6. Employment rate (% population aged 15-24)	65.8	62.7	63.3	60.1	61.4	57.6	61.1	60.5	64.1	64.2	65.7
7. Employment rate (% population aged 25-54)	77.6	79.2	79.8	80.6	79.8	79.0	79.8	80.6	82.0	82.4	84.6
8. Employment rate (% population aged 55-64)	42.0	45.8	46.6	49.7	50.4	52.9	53.3	53.5	54.3	52.4	49.8
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	4.4	4.3	4.2	3.6	3.9	4.1	3.8	3.8	3.9	3.6	3.5
11. Part-time employment (% total employment)	35.5	34.7	34.1	31.6	30.3	32.7	33.8	33.0	35.4	36.2	36.5
12. Fixed term contracts (% total employees)	10.6	10.7	11.1	10.7	10.3	10.4	10.3	11.3	10.0	10.0	9.1
13. Employment in Services (% total employment)	85.3	85.7	85.9	86.3	86.5	87.5	87.9	87.7	88.3	87.5	87.7
14. Employment in Industry (% total employment)	13.0	12.7	12.3	12.1	11.9	11.0	10.7	10.7	10.3	11.0	11.1
15. Employment in Agriculture (% total employment)	1.8	1.6	1.9	1.6	1.6	1.5	1.5	1.5	1.4	1.5	1.2
16. Activity rate (% population aged 15-64)	75.6	76.1	75.6	75.9	75.5	75.1	76.2	75.9	77.0	76.4	77.1
17. Activity rate (% of population aged 15-24)	71.8	69.7	67.8	65.8	66.4	63.5	66.0	66.2	69.3	69.4	71.7
18. Activity rate (% of population aged 25-54)	83.5	84.1	84.0	84.4	83.7	83.7	84.8	84.5	85.4	85.4	87.0
19. Activity rate (% of population aged 55-64)	45.3	48.9	49.0	51.9	52.9	55.9	56.5	56.8	56.7	54.6	51.5
20. Total unemployment (000)	78	77	63	67	66	81	81	72	62	57	51
21. Unemployment rate (% labour force 15+)	6.0	5.8	4.8	5.0	5.0	6.1	6.0	5.3	4.5	4.2	3.7
22. Youth unemployment rate (% labour force 15-24)	7.4	8.9	5.7	8.5	7.5	9.2	7.4	8.6	7.5	7.5	8.4
23. Long term unemployment rate (% labour force)	1.7	1.3	1.1	1.0	1.0	1.0	1.3	1.2	0.9	0.7	0.5
24. Youth unemployment ratio (% population aged 15-24)	6.0	7.0	4.5	5.8	5.0	5.9	4.9	5.7	5.2	5.2	6.0

Source: Eurostat.

Labour market indicators: Germany

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	80 895	80 962	81 132	81 345	81 558	81 598	81 589	81 529	81 489	81 363	81 265
2. Population aged 15-64	55 188	55 145	55 062	54 973	54 852	54 675	54 450	54 765	54 533	54 226	54 066
3. Total employment (000)	37 910	38 425	39 145	39 315	39 092	38 724	38 883	38 850	39 097	39 768	40 331
4. Population in employment aged 15-64	35 281	35 931	36 105	36 179	35 883	35 512	35 413	36 138	36 833	37 612	38 239
5. Employment rate (% population aged 15-64)	63.9	65.2	65.6	65.8	65.4	65.0	65.0	66.0	67.5	69.4	70.7
6. Employment rate (% population aged 15-24)	45.3	47.2	47.2	47.0	45.7	44.2	41.9	42.2	43.4	45.3	46.9
7. Employment rate (% population aged 25-54)	77.2	78.7	79.3	79.3	78.7	77.9	78.1	78.2	79.4	80.9	81.8
8. Employment rate (% population aged 55-64)	37.7	37.8	37.6	37.9	38.9	39.9	41.8	45.4	48.4	51.5	53.8
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	10.2	10.0	10.0	10.1	10.2	10.5	10.9	11.2	11.2	11.2	11.1
11. Part-time employment (% total employment)	18.4	19.0	19.4	20.3	20.8	21.7	22.3	24.0	25.8	26.0	25.9
12. Fixed term contracts (% total employees)	12.4	13.1	12.7	12.4	12.0	12.2	12.4	14.1	14.5	14.6	14.7
13. Employment in Services (% total employment)	67.1	68.0	68.7	69.3	70.1	70.7	71.3	71.9	72.3	72.4	72.5
14. Employment in Industry (% total employment)	30.4	29.5	28.9	28.3	27.6	27.0	26.4	25.9	25.6	25.5	25.3
15. Employment in Agriculture (% total employment)	2.5	2.5	2.4	2.4	2.3	2.3	2.2	2.2	2.1	2.1	2.1
16. Activity rate (% population aged 15-64)	70.8	71.2	71.1	71.5	71.7	72.1	72.6	74.3	75.3	76.0	76.5
17. Activity rate (% of population aged 15-24)	50.1	51.6	51.5	51.3	50.7	50.0	48.0	49.9	50.3	51.4	52.5
18. Activity rate (% of population aged 25-54)	84.6	85.2	85.3	85.5	85.6	86.0	86.5	87.1	87.6	87.8	87.9
19. Activity rate (% of population aged 55-64)	44.5	43.7	42.9	42.9	43.9	45.5	47.8	52.1	55.2	57.5	58.8
20. Total unemployment (000)	3 732	3 403	3 137	3 193	3 523	3 918	4 160	4 601	4 227	3 602	3 141
21. Unemployment rate (% labour force 15+)	9.1	8.2	7.5	7.6	8.4	9.3	9.8	10.7	9.8	8.4	7.3
22. Youth unemployment rate (% labour force 15-24)	9.1	8.1	7.5	7.7	9.1	9.8	11.9	14.2	12.8	11.1	9.8
23. Long term unemployment rate (% labour force)	4.7	4.2	3.8	3.8	4.0	4.6	5.5	5.7	5.5	4.7	3.8
24. Youth unemployment ratio (% population aged 15-24)	4.8	4.5	4.3	4.2	5.0	5.8	6.0	7.7	6.9	6.1	5.5

Male											
1. Total population (000)	39 426	39 501	39 593	39 736	39 877	39 931	39 947	39 938	39 952	39 904	39 857
2. Population aged 15-64	27 865	27 813	27 751	27 715	27 642	27 549	27 451	27 559	27 479	27 297	27 213
3. Total employment (000)	21 544	21 679	21 972	21 954	21 649	21 340	21 397	21 166	21 279	21 598	21 856
4. Population in employment aged 15-64	20 027	20 245	20 230	20 175	19 845	19 540	19 434	19 643	20 005	20 382	20 667
5. Employment rate (% population aged 15-64)	71.9	72.8	72.9	72.8	71.8	70.9	70.8	71.3	72.8	74.7	75.9
6. Employment rate (% population aged 15-24)	47.8	49.8	49.7	49.3	46.9	45.4	43.6	43.7	45.1	46.9	48.8
7. Employment rate (% population aged 25-54)	85.8	86.9	87.2	86.9	85.6	84.3	83.9	83.7	84.9	86.4	87.2
8. Employment rate (% population aged 55-64)	47.2	46.8	46.4	46.5	47.3	48.2	50.7	53.5	56.4	59.7	61.8
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	12.2	12.2	12.1	12.1	12.4	12.8	13.3	13.5	13.5	13.4	13.4
11. Part-time employment (% total employment)	4.7	4.9	5.0	5.3	5.8	6.1	6.5	7.8	9.3	9.4	9.4
12. Fixed term contracts (% total employees)	12.2	12.8	12.5	12.2	11.8	12.1	12.7	14.4	14.7	14.7	14.7
13. Employment in Services (% total employment)	55.7	56.5	57.3	58.0	58.7	59.4	60.2	60.9	61.4	61.3	61.4
14. Employment in Industry (% total employment)	41.5	40.7	39.9	39.2	38.5	37.8	37.0	36.4	35.9	36.0	35.9
15. Employment in Agriculture (% total employment)	2.9	2.9	2.8	2.8	2.8	2.8	2.8	2.7	2.7	2.7	2.7
16. Activity rate (% population aged 15-64)	79.2	79.2	78.9	79.0	78.8	79.1	79.2	80.6	81.3	81.8	82.1
17. Activity rate (% of population aged 15-24)	53.6	54.9	54.7	54.3	53.1	52.7	50.8	52.5	52.9	53.7	54.8
18. Activity rate (% of population aged 25-54)	93.4	93.6	93.4	93.5	93.2	93.2	93.0	93.6	93.8	93.8	93.6
19. Activity rate (% of population aged 55-64)	54.8	53.7	52.4	52.2	53.0	54.9	57.8	61.2	64.0	66.1	67.3
20. Total unemployment (000)	1 988	1 830	1 698	1 761	1 985	2 227	2 354	2 590	2 337	1 939	1 690
21. Unemployment rate (% labour force 15+)	8.8	8.1	7.5	7.8	8.8	9.8	10.3	11.2	10.2	8.5	7.4
22. Youth unemployment rate (% labour force 15-24)	10.9	9.6	8.8	9.5	11.4	12.1	13.7	15.8	14.1	12.2	10.7
23. Long term unemployment rate (% labour force)	4.3	4.0	3.7	3.7	4.1	4.7	5.7	6.0	5.7	4.8	3.9
24. Youth unemployment ratio (% population aged 15-24)	5.8	5.1	5.0	5.0	6.2	7.2	7.2	8.8	7.8	6.8	6.1

Female											
1. Total population (000)	41 469	41 461	41 539	41 610	41 681	41 668	41 642	41 590	41 537	41 460	41 408
2. Population aged 15-64	27 324	27 332	27 311	27 258	27 210	27 126	26 999	27 206	27 054	26 929	26 854
3. Total employment (000)	16 366	16 746	17 173	17 361	17 443	17 384	17 486	17 684	17 817	18 169	18 475
4. Population in employment aged 15-64	15 254	15 686	15 876	16 004	16 038	15 972	15 979	16 495	16 828	17 230	17 572
5. Employment rate (% population aged 15-64)	55.8	57.4	58.1	58.7	58.9	58.9	59.2	60.6	62.2	64.0	65.4
6. Employment rate (% population aged 15-24)	42.7	44.5	44.6	44.7	44.5	43.0	40.2	40.7	41.6	43.5	45.0
7. Employment rate (% population aged 25-54)	68.3	70.3	71.2	71.6	71.6	71.4	72.1	72.5	73.7	75.2	76.3
8. Employment rate (% population aged 55-64)	28.3	28.8	29.0	29.4	30.6	31.6	33.0	37.5	40.6	43.6	46.1
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	7.5	7.2	7.3	7.6	7.6	7.7	7.9	8.5	8.5	8.6	8.3
11. Part-time employment (% total employment)	36.4	37.2	37.9	39.3	39.5	40.8	41.6	43.5	45.6	45.8	45.4
12. Fixed term contracts (% total employees)	12.6	13.4	13.1	12.7	12.2	12.3	12.2	13.8	14.1	14.5	14.6
13. Employment in Services (% total employment)	81.6	82.2	82.7	83.0	83.5	84.0	84.3	84.6	84.9	85.1	85.2
14. Employment in Industry (% total employment)	16.4	15.8	15.4	15.2	14.7	14.3	14.1	13.8	13.7	13.4	13.3
15. Employment in Agriculture (% total employment)	2.1	2.0	1.9	1.8	1.8	1.7	1.6	1.6	1.5	1.5	1.5
16. Activity rate (% population aged 15-64)	62.2	63.0	63.3	63.8	64.4	65.1	65.8	68.0	69.3	70.1	70.8
17. Activity rate (% of population aged 15-24)	46.6	48.3	48.2	48.1	48.3	47.3	45.0	47.3	47.6	49.0	50.0
18. Activity rate (% of population aged 25-54)	75.5	76.6	76.9	77.4	77.9	78.6	79.7	80.6	81.4	81.8	82.1
19. Activity rate (% of population aged 55-64)	34.1	33.7	33.5	33.6	34.8	36.2	37.8	43.1	46.6	49.1	50.6
20. Total unemployment (000)	1 745	1 573	1 440	1 432	1 539	1 691	1 806	2 011	1 890	1 663	1 452
21. Unemployment rate (% labour force 15+)	9.4	8.4	7.5	7.4	7.9	8.7	9.1	10.1	9.4	8.3	7.2
22. Youth unemployment rate (% labour force 15-24)	7.4	6.7	6.2	5.9	6.7	7.4	10.0	12.4	11.3	10.0	9.0
23. Long term unemployment rate (% labour force)	5.1	4.5	4.0	3.8	4.0	4.5	5.2	5.3	5.3	4.7	3.7
24. Youth unemployment ratio (% population aged 15-24)	3.9	3.8	3.6	3.4	3.8	4.3	4.9	6.6	6.0	5.4	5.0

Source: Eurostat.

Note: EU LFS indicators: 1999-2004 national estimates, 2005 break in series.

Labour market indicators: Estonia

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	1 386	1 374	1 366	1 361	1 356	1 350	1 348	1 343	1 339	1 338	1 336
2. Population aged 15-64	914	914	916	916	912	911	910	910	913	909	907
3. Total employment (000)	607	581	572	577	584	592	592	604	637	641	643
4. Population in employment aged 15-64	590	562	554	559	566	573	573	586	621	631	634
5. Employment rate (% population aged 15-64)	64.6	61.5	60.4	61.0	62.0	62.9	63.0	64.4	68.1	69.4	69.8
6. Employment rate (% population aged 15-24)	35.5	30.1	28.3	28.1	28.2	29.3	27.2	29.1	31.6	34.5	36.4
7. Employment rate (% population aged 25-54)	78.8	76.7	75.6	76.0	76.8	77.8	78.8	79.6	84.2	84.8	83.9
8. Employment rate (% population aged 55-64)	50.2	47.5	46.3	48.5	51.6	52.3	52.4	56.1	58.5	60.0	62.4
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	8.6	8.6	9.0	8.2	8.1	8.9	9.6	8.1	8.1	9.1	7.8
11. Part-time employment (% total employment)	8.6	8.1	8.1	8.2	7.7	8.5	8.0	7.8	7.8	8.2	7.2
12. Fixed term contracts (% total employees)	2.1	2.5	3.0	2.5	2.7	2.5	2.6	2.7	2.7	2.1	2.4
13. Employment in Services (% total employment)	58.2	60.0	59.7	60.4	61.9	61.6	59.5	61.0	62.0	60.7	61.4
14. Employment in Industry (% total employment)	33.0	32.0	33.2	32.8	31.2	32.3	34.7	33.7	33.1	34.6	34.7
15. Employment in Agriculture (% total employment)	8.8	8.0	7.1	6.8	6.9	6.1	5.8	5.3	4.9	4.7	3.9
16. Activity rate (% population aged 15-64)	72.2	70.4	70.2	70.0	69.3	70.1	70.0	70.1	72.4	72.9	74.0
17. Activity rate (% of population aged 15-24)	42.5	38.9	37.4	36.5	34.2	36.9	34.7	34.6	35.9	38.3	41.4
18. Activity rate (% of population aged 25-54)	88.0	87.1	87.0	86.3	85.4	85.7	86.5	86.0	89.1	88.5	88.1
19. Activity rate (% of population aged 55-64)	53.5	51.3	51.3	53.2	55.7	56.3	55.7	59.0	61.0	62.2	65.1
20. Total unemployment (000)	61	74	84	82	67	66	64	52	41	32	38
21. Unemployment rate (% labour force 15+)	9.2	11.3	12.8	12.4	10.3	10.0	9.7	7.9	5.9	4.7	5.5
22. Youth unemployment rate (% labour force 15-24)	15.2	22.0	23.9	23.1	17.6	20.6	21.7	15.9	12.0	10.0	12.0
23. Long term unemployment rate (% labour force)	4.2	5.0	5.9	6.0	5.4	4.6	5.0	4.2	2.9	2.3	1.7
24. Youth unemployment ratio (% population aged 15-24)	7.0	8.7	9.1	8.5	6.0	7.6	7.5	5.5	4.3	3.8	5.0

Male											
1. Total population (000)	639	632	628	627	624	621	619	616	616	615	613
2. Population aged 15-64	434	434	438	439	435	435	433	434	437	436	435
3. Total employment (000)	310	294	291	293	297	302	298	299	318	323	324
4. Population in employment aged 15-64	302	286	282	285	289	292	288	291	311	319	320
5. Employment rate (% population aged 15-64)	69.6	65.8	64.3	65.0	66.5	67.2	66.4	67.0	71.0	73.2	73.6
6. Employment rate (% population aged 15-24)	40.0	34.9	31.7	33.9	34.6	35.9	32.8	33.1	37.0	38.9	39.5
7. Employment rate (% population aged 25-54)	82.0	78.6	78.4	78.7	80.3	81.0	81.6	81.9	87.5	89.7	88.5
8. Employment rate (% population aged 55-64)	62.0	58.9	55.9	56.7	58.4	58.9	56.4	59.3	57.5	59.4	65.2
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	11.0	10.7	11.5	10.9	10.7	11.8	12.9	11.1	11.4	12.7	10.7
11. Part-time employment (% total employment)	5.9	5.9	5.3	5.1	4.8	5.4	5.4	4.9	4.3	4.3	4.1
12. Fixed term contracts (% total employees)	2.9	3.5	4.4	3.3	3.9	3.2	3.5	3.4	3.3	2.7	3.4
13. Employment in Services (% total employment)	47.2	49.0	48.1	48.0	49.8	50.0	48.0	49.1	48.3	46.2	47.4
14. Employment in Industry (% total employment)	41.1	40.6	42.4	42.3	40.7	41.7	44.0	43.7	45.0	47.5	47.2
15. Employment in Agriculture (% total employment)	11.7	10.4	9.6	9.7	9.5	8.3	8.0	7.2	6.6	6.4	5.4
16. Activity rate (% population aged 15-64)	79.0	76.8	75.6	74.9	74.6	75.0	74.4	73.6	75.8	77.5	78.3
17. Activity rate (% of population aged 15-24)	49.9	46.3	42.0	42.4	40.4	43.1	41.6	39.7	41.2	44.2	45.2
18. Activity rate (% of population aged 25-54)	92.0	90.5	90.9	90.2	90.1	89.6	90.1	89.2	92.8	93.6	92.9
19. Activity rate (% of population aged 55-64)	68.1	66.0	63.6	62.5	63.7	64.4	60.7	62.9	61.6	63.7	68.8
20. Total unemployment (000)	34	42	46	42	36	34	35	29	21	19	20
21. Unemployment rate (% labour force 15+)	9.9	12.5	13.8	12.6	10.8	10.2	10.4	8.8	6.2	5.4	5.8
22. Youth unemployment rate (% labour force 15-24)	16.7	21.9	23.8	19.4	14.3	16.9	21.2	16.6	10.0	12.1	12.6
23. Long term unemployment rate (% labour force)	4.4	5.5	6.7	6.6	6.3	4.8	5.6	4.2	3.2	2.8	2.0
24. Youth unemployment ratio (% population aged 15-24)	9.9	11.4	10.3	8.5	5.8	7.3	8.8	6.6	4.1	5.3	5.7

Female											
1. Total population (000)	748	742	738	734	732	729	729	727	724	723	723
2. Population aged 15-64	480	480	479	478	478	476	476	476	475	473	472
3. Total employment (000)	297	286	281	283	287	291	295	305	319	319	319
4. Population in employment aged 15-64	290	278	272	274	277	281	286	296	310	312	313
5. Employment rate (% population aged 15-64)	60.3	57.8	56.9	57.4	57.9	59.0	60.0	62.1	65.3	65.9	66.3
6. Employment rate (% population aged 15-24)	32.0	26.0	24.8	21.9	21.6	22.7	21.6	25.1	26.1	30.0	33.2
7. Employment rate (% population aged 25-54)	75.9	74.8	73.1	73.5	73.6	74.8	76.2	77.5	81.1	80.1	79.5
8. Employment rate (% population aged 55-64)	41.6	39.2	39.0	42.1	46.5	47.3	49.4	53.7	59.2	60.5	60.3
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	6.0	6.4	6.4	5.4	5.4	5.9	6.3	5.1	4.8	5.5	5.0
11. Part-time employment (% total employment)	11.4	10.4	10.9	11.3	10.7	11.8	10.6	10.6	11.3	12.1	10.4
12. Fixed term contracts (% total employees)	1.3	1.6	1.7	1.8	1.5	1.8	1.8	2.0	2.2	1.6	1.4
13. Employment in Services (% total employment)	69.7	71.3	71.7	73.1	74.4	73.5	71.0	72.5	75.5	75.2	75.3
14. Employment in Industry (% total employment)	24.5	23.1	23.8	23.1	21.4	22.7	25.4	24.0	21.4	21.8	22.4
15. Employment in Agriculture (% total employment)	5.8	5.6	4.5	3.8	4.2	3.8	3.6	3.5	3.1	3.0	2.4
16. Activity rate (% population aged 15-64)	66.4	65.0	65.3	65.5	64.4	65.7	66.0	66.9	69.3	68.7	70.1
17. Activity rate (% of population aged 15-24)	36.3	32.5	32.7	30.3	27.9	30.6	27.8	29.5	30.6	32.3	37.5
18. Activity rate (% of population aged 25-54)	84.2	83.9	83.3	82.7	81.0	82.2	83.2	83.1	85.7	83.7	83.6
19. Activity rate (% of population aged 55-64)	43.1	40.9	42.0	46.0	49.8	50.3	51.9	56.0	60.5	61.0	62.3
20. Total unemployment (000)	27	32	38	39	31	32	29	23	19	13	18
21. Unemployment rate (% labour force 15+)	8.3	10.1	11.7	12.2	9.7	9.9	8.9	7.1	5.6	3.9	5.3
22. Youth unemployment rate (% labour force 15-24)	13.1	22.1	24.1	28.5	22.5	26.0	22.4	14.9	14.7	7.1	11.3
23. Long term unemployment rate (% labour force)	4.1	4.4	5.0	5.4	4.5	4.4	4.4	4.2	2.6	1.7	1.4
24. Youth unemployment ratio (% population aged 15-24)	4.3	6.5	7.9	8.4	6.3	8.0	6.2	4.4	4.5	2.3	4.2

Source: Eurostat.

Labour market indicators: Ireland

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	3 709	3 753	3 800	3 859	3 926	3 991	4 059	4 149	4 253	4 359	4 440
2. Population aged 15-64	2 457	2 503	2 546	2 601	2 661	2 711	2 761	2 831	2 913	2 993	3 041
3. Total employment (000)	1 526	1 621	1 696	1 748	1 779	1 814	1 870	1 958	2 042	2 115	2 098
4. Population in employment aged 15-64	1 489	1 584	1 660	1 712	1 742	1 776	1 830	1 915	1 999	2 067	2 055
5. Employment rate (% population aged 15-64)	60.6	63.3	65.2	65.8	65.5	65.5	66.3	67.6	68.6	69.1	67.6
6. Employment rate (% population aged 15-24)	45.6	49.1	50.4	49.3	47.6	47.5	47.7	48.7	50.0	49.9	46.0
7. Employment rate (% population aged 25-54)	70.9	73.4	75.3	76.3	76.1	75.9	76.8	77.9	78.4	78.7	77.3
8. Employment rate (% population aged 55-64)	41.7	43.7	45.3	46.8	48.0	49.0	49.5	51.6	53.1	53.8	53.6
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	19.8	19.2	18.6	18.1	17.9	17.7	17.6	16.9	16.4	17.2	17.6
11. Part-time employment (% total employment)	16.5	16.4	16.4	16.5	16.5	16.9	16.8	:	:	:	:
12. Fixed term contracts (% total employees)	7.2	5.1	5.9	5.3	5.3	5.2	4.1	3.7	3.4	7.3	8.5
13. Employment in Services (% total employment)	62.4	63.0	63.5	64.0	65.1	65.8	66.2	66.5	66.7	67.2	68.6
14. Employment in Industry (% total employment)	28.6	28.4	28.8	28.8	27.9	27.5	27.6	27.6	27.6	27.2	25.6
15. Employment in Agriculture (% total employment)	9.0	8.6	7.7	7.2	7.0	6.6	6.2	5.9	5.7	5.5	5.8
16. Activity rate (% population aged 15-64)	65.6	67.1	68.2	68.6	68.6	68.8	69.5	70.8	71.8	72.4	72.0
17. Activity rate (% of population aged 15-24)	51.4	53.7	54.2	53.1	52.0	52.3	52.4	53.3	54.7	54.9	52.7
18. Activity rate (% of population aged 25-54)	76.2	77.3	78.3	78.9	79.1	79.1	79.9	80.9	81.5	82.0	81.6
19. Activity rate (% of population aged 55-64)	43.9	45.4	46.5	48.0	49.3	50.2	50.8	53.1	54.4	55.2	55.4
20. Total unemployment (000)	123	97	75	72	84	90	89	89	96	102	141
21. Unemployment rate (% labour force 15+)	7.5	5.7	4.3	4.0	4.5	4.7	4.5	4.4	4.5	4.6	6.3
22. Youth unemployment rate (% labour force 15-24)	11.3	8.6	6.9	7.3	8.5	9.1	8.9	8.6	8.6	9.1	13.3
23. Long term unemployment rate (% labour force)	3.9	2.5	1.6	1.3	1.3	1.6	1.6	1.5	1.4	1.4	1.6
24. Youth unemployment ratio (% population aged 15-24)	5.8	4.6	3.8	3.8	4.4	4.8	4.7	4.6	4.7	5.0	6.6

Male											
1. Total population (000)	1 842	1 864	1 888	1 919	1 951	1 983	2 018	2 067	2 124	2 179	2 215
2. Population aged 15-64	1 233	1 256	1 280	1 307	1 337	1 361	1 387	1 425	1 470	1 511	1 531
3. Total employment (000)	918	966	1 005	1 030	1 037	1 053	1 084	1 127	1 175	1 206	1 179
4. Population in employment aged 15-64	889	936	976	1 002	1 008	1 024	1 053	1 095	1 142	1 169	1 146
5. Employment rate (% population aged 15-64)	72.1	74.5	76.3	76.6	75.4	75.2	75.9	76.9	77.7	77.4	74.9
6. Employment rate (% population aged 15-24)	48.7	52.3	54.2	53.1	50.6	50.5	50.7	51.5	53.6	52.5	46.8
7. Employment rate (% population aged 25-54)	84.9	86.9	88.2	88.6	87.4	87.0	87.8	88.4	88.4	87.7	85.5
8. Employment rate (% population aged 55-64)	60.2	61.7	63.2	64.6	65.0	64.6	65.0	65.7	67.0	67.9	66.0
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	26.7	26.3	25.5	25.2	25.2	24.9	25.0	24.2	23.5	24.7	25.3
11. Part-time employment (% total employment)	7.5	7.2	6.9	6.6	6.5	6.6	6.1	:	:	:	:
12. Fixed term contracts (% total employees)	5.6	4.1	4.9	4.4	4.5	4.4	3.7	3.1	2.9	6.0	7.2
13. Employment in Services (% total employment)	49.8	50.0	50.5	50.4	51.1	51.7	51.8	51.5	51.4	51.5	53.3
14. Employment in Industry (% total employment)	37.0	37.1	37.9	38.6	38.2	38.1	38.5	39.2	39.6	39.7	37.6
15. Employment in Agriculture (% total employment)	13.2	12.9	11.6	10.9	10.7	10.1	9.8	9.3	9.0	8.7	9.1
16. Activity rate (% population aged 15-64)	78.2	79.1	79.9	79.9	79.2	79.3	79.9	80.6	81.5	81.4	80.7
17. Activity rate (% of population aged 15-24)	55.0	57.2	58.1	57.3	55.7	56.0	55.9	56.6	59.0	58.3	55.2
18. Activity rate (% of population aged 25-54)	91.5	91.8	92.0	91.8	91.2	91.0	91.8	92.1	92.1	91.6	91.3
19. Activity rate (% of population aged 55-64)	63.4	64.2	65.0	66.4	66.7	66.3	66.9	67.7	68.7	69.8	68.5
20. Total unemployment (000)	76	58	45	44	52	55	55	54	57	62	95
21. Unemployment rate (% labour force 15+)	7.7	5.7	4.3	4.1	4.8	5.0	4.9	4.6	4.7	4.9	7.5
22. Youth unemployment rate (% labour force 15-24)	11.6	8.6	6.8	7.6	9.3	9.7	9.3	9.1	9.1	10	16.2
23. Long term unemployment rate (% labour force)	4.6	3.0	2.1	1.6	1.8	2.0	2.0	1.9	1.8	1.7	2.2
24. Youth unemployment ratio (% population aged 15-24)	6.3	4.9	4.0	4.3	5.1	5.5	5.2	5.1	5.4	5.8	8.4

Female											
1. Total population (000)	1 867	1 890	1 912	1 940	1 975	2 008	2 041	2 081	2 130	2 180	2 225
2. Population aged 15-64	1 224	1 247	1 267	1 293	1 324	1 350	1 375	1 406	1 443	1 482	1 510
3. Total employment (000)	608	656	691	718	742	761	787	831	868	910	919
4. Population in employment aged 15-64	600	648	683	710	734	752	777	820	856	898	909
5. Employment rate (% population aged 15-64)	49.0	52.0	53.9	54.9	55.4	55.7	56.5	58.3	59.3	60.6	60.2
6. Employment rate (% population aged 15-24)	42.4	45.7	46.6	45.5	44.5	44.4	44.7	45.9	46.2	47.4	45.2
7. Employment rate (% population aged 25-54)	57.1	60.0	62.4	64.0	64.7	64.8	65.8	67.3	68.3	69.6	69.0
8. Employment rate (% population aged 55-64)	23.1	25.6	27.2	28.7	30.8	33.1	33.7	37.3	39.1	39.6	41.0
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	9.5	8.7	8.6	7.9	7.6	7.6	7.5	7.1	6.7	7.2	7.6
11. Part-time employment (% total employment)	30.0	30.1	30.3	30.7	30.6	31.0	31.5	:	:	:	:
12. Fixed term contracts (% total employees)	9.3	6.4	7.2	6.2	6.3	6.0	4.6	4.2	3.9	8.6	9.8
13. Employment in Services (% total employment)	81.3	82.1	82.4	83.4	84.8	85.4	86.0	86.8	87.4	88.1	88.2
14. Employment in Industry (% total employment)	16.1	15.5	15.5	14.8	13.5	12.9	12.6	11.9	11.3	10.7	10.3
15. Employment in Agriculture (% total employment)	2.6	2.4	2.1	1.8	1.7	1.7	1.4	1.3	1.3	1.3	1.5
16. Activity rate (% population aged 15-64)	52.9	55.0	56.3	57.1	57.8	58.3	59.0	60.8	61.9	63.3	63.1
17. Activity rate (% of population aged 15-24)	47.7	50.1	50.1	48.8	48.1	48.5	48.8	49.9	50.2	51.5	50.0
18. Activity rate (% of population aged 25-54)	60.9	62.9	64.7	66.0	66.9	67.2	68.0	69.6	70.7	72.2	71.8
19. Activity rate (% of population aged 55-64)	24.2	26.6	27.8	29.4	31.6	33.8	34.4	38.2	40.0	40.4	42.1
20. Total unemployment (000)	47	39	30	28	32	35	33	35	38	40	46
21. Unemployment rate (% labour force 15+)	7.3	5.6	4.2	3.8	4.1	4.3	4.1	4.0	4.2	4.2	4.8
22. Youth unemployment rate (% labour force 15-24)	11.0	8.6	7.0	6.9	7.6	8.4	8.5	8.0	8.1	8.0	10.1
23. Long term unemployment rate (% labour force)	2.8	1.6	1.0	0.8	0.8	1.0	1.0	0.8	0.9	0.9	0.9
24. Youth unemployment ratio (% population aged 15-24)	5.3	4.3	3.5	3.3	3.7	4.1	4.2	4.0	4.0	4.2	4.8

Source: Eurostat.

Labour market indicators: Greece

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	10 390	10 437	10 472	10 504	10 542	10 578	10 616	10 657	10 710	10 754	10 780
2. Population aged 15-64	7 000	7 043	7 078	7 099	7 111	7 119	7 129	7 132	7 158	7 208	7 232
3. Total employment (000)	4 221	4 235	4 255	4 261	4 357	4 401	4 503	4 546	4 642	4 702	4 759
4. Population in employment aged 15-64	3 917	3 937	3 996	3 999	4 087	4 181	4 235	4 287	4 365	4 424	4 474
5. Employment rate (% population aged 15-64)	56.0	55.9	56.5	56.3	57.5	58.7	59.4	60.1	61.0	61.4	61.9
6. Employment rate (% population aged 15-24)	28.4	27.2	27.6	26.2	26.5	25.3	26.8	25.0	24.2	24.0	23.5
7. Employment rate (% population aged 25-54)	70.0	69.9	70.5	70.6	71.6	72.9	73.5	74.0	75.3	75.6	76.1
8. Employment rate (% population aged 55-64)	39.0	39.3	39.0	38.2	39.2	41.3	39.4	41.6	42.3	42.4	42.8
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	39.0	37.9	37.0	36.7	35.7	35.7	34.9	34.7	34.4
11. Part-time employment (% total employment)	5.6	5.8	4.5	4.0	4.4	4.3	4.6	5.0	5.7	5.6	5.6
12. Fixed term contracts (% total employees)	12.5	12.6	13.5	13.2	11.7	11.2	11.9	11.8	10.7	10.9	11.5
13. Employment in Services (% total employment)	:	:	63.3	63.9	64.7	65.0	67.5	67.7	68.2	68.2	69.1
14. Employment in Industry (% total employment)	:	:	19.8	20.4	20.2	20.4	19.9	19.9	19.8	20.3	19.5
15. Employment in Agriculture (% total employment)	:	:	17.0	15.7	15.1	14.6	12.6	12.4	11.9	11.5	11.4
16. Activity rate (% population aged 15-64)	63.2	63.8	63.8	63.3	64.2	65.2	66.5	66.8	67.0	67.0	67.1
17. Activity rate (% of population aged 15-24)	40.8	39.8	39.0	36.5	36.2	34.6	36.7	33.7	32.4	31.1	30.2
18. Activity rate (% of population aged 25-54)	77.1	77.9	78.1	77.8	78.8	79.8	81.1	81.5	82.0	81.9	82.0
19. Activity rate (% of population aged 55-64)	40.4	40.9	40.5	39.9	40.9	42.7	41.3	43.2	43.9	43.9	44.2
20. Total unemployment (000)	486	548	517	488	480	460	506	477	435	407	378
21. Unemployment rate (% labour force 15+)	10.8	12.0	11.2	10.7	10.3	9.7	10.5	9.9	8.9	8.3	7.7
22. Youth unemployment rate (% labour force 15-24)	29.9	31.5	29.1	28.0	26.8	26.8	26.9	26.0	25.2	22.9	22.1
23. Long term unemployment rate (% labour force)	5.8	6.5	6.2	5.5	5.3	5.3	5.6	5.1	4.8	4.1	3.6
24. Youth unemployment ratio (% population aged 15-24)	12.5	12.6	11.4	10.3	9.7	9.3	9.9	8.8	8.2	7.1	6.7

Male											
1. Total population (000)	5 100	5 123	5 139	5 154	5 172	5 190	5 207	5 227	5 255	5 285	5 300
2. Population aged 15-64	3 466	3 488	3 507	3 519	3 529	3 537	3 545	3 551	3 570	3 603	3 617
3. Total employment (000)	2 685	2 676	2 678	2 684	2 728	2 742	2 789	2 806	2 843	2 878	2 897
4. Population in employment aged 15-64	2 487	2 480	2 508	2 514	2 550	2 595	2 613	2 636	2 663	2 698	2 713
5. Employment rate (% population aged 15-64)	71.7	71.1	71.5	71.4	72.2	73.4	73.7	74.2	74.6	74.9	75.0
6. Employment rate (% population aged 15-24)	34.6	32.4	32.7	30.7	31.5	30.9	32.3	30.1	29.7	29.2	28.5
7. Employment rate (% population aged 25-54)	88.8	88.2	88.5	88.5	88.7	89.3	89.3	89.5	90.0	90.1	90.2
8. Employment rate (% population aged 55-64)	56.0	55.7	55.2	55.3	55.9	58.7	56.4	58.8	59.2	59.1	59.1
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	40.7	40.1	39.0	38.7	38.4	38.3	37.6	37.6	37.1
11. Part-time employment (% total employment)	3.2	3.4	2.6	2.2	2.3	2.2	2.2	2.3	2.9	2.7	2.8
12. Fixed term contracts (% total employees)	11.8	11.4	11.8	11.6	10.5	9.7	10.5	10.1	9.1	9.3	9.9
13. Employment in Services (% total employment)	:	:	58.5	58.3	59.1	59.2	61.3	61.2	61.6	61.0	61.7
14. Employment in Industry (% total employment)	:	:	25.6	26.7	26.6	27.0	26.9	27.2	27.1	27.9	27.1
15. Employment in Agriculture (% total employment)	:	:	15.9	15.0	14.3	13.8	11.8	11.6	11.3	11.1	11.2
16. Activity rate (% population aged 15-64)	77.6	77.5	77.4	77.1	77.6	78.3	79.0	79.2	79.1	79.1	79.1
17. Activity rate (% of population aged 15-24)	44.2	42.1	41.7	39.1	39.3	38.1	40.0	37.0	36.1	34.7	34.3
18. Activity rate (% of population aged 25-54)	94.4	94.5	94.4	94.1	94.1	94.3	94.6	94.6	94.7	94.6	94.4
19. Activity rate (% of population aged 55-64)	57.9	57.9	57.3	57.7	58.1	60.6	58.9	60.8	61.0	60.8	60.9
20. Total unemployment (000)	192	219	205	198	191	176	188	176	162	151	148
21. Unemployment rate (% labour force 15+)	7.0	7.9	7.4	7.2	6.8	6.2	6.6	6.1	5.6	5.2	5.1
22. Youth unemployment rate (% labour force 15-24)	21.3	22.9	21.5	21.5	19.9	18.9	19.1	18.7	17.7	15.7	17.0
23. Long term unemployment rate (% labour force)	3.1	3.8	3.5	3.2	3.1	3.0	3.0	2.6	2.6	2.2	2.1
24. Youth unemployment ratio (% population aged 15-24)	9.6	9.7	9.0	8.5	7.8	7.2	7.6	6.9	6.4	5.5	5.8

Female											
1. Total population (000)	5 289	5 314	5 333	5 350	5 369	5 388	5 409	5 431	5 455	5 469	5 480
2. Population aged 15-64	3 534	3 555	3 572	3 580	3 582	3 583	3 584	3 581	3 588	3 605	3 615
3. Total employment (000)	1 536	1 559	1 577	1 577	1 629	1 659	1 715	1 740	1 798	1 824	1 862
4. Population in employment aged 15-64	1 430	1 457	1 489	1 485	1 537	1 586	1 621	1 651	1 702	1 725	1 761
5. Employment rate (% population aged 15-64)	40.5	41.0	41.7	41.5	42.9	44.3	45.2	46.1	47.4	47.9	48.7
6. Employment rate (% population aged 15-24)	22.0	21.9	22.4	21.7	21.4	19.8	21.3	19.8	18.7	18.7	18.5
7. Employment rate (% population aged 25-54)	51.5	51.9	52.7	52.8	54.5	56.4	57.6	58.5	60.5	60.8	61.9
8. Employment rate (% population aged 55-64)	23.5	24.4	24.3	22.9	24.0	25.5	24.0	25.8	26.6	26.9	27.5
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	36.2	34.3	33.7	33.5	31.2	31.6	30.6	30.2	30.1
11. Part-time employment (% total employment)	10.0	10.0	7.8	7.2	8.0	7.7	8.5	9.3	10.2	10.1	9.9
12. Fixed term contracts (% total employees)	13.8	14.4	16.1	15.7	13.6	13.3	14.0	14.3	13.0	13.1	13.7
13. Employment in Services (% total employment)	:	:	71.2	73.1	73.9	74.5	77.3	78.0	78.5	79.3	80.3
14. Employment in Industry (% total employment)	:	:	10.0	9.9	9.5	9.6	8.8	8.4	8.5	8.5	8.0
15. Employment in Agriculture (% total employment)	:	:	18.8	17.0	16.6	16.0	13.9	13.6	13.0	12.2	11.7
16. Activity rate (% population aged 15-64)	49.0	50.3	50.5	49.7	51.0	52.2	54.1	54.5	55.0	54.9	55.1
17. Activity rate (% of population aged 15-24)	37.4	37.5	36.2	33.8	33.1	31.2	33.4	30.4	28.7	27.6	26.1
18. Activity rate (% of population aged 25-54)	60.0	61.5	62.0	61.7	63.4	65.2	67.6	68.2	69.1	69.1	69.4
19. Activity rate (% of population aged 55-64)	24.4	25.5	25.4	23.9	25.2	26.4	25.2	27.1	28.0	28.2	28.6
20. Total unemployment (000)	295	328	312	290	289	284	318	302	272	256	230
21. Unemployment rate (% labour force 15+)	16.8	18.1	17.1	16.1	15.7	15.0	16.2	15.3	13.6	12.8	11.4
22. Youth unemployment rate (% labour force 15-24)	40.2	41.4	38.1	35.8	35.3	36.6	36.3	34.8	34.7	32.1	28.9
23. Long term unemployment rate (% labour force)	10.1	10.7	10.1	9.0	8.6	8.9	9.4	8.9	8.1	7.0	6.0
24. Youth unemployment ratio (% population aged 15-24)	15.4	15.6	13.8	12.1	11.7	11.4	12.1	10.6	9.9	8.8	7.5

Source: Eurostat.

Labour market indicators: Spain

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	39 352	39 555	39 927	40 427	41 063	41 753	42 440	43 141	43 835	44 630	45 329
2. Population aged 15-64	26 936	27 085	27 373	27 742	28 231	28 729	29 227	29 755	30 255	30 808	31 252
3. Total employment (000)	14 932	15 617	16 412	16 931	17 338	17 878	18 510	19 267	20 024	20 626	20 532
4. Population in employment aged 15-64	13 809	14 583	15 399	16 039	16 527	17 188	17 861	18 834	19 600	20 211	20 103
5. Employment rate (% population aged 15-64)	51.3	53.8	56.3	57.8	58.5	59.8	61.1	63.3	64.8	65.6	64.3
6. Employment rate (% population aged 15-24)	27.1	30.5	32.5	34.0	34.0	34.4	35.2	38.3	39.5	39.1	36.0
7. Employment rate (% population aged 25-54)	63.7	66.2	68.4	69.5	70.2	71.4	72.7	74.4	75.8	76.8	75.3
8. Employment rate (% population aged 55-64)	35.1	35.0	37.0	39.2	39.6	40.7	41.3	43.1	44.1	44.6	45.6
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	16.9	16.3	15.8	15.6	15.4	15.0	14.8	14.6	14.1	13.8	13.8
11. Part-time employment (% total employment)	7.8	8.0	7.9	8.0	8.0	8.2	8.7	12.4	12.0	11.8	12.0
12. Fixed term contracts (% total employees)	33.0	32.9	32.2	32.2	31.8	31.8	32.5	33.3	34.0	31.7	29.3
13. Employment in Services (% total employment)	63.7	63.8	63.8	63.8	64.2	64.7	65.1	65.5	66.3	66.8	68.5
14. Employment in Industry (% total employment)	29.2	29.6	29.9	30.1	29.9	29.7	29.5	29.3	29.0	28.8	27.3
15. Employment in Agriculture (% total employment)	7.1	6.6	6.3	6.1	5.9	5.7	5.4	5.2	4.7	4.5	4.3
16. Activity rate (% population aged 15-64)	63.0	63.9	65.4	64.7	66.2	67.6	68.7	69.7	70.8	71.6	72.6
17. Activity rate (% of population aged 15-24)	41.8	43.1	43.9	43.0	43.7	44.5	45.1	47.7	48.2	47.8	47.7
18. Activity rate (% of population aged 25-54)	76.2	76.9	78.0	76.6	78.2	79.6	80.6	80.9	82.0	82.8	83.8
19. Activity rate (% of population aged 55-64)	39.2	38.8	40.9	41.9	42.7	43.8	44.4	45.9	46.8	47.4	49.2
20. Total unemployment (000)	2 545	2 159	1 980	1 877	2 095	2 174	2 144	1 913	1 837	1 834	2 591
21. Unemployment rate (% labour force 15+)	15.0	12.5	11.1	10.3	11.1	11.1	10.6	9.2	8.5	8.3	11.3
22. Youth unemployment rate (% labour force 15-24)	33.1	27.3	24.3	23.2	24.2	24.6	23.9	19.7	17.9	18.2	24.6
23. Long term unemployment rate (% labour force)	7.5	5.7	4.6	3.7	3.7	3.7	3.4	2.2	1.8	1.7	2.0
24. Youth unemployment ratio (% population aged 15-24)	14.7	12.7	11.4	9.1	9.7	10.1	9.9	9.4	8.6	8.7	11.7

Male											
1. Total population (000)	19 241	19 338	19 545	19 825	20 172	20 532	20 894	21 268	21 641	22 062	22 412
2. Population aged 15-64	13 437	13 514	13 693	13 908	14 185	14 456	14 727	15 019	15 292	15 596	15 816
3. Total employment (000)	9 701	10 029	10 395	10 644	10 806	11 011	11 262	11 565	11 907	12 146	11 880
4. Population in employment aged 15-64	8 970	9 364	9 749	10 077	10 296	10 583	10 864	11 294	11 642	11 888	11 624
5. Employment rate (% population aged 15-64)	66.8	69.3	71.2	72.5	72.6	73.2	73.8	75.2	76.1	76.2	73.5
6. Employment rate (% population aged 15-24)	32.5	36.2	38.2	40.2	39.7	39.9	40.8	43.5	44.4	44.2	39.3
7. Employment rate (% population aged 25-54)	82.2	84.5	85.7	85.9	85.7	85.9	86.1	86.9	87.6	87.6	84.4
8. Employment rate (% population aged 55-64)	52.6	52.2	54.9	57.7	58.4	59.2	58.9	59.7	60.4	60.0	60.9
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	18.1	17.7	17.4	17.3	17.3	16.9	16.8	16.6	16.3	16.1	16.3
11. Part-time employment (% total employment)	2.9	2.9	2.8	2.8	2.6	2.6	2.8	4.5	4.3	4.1	4.2
12. Fixed term contracts (% total employees)	32.1	31.6	30.9	30.6	29.9	29.9	30.6	31.7	32.0	30.6	27.6
13. Employment in Services (% total employment)	53.2	52.9	52.8	52.4	52.7	52.7	52.6	52.7	52.9	53.2	55.1
14. Employment in Industry (% total employment)	38.5	39.3	39.7	40.3	40.2	40.5	40.8	41.0	41.3	41.2	39.4
15. Employment in Agriculture (% total employment)	8.3	7.8	7.5	7.3	7.1	6.8	6.6	6.4	5.8	5.6	5.5
16. Activity rate (% population aged 15-64)	77.3	77.9	78.8	78.4	79.1	80.0	80.4	80.9	81.3	81.4	81.8
17. Activity rate (% of population aged 15-24)	45.8	47.2	48.0	48.2	48.8	49.5	50.2	52.3	52.2	52.1	51.5
18. Activity rate (% of population aged 25-54)	92.9	93.0	93.1	91.7	92.1	92.5	92.5	92.4	92.5	92.6	92.6
19. Activity rate (% of population aged 55-64)	58.2	57.6	60.2	61.2	62.1	62.9	62.7	63.2	63.5	63.1	65.1
20. Total unemployment (000)	1 181	956	859	822	914	959	952	863	792	815	1 311
21. Unemployment rate (% labour force 15+)	11.2	9.0	7.9	7.5	8.1	8.2	8.0	7.1	6.3	6.4	10.1
22. Youth unemployment rate (% labour force 15-24)	25.9	20.5	18.1	17.3	19.2	20.2	19.4	16.7	15	15.2	23.7
23. Long term unemployment rate (% labour force)	4.9	3.6	2.8	2.3	2.3	2.4	2.2	1.4	1.2	1.1	1.4
24. Youth unemployment ratio (% population aged 15-24)	13.2	11.0	9.8	8.0	9.0	9.7	9.4	8.7	7.8	7.9	12.2

Female											
1. Total population (000)	20 111	20 217	20 382	20 602	20 891	21 221	21 547	21 873	22 193	22 569	22 917
2. Population aged 15-64	13 499	13 571	13 681	13 834	14 046	14 273	14 500	14 736	14 963	15 212	15 436
3. Total employment (000)	5 231	5 588	6 017	6 287	6 532	6 867	7 248	7 702	8 117	8 480	8 653
4. Population in employment aged 15-64	4 839	5 219	5 650	5 962	6 230	6 605	6 997	7 540	7 958	8 323	8 479
5. Employment rate (% population aged 15-64)	35.8	38.5	41.3	43.1	44.4	46.3	48.3	51.2	53.2	54.7	54.9
6. Employment rate (% population aged 15-24)	21.6	24.6	26.7	27.5	28.0	28.6	29.3	32.8	34.4	33.8	32.5
7. Employment rate (% population aged 25-54)	45.1	47.9	51.0	52.9	54.4	56.6	58.9	61.5	63.7	65.6	65.9
8. Employment rate (% population aged 55-64)	18.8	18.9	20.2	21.7	21.9	23.3	24.6	27.4	28.7	30.0	31.1
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	14.6	13.6	13.1	12.9	12.3	11.9	11.8	11.6	10.9	10.6	10.4
11. Part-time employment (% total employment)	16.8	17.1	16.8	16.8	16.8	17.1	17.9	24.2	23.2	22.8	22.7
12. Fixed term contracts (% total employees)	34.6	35.0	34.2	34.7	34.8	34.6	35.2	35.7	36.7	33.1	31.4
13. Employment in Services (% total employment)	82.5	82.6	82.0	82.5	82.7	83.4	84.0	84.5	85.6	85.8	86.5
14. Employment in Industry (% total employment)	12.6	12.9	13.6	13.3	13.3	12.7	12.4	12.0	11.2	11.3	10.9
15. Employment in Agriculture (% total employment)	4.9	4.5	4.4	4.2	4.0	3.9	3.6	3.5	3.2	2.9	2.6
16. Activity rate (% population aged 15-64)	48.9	50.0	52.0	50.9	53.1	55.1	56.8	58.3	60.2	61.4	63.2
17. Activity rate (% of population aged 15-24)	37.7	39.0	39.7	37.7	38.5	39.2	39.8	42.9	43.9	43.3	43.7
18. Activity rate (% of population aged 25-54)	59.5	60.7	62.8	61.3	64.1	66.5	68.3	69.0	71.2	72.7	74.7
19. Activity rate (% of population aged 55-64)	21.4	21.2	22.7	23.7	24.4	25.7	27.2	29.6	31.0	32.5	34.2
20. Total unemployment (000)	1 364	1 203	1 121	1 055	1 181	1 215	1 192	1 050	1 046	1 019	1 280
21. Unemployment rate (% labour force 15+)	21.1	18.0	16.0	14.8	15.7	15.3	14.3	12.2	11.6	10.9	13.0
22. Youth unemployment rate (% labour force 15-24)	42.4	36.3	32.5	31.2	31.1	30.8	30.1	23.4	21.6	21.9	25.8
23. Long term unemployment rate (% labour force)	11.6	9.0	7.4	6.0	5.9	5.7	5.0	3.4	2.8	2.5	2.9
24. Youth unemployment ratio (% population aged 15-24)	16.2	14.4	13.0	10.1	10.5	10.6	10.5	10.1	9.5	9.5	11.3

Source: Eurostat.

Note: EU LFS indicators: 2005 break in series due to the questionnaire revision, the impact has been estimated at +0,4 percentage point on employment rate (16-64 years old), +0.2 p.p. on activity rate (16-64 years old) and -0,4 p.p. on unemployment rate.

Labour market indicators: France

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	56 661	56 943	57 326	57 726	57 987	58 824	59 275	59 605	59 948	60 283	60 606
2. Population aged 15-64	36 976	37 172	37 430	37 682	37 825	38 420	38 777	38 989	39 274	39 493	39 677
3. Total employment (000)	23 227	23 697	24 332	24 765	24 919	24 950	24 977	25 116	25 362	25 705	25 841
4. Population in employment aged 15-64	22 242	22 645	23 237	23 659	23 840	24 580	24 716	24 897	25 068	25 510	25 864
5. Employment rate (% population aged 15-64)	60.2	60.9	62.1	62.8	63.0	64.0	63.7	63.9	63.8	64.6	65.2
6. Employment rate (% population aged 15-24)	25.6	27.1	28.6	29.5	29.9	31.4	30.8	30.7	30.2	31.5	32.2
7. Employment rate (% population aged 25-54)	77.1	77.7	78.8	79.4	79.5	80.4	80.5	80.7	81.2	82.1	83.2
8. Employment rate (% population aged 55-64)	28.3	28.8	29.9	31.9	34.7	37.0	37.6	38.7	38.1	38.3	38.3
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	9.7	9.5	9.2	8.9	8.8	8.8	8.8	8.9	8.9	8.9	8.9
11. Part-time employment (% total employment)	17.3	17.1	16.7	16.3	16.4	16.5	16.7	17.1	17.2	17.2	16.9
12. Fixed term contracts (% total employees)	13.9	14.5	15.2	14.6	13.5	13.6	13.5	14.1	14.1	14.4	14.2
13. Employment in Services (% total employment)	73.2	73.8	74.2	74.4	74.9	75.3	75.8	76.0	76.3	76.6	:
14. Employment in Industry (% total employment)	22.5	22.1	21.9	21.7	21.4	21.0	20.6	20.4	20.3	20.1	:
15. Employment in Agriculture (% total employment)	4.3	4.1	3.9	3.8	3.7	3.7	3.6	3.6	3.5	3.3	:
16. Activity rate (% population aged 15-64)	68.4	68.7	68.7	68.7	69.1	69.9	69.9	70.1	70.0	70.2	70.4
17. Activity rate (% of population aged 15-24)	34.6	35.7	35.6	36.2	36.9	38.4	38.3	38.5	38.4	38.8	39.3
18. Activity rate (% of population aged 25-54)	86.4	86.4	86.3	86.1	86.3	87.0	87.3	87.6	87.8	88.3	88.8
19. Activity rate (% of population aged 55-64)	30.9	31.2	32.1	33.8	36.7	38.9	39.9	40.9	40.5	40.4	40.2
20. Total unemployment (000)	2 837	2 711	2 385	2 226	2 334	2 478	2 583	2 596	2 605	2 373	2 230
21. Unemployment rate (% labour force 15+)	11.0	10.4	9.0	8.3	8.6	9.0	9.3	9.2	9.2	8.3	7.8
22. Youth unemployment rate (% labour force 15-24)	25.1	22.9	19.6	18.9	19.3	19.2	20.4	21.0	22.1	19.4	18.9
23. Long term unemployment rate (% labour force)	4.5	4.1	3.5	2.9	3.0	3.5	3.8	3.8	3.9	3.3	2.9
24. Youth unemployment ratio (% population aged 15-24)	9.1	8.6	7.0	6.6	7.0	7.0	7.5	7.8	8.2	7.3	7.1

Male											
1. Total population (000)	27 405	27 575	27 789	28 010	28 152	28 571	28 799	28 963	29 135	29 305	29 469
2. Population aged 15-64	18 202	18 331	18 485	18 631	18 697	19 000	19 193	19 276	19 418	19 532	19 617
3. Total employment (000)	12 817	13 055	13 396	13 605	13 584	13 485	13 464	13 486	13 567	13 652	13 696
4. Population in employment aged 15-64	12 264	12 466	12 786	12 992	12 986	13 273	13 313	13 362	13 403	13 538	13 695
5. Employment rate (% population aged 15-64)	67.4	68.0	69.2	69.7	69.5	69.9	69.4	69.3	69.0	69.3	69.8
6. Employment rate (% population aged 15-24)	28.4	30.3	31.9	33.3	33.6	34.6	34.1	34.2	33.8	34.5	35.0
7. Employment rate (% population aged 25-54)	86.1	86.5	87.7	88.1	87.4	87.7	87.6	87.6	87.9	88.3	89.2
8. Employment rate (% population aged 55-64)	32.5	32.3	33.6	36.2	38.7	40.8	41.4	41.6	40.5	40.5	40.6
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	11.8	11.5	11.2	10.9	10.9	10.9	11.1	11.3	11.4	11.5	11.3
11. Part-time employment (% total employment)	5.6	5.5	5.3	5.0	5.2	5.4	5.4	5.8	5.8	5.7	5.8
12. Fixed term contracts (% total employees)	13.0	13.7	14.2	13.2	11.9	12.1	12.3	13.3	13.4	13.3	13.0
13. Employment in Services (% total employment)	63.1	63.7	64.1	64.4	64.6	65.0	65.8	65.7	65.4	65.9	:
14. Employment in Industry (% total employment)	31.4	31.0	30.9	30.8	30.6	30.2	29.6	29.6	29.9	29.7	:
15. Employment in Agriculture (% total employment)	5.4	5.2	5.0	4.9	4.8	4.8	4.6	4.7	4.7	4.5	:
16. Activity rate (% population aged 15-64)	75.2	75.3	75.2	75.2	75.5	75.6	75.4	75.4	75.1	74.9	75.0
17. Activity rate (% of population aged 15-24)	37.5	39.2	38.8	39.9	40.9	42.0	42.0	42.3	42.2	42.1	42.8
18. Activity rate (% of population aged 25-54)	94.6	94.4	94.2	94.0	93.8	93.9	94.0	94.0	94.2	94.2	94.5
19. Activity rate (% of population aged 55-64)	35.4	35.1	36.0	38.3	41.2	42.9	43.8	43.9	43.1	42.8	42.7
20. Total unemployment (000)	1 323	1 260	1 076	1 010	1 121	1 201	1 245	1 250	1 269	1 170	1 098
21. Unemployment rate (% labour force 15+)	9.4	8.9	7.5	7.0	7.7	8.1	8.4	8.4	8.5	7.8	7.2
22. Youth unemployment rate (% labour force 15-24)	22.7	21.1	17.6	17.0	17.8	18.6	19.6	19.9	20.8	18.7	18.9
23. Long term unemployment rate (% labour force)	3.8	3.4	2.8	2.4	2.6	3.2	3.3	3.3	3.6	3.1	2.8
24. Youth unemployment ratio (% population aged 15-24)	9.1	8.9	6.9	6.6	7.2	7.4	7.9	8.1	8.5	7.6	7.8

Female											
1. Total population (000)	29 257	29 368	29 537	29 716	29 835	30 253	30 476	30 642	30 813	30 978	31 138
2. Population aged 15-64	18 775	18 842	18 945	19 051	19 128	19 421	19 584	19 714	19 856	19 961	20 059
3. Total employment (000)	10 410	10 642	10 936	11 160	11 335	11 465	11 513	11 630	11 795	12 053	12 145
4. Population in employment aged 15-64	9 979	10 178	10 451	10 667	10 854	11 307	11 403	11 535	11 666	11 972	12 168
5. Employment rate (% population aged 15-64)	53.1	54.0	55.2	56.0	56.7	58.2	58.2	58.5	58.8	60.0	60.7
6. Employment rate (% population aged 15-24)	22.8	23.9	25.3	25.7	26.2	28.1	27.4	27.1	26.6	28.5	29.3
7. Employment rate (% population aged 25-54)	68.3	69.0	70.1	71.1	71.7	73.2	73.6	74.0	74.7	76.2	77.4
8. Employment rate (% population aged 55-64)	24.4	25.4	26.3	27.8	30.8	33.3	34.0	36.0	35.9	36.2	36.1
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	7.2	6.9	6.7	6.4	6.3	6.2	6.2	6.1	6.1	6.0	6.2
11. Part-time employment (% total employment)	31.6	31.4	30.8	30.1	29.8	29.6	29.9	30.2	30.2	30.2	29.4
12. Fixed term contracts (% total employees)	14.8	15.4	16.4	16.2	15.3	15.2	14.8	15.0	14.8	15.4	15.4
13. Employment in Services (% total employment)	85.2	85.6	86.1	86.3	86.8	87.1	87.2	87.7	88.4	88.4	:
14. Employment in Industry (% total employment)	11.8	11.5	11.2	11.1	10.7	10.5	10.3	10.0	9.5	9.5	:
15. Employment in Agriculture (% total employment)	3.0	2.8	2.7	2.6	2.5	2.4	2.5	2.3	2.0	2.1	:
16. Activity rate (% population aged 15-64)	61.9	62.3	62.4	62.4	63.0	64.3	64.6	64.9	65.0	65.6	65.9
17. Activity rate (% of population aged 15-24)	31.9	32.3	32.3	32.4	32.9	34.6	34.6	34.6	34.6	35.4	35.7
18. Activity rate (% of population aged 25-54)	78.4	78.6	78.5	78.5	78.9	80.3	80.9	81.3	81.7	82.5	83.3
19. Activity rate (% of population aged 55-64)	26.7	27.5	28.3	29.5	32.3	35.1	36.2	37.9	38.0	38.1	37.8
20. Total unemployment (000)	1 514	1 451	1 310	1 217	1 214	1 277	1 338	1 347	1 336	1 203	1 132
21. Unemployment rate (% labour force 15+)	12.8	12.1	10.8	9.9	9.7	10.0	10.3	10.2	10.1	8.9	8.3
22. Youth unemployment rate (% labour force 15-24)	27.7	25.0	21.9	21.3	21.1	19.8	21.5	22.3	23.6	20.2	18.8
23. Long term unemployment rate (% labour force)	5.3	4.9	4.3	3.6	3.4	3.9	4.2	4.3	4.2	3.6	3.0
24. Youth unemployment ratio (% population aged 15-24)	9.0	8.4	7.0	6.7	6.8	6.5	7.2	7.4	7.9	6.9	6.4

Source: Eurostat.

Labour market indicators: Italy

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	56 857	56 906	57 044	57 229	57 382	57 399	57 442	58 077	58 435	58 880	59 336
2. Population aged 15-64	38 676	38 633	38 642	38 645	38 676	38 692	38 292	38 588	38 726	38 946	39 182
3. Total employment (000)	22 252	22 494	22 930	23 393	23 793	24 150	24 256	24 396	24 874	25 184	25 263
4. Population in employment aged 15-64	20 091	20 357	20 753	21 169	21 478	21 710	22 060	22 214	22 619	22 846	23 011
5. Employment rate (% population aged 15-64)	51.9	52.7	53.7	54.8	55.5	56.1	57.6	57.6	58.4	58.7	58.7
6. Employment rate (% population aged 15-24)	25.7	25.7	26.4	26.3	25.8	25.2	27.6	25.7	25.5	24.7	24.4
7. Employment rate (% population aged 25-54)	66.3	67.0	68.0	69.2	70.1	70.7	72.2	72.3	73.3	73.5	73.5
8. Employment rate (% population aged 55-64)	27.7	27.6	27.7	28.0	28.9	30.3	30.5	31.4	32.5	33.8	34.4
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	26.7	26.4	26.4	26.0	25.5	25.6	25.7	24.7	24.4	24.1	23.6
11. Part-time employment (% total employment)	7.3	7.9	8.4	8.4	8.6	8.5	12.7	12.8	13.3	13.6	14.3
12. Fixed term contracts (% total employees)	8.6	9.5	10.1	9.8	9.9	9.9	11.8	12.3	13.1	13.2	13.3
13. Employment in Services (% total employment)	64.5	65.1	65.8	66.1	66.4	66.8	67.0	67.0	67.3	67.4	67.9
14. Employment in Industry (% total employment)	30.3	29.9	29.4	29.2	29.1	29.0	28.8	28.8	28.5	28.6	28.2
15. Employment in Agriculture (% total employment)	5.3	4.9	4.8	4.7	4.5	4.2	4.2	4.2	4.2	4.0	3.9
16. Activity rate (% population aged 15-64)	59.0	59.6	60.1	60.6	61.1	61.5	62.7	62.5	62.7	62.5	63.0
17. Activity rate (% of population aged 15-24)	38.8	38.3	38.4	36.6	35.5	34.6	36.1	33.8	32.5	30.9	30.9
18. Activity rate (% of population aged 25-54)	73.2	73.8	74.3	75.1	75.7	76.3	77.5	77.4	77.8	77.6	78.1
19. Activity rate (% of population aged 55-64)	29.0	29.0	29.0	29.2	30.2	31.5	31.8	32.6	33.4	34.6	35.5
20. Total unemployment (000)	2 631	2 556	2 385	2 164	2 062	2 048	1 960	1 889	1 673	1 506	1 692
21. Unemployment rate (% labour force 15+)	11.4	11.0	10.1	9.1	8.6	8.5	8.1	7.7	6.8	6.1	6.8
22. Youth unemployment rate (% labour force 15-24)	29.9	28.7	27.0	24.1	23.1	23.7	23.5	24.0	21.6	20.3	21.3
23. Long term unemployment rate (% labour force)	6.8	6.7	6.3	5.7	5.1	4.9	4.0	3.9	3.4	2.9	3.1
24. Youth unemployment ratio (% population aged 15-24)	13.1	12.6	11.9	10.3	9.7	9.4	8.5	8.1	7.0	6.3	6.6

Male											
1. Total population (000)	27 541	27 567	27 651	27 764	27 858	27 873	27 830	28 192	28 406	28 629	28 849
2. Population aged 15-64	19 220	19 206	19 232	19 258	19 293	19 309	19 047	19 248	19 355	19 467	19 574
3. Total employment (000)	14 254	14 305	14 485	14 630	14 816	14 990	14 747	14 854	15 083	15 244	15 180
4. Population in employment aged 15-64	12 840	12 920	13 076	13 201	13 332	13 438	13 353	13 460	13 647	13 762	13 755
5. Employment rate (% population aged 15-64)	66.8	67.3	68.0	68.5	69.1	69.6	70.1	69.9	70.5	70.7	70.3
6. Employment rate (% population aged 15-24)	30.7	30.3	30.7	30.4	30.3	29.7	32.1	30.4	30.6	29.6	29.1
7. Employment rate (% population aged 25-54)	84.0	84.3	84.9	85.5	86.0	86.5	86.7	86.6	87.2	87.3	86.7
8. Employment rate (% population aged 55-64)	41.4	41.2	40.9	40.4	41.3	42.8	42.2	42.7	43.7	45.1	45.5
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	29.7	29.4	29.7	29.5	29.1	29.1	29.1	28.4	28.0	27.8	27.4
11. Part-time employment (% total employment)	3.4	3.5	3.7	3.5	3.5	3.2	4.8	4.6	4.7	5.0	5.3
12. Fixed term contracts (% total employees)	7.5	8.2	8.7	8.3	8.4	8.2	9.9	10.5	11.2	11.2	11.6
13. Employment in Services (% total employment)	58.3	58.5	59.0	59.0	59.1	59.2	58.2	57.9	58.0	57.9	58.3
14. Employment in Industry (% total employment)	36.1	36.1	35.7	35.8	35.9	36.1	36.9	37.3	37.2	37.4	37.1
15. Employment in Agriculture (% total employment)	5.6	5.4	5.3	5.2	5.0	4.7	4.9	4.8	4.8	4.7	4.6
16. Activity rate (% population aged 15-64)	73.6	73.8	74.1	74.1	74.3	74.7	74.9	74.6	74.6	74.4	74.4
17. Activity rate (% of population aged 15-24)	43.8	42.8	42.5	40.6	39.9	39.2	40.5	38.7	37.8	36.1	35.9
18. Activity rate (% of population aged 25-54)	90.3	90.5	90.6	90.7	91.0	91.5	91.4	91.2	91.3	91.0	91.0
19. Activity rate (% of population aged 55-64)	43.5	43.2	42.7	42.3	43.0	44.4	44.0	44.3	45.0	46.3	47.0
20. Total unemployment (000)	1 247	1 200	1 117	1 008	960	936	925	902	801	722	820
21. Unemployment rate (% labour force 15+)	8.8	8.5	7.8	7.1	6.7	6.5	6.4	6.2	5.4	4.9	5.5
22. Youth unemployment rate (% labour force 15-24)	25.4	24.7	23.1	20.4	19.4	20.5	20.6	21.5	19.1	18.2	18.9
23. Long term unemployment rate (% labour force)	5.3	5.2	4.8	4.4	4.0	3.8	2.9	2.9	2.6	2.2	2.4
24. Youth unemployment ratio (% population aged 15-24)	13.0	12.5	11.7	10.2	9.6	9.5	8.4	8.3	7.2	6.6	6.8

Female											
1. Total population (000)	29 316	29 339	29 393	29 465	29 524	29 525	29 612	29 885	30 030	30 251	30 488
2. Population aged 15-64	19 457	19 428	19 410	19 388	19 383	19 384	19 245	19 340	19 371	19 479	19 608
3. Total employment (000)	7 998	8 189	8 445	8 764	8 977	9 159	9 509	9 542	9 791	9 939	10 083
4. Population in employment aged 15-64	7 250	7 437	7 677	7 968	8 146	8 272	8 706	8 754	8 971	9 084	9 256
5. Employment rate (% population aged 15-64)	37.3	38.3	39.6	41.1	42.0	42.7	45.2	45.3	46.3	46.6	47.2
6. Employment rate (% population aged 15-24)	20.7	21.3	22.1	22.1	21.3	20.6	23.1	20.8	20.1	19.5	19.4
7. Employment rate (% population aged 25-54)	48.5	49.6	50.9	52.8	54.0	54.9	57.8	57.9	59.3	59.6	60.2
8. Employment rate (% population aged 55-64)	15.0	15.0	15.3	16.2	17.3	18.5	19.6	20.8	21.9	23.0	24.0
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	21.4	21.0	20.6	20.1	19.7	19.8	20.3	19.1	18.9	18.5	17.9
11. Part-time employment (% total employment)	14.3	15.6	16.5	16.6	16.9	17.3	25.0	25.6	26.5	26.9	27.9
12. Fixed term contracts (% total employees)	10.3	11.5	12.2	11.9	12.0	12.2	14.5	14.7	15.8	15.9	15.6
13. Employment in Services (% total employment)	75.2	76.4	77.0	77.5	78.1	78.9	80.1	80.7	81.1	81.5	81.9
14. Employment in Industry (% total employment)	20.2	19.4	19.0	18.5	18.1	17.8	16.6	16.1	15.7	15.4	15.2
15. Employment in Agriculture (% total employment)	4.7	4.2	4.0	4.0	3.8	3.3	3.3	3.2	3.2	3.0	2.9
16. Activity rate (% population aged 15-64)	44.6	45.5	46.3	47.3	47.9	48.3	50.6	50.4	50.8	50.7	51.6
17. Activity rate (% of population aged 15-24)	33.9	34.0	34.3	32.6	31.0	29.9	31.7	28.7	26.9	25.5	25.7
18. Activity rate (% of population aged 25-54)	56.0	57.1	57.9	59.3	60.3	60.9	63.6	63.6	64.3	64.1	65.2
19. Activity rate (% of population aged 55-64)	15.7	15.8	16.1	16.9	18.1	19.3	20.4	21.5	22.5	23.5	24.7
20. Total unemployment (000)	1 383	1 356	1 268	1 157	1 103	1 112	1 036	986	873	784	872
21. Unemployment rate (% labour force 15+)	15.4	14.8	13.6	12.2	11.5	11.4	10.6	10.1	8.8	7.9	8.5
22. Youth unemployment rate (% labour force 15-24)	35.5	33.8	31.9	28.7	27.8	27.6	27.2	27.4	25.3	23.3	24.7
23. Long term unemployment rate (% labour force)	9.1	9.1	8.4	7.6	6.9	6.6	5.5	5.2	4.5	3.9	4.1
24. Youth unemployment ratio (% population aged 15-24)	13.2	12.7	12.1	10.5	9.7	9.2	8.6	7.9	6.8	6.0	6.3

Source: Eurostat.

Note: EU LFS indicators: 2004 break in series.

Labour market indicators: Cyprus

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	:	:	668	674	681	690	714	727	737	752	758
2. Population aged 15-64	:	:	438	444	449	460	479	494	500	518	524
3. Total employment (000)	304	310	315	322	328	341	354	366	373	385	395
4. Population in employment aged 15-64	:	:	288	301	308	318	330	338	348	368	371
5. Employment rate (% population aged 15-64)	:	:	65.7	67.8	68.6	69.2	68.9	68.5	69.6	71.0	70.9
6. Employment rate (% population aged 15-24)	:	:	37.0	38.4	37.0	37.6	37.5	36.7	37.4	37.4	38.0
7. Employment rate (% population aged 25-54)	:	:	78.3	80.8	82.2	82.6	82.4	81.8	82.6	83.8	83.7
8. Employment rate (% population aged 55-64)	:	:	49.4	49.1	49.4	50.4	49.9	50.6	53.6	55.9	54.8
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	23.2	23.2	23.2	22.8	22.2	22.8	22.6	22.1	20.6	19.7	17.3
11. Part-time employment (% total employment)	:	6.5	8.4	8.4	7.2	8.9	8.6	8.9	7.7	7.3	7.8
12. Fixed term contracts (% total employees)	:	10.3	10.7	10.8	9.1	12.5	12.9	14.0	13.1	13.2	13.9
13. Employment in Services (% total employment)	71.3	72.4	73.3	74.2	74.0	74.2	74.1	74.7	75.4	75.1	75.5
14. Employment in Industry (% total employment)	22.5	21.6	20.7	20.1	19.9	20.3	20.4	20.3	20.4	20.3	20.3
15. Employment in Agriculture (% total employment)	6.3	6.1	6.0	5.7	6.1	5.5	5.5	5.0	4.2	4.5	4.2
16. Activity rate (% population aged 15-64)	:	:	69.1	70.6	71.2	72.4	72.6	72.4	73.0	73.9	73.6
17. Activity rate (% of population aged 15-24)	:	:	41.0	41.8	40.2	41.3	42.4	42.6	41.5	41.7	41.7
18. Activity rate (% of population aged 25-54)	:	:	81.9	83.5	84.7	85.8	86.0	85.7	86.2	86.7	86.5
19. Activity rate (% of population aged 55-64)	:	:	51.3	51.7	51.3	52.7	52.4	52.4	55.5	57.7	56.6
20. Total unemployment (000)	:	:	15	12	12	14	16	19	17	16	14
21. Unemployment rate (% labour force 15+)	:	:	4.9	3.8	3.6	4.1	4.7	5.3	4.6	4.0	3.7
22. Youth unemployment rate (% labour force 15-24)	:	:	10.1	8.1	8.1	8.9	10.5	13	10.5	10.1	9.0
23. Long term unemployment rate (% labour force)	:	:	1.2	0.8	0.8	1.0	1.2	1.2	0.9	0.7	0.5
24. Youth unemployment ratio (% population aged 15-24)	:	:	4.1	3.4	3.2	3.7	4.9	5.9	4.1	4.2	3.8

Male											
1. Total population (000)	:	:	324	327	330	333	347	354	360	367	371
2. Population aged 15-64	:	:	211	214	216	221	232	240	244	252	256
3. Total employment (000)	:	:	184	183	184	189	200	208	209	213	219
4. Population in employment aged 15-64	:	:	166	170	171	174	185	190	194	202	203
5. Employment rate (% population aged 15-64)	:	:	78.7	79.3	78.9	78.8	79.8	79.2	79.4	80.0	79.2
6. Employment rate (% population aged 15-24)	:	:	39.6	39.8	38.0	38.7	41.6	40.5	41.0	39.1	39.4
7. Employment rate (% population aged 25-54)	:	:	92.6	93.4	93.0	92.2	92.5	91.8	92.0	92.4	91.4
8. Employment rate (% population aged 55-64)	:	:	67.3	66.9	67.3	68.9	70.8	70.8	71.6	72.5	70.9
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	28.5	28.4	27.6	28.9	28.2	27.3	25.6	25.3	22.3
11. Part-time employment (% total employment)	:	3.4	4.5	5.0	4.0	5.5	4.8	5.0	4.3	4.4	4.8
12. Fixed term contracts (% total employees)	:	8.2	7.6	7.1	5.8	8.1	8.5	9.0	7.9	7.6	8.2
13. Employment in Services (% total employment)	:	:	65.8	65.8	65.2	64.6	64.0	64.6	65.6	64.2	64.9
14. Employment in Industry (% total employment)	:	:	27.5	27.7	27.7	28.7	29.3	29.3	29.1	29.6	29.6
15. Employment in Agriculture (% total employment)	:	:	6.7	6.5	7.1	6.7	6.6	6.1	5.3	6.2	5.5
16. Activity rate (% population aged 15-64)	:	:	81.4	81.5	81.3	82.2	83.0	82.9	82.7	82.9	82.0
17. Activity rate (% of population aged 15-24)	:	:	42.4	42.5	41.3	42.6	46.3	46.6	45.0	43.9	43.1
18. Activity rate (% of population aged 25-54)	:	:	95.3	95.3	95.2	95.2	95.2	95.3	95.3	95.0	94.0
19. Activity rate (% of population aged 55-64)	:	:	69.6	69.5	69.7	73.2	74.2	73.2	74.1	74.8	73.0
20. Total unemployment (000)	:	:	6	5	5	7	7	9	8	7	7
21. Unemployment rate (% labour force 15+)	:	:	3.2	2.6	2.9	3.6	3.6	4.3	4.0	3.4	3.2
22. Youth unemployment rate (% labour force 15-24)	:	:	6.9	6.3	7.9	8.8	9.4	11.9	9.9	10.7	8.6
23. Long term unemployment rate (% labour force)	:	:	0.5	0.6	0.5	0.7	0.9	0.8	0.7	0.8	0.5
24. Youth unemployment ratio (% population aged 15-24)	:	:	2.8	2.7	3.3	3.9	4.7	6.1	4.0	4.8	3.7

Female											
1. Total population (000)	:	:	344	347	351	356	367	373	377	386	387
2. Population aged 15-64	:	:	227	230	233	239	247	254	257	266	268
3. Total employment (000)	:	:	131	139	144	152	154	159	164	172	176
4. Population in employment aged 15-64	:	:	122	132	138	144	145	148	155	166	168
5. Employment rate (% population aged 15-64)	:	:	53.5	57.2	59.1	60.4	58.7	58.4	60.3	62.4	62.9
6. Employment rate (% population aged 15-24)	:	:	34.7	37.1	36.0	36.6	33.8	33.2	34.1	36.0	36.7
7. Employment rate (% population aged 25-54)	:	:	64.6	69.0	72.0	73.6	72.8	72.2	73.6	75.5	76.2
8. Employment rate (% population aged 55-64)	:	:	32.1	32.2	32.2	32.7	30.0	31.5	36.6	40.3	39.4
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	15.8	15.4	15.3	15.1	15.2	15.3	14.2	12.8	11.2
11. Part-time employment (% total employment)	:	11.1	13.9	12.9	11.3	13.2	13.6	14.0	12.1	10.9	11.4
12. Fixed term contracts (% total employees)	:	12.9	14.3	14.8	12.7	17.1	17.7	19.5	19.0	19.2	19.9
13. Employment in Services (% total employment)	:	:	83.5	85.0	84.9	85.8	86.7	87.5	87.7	88.5	88.5
14. Employment in Industry (% total employment)	:	:	11.5	10.4	10.1	10.1	9.2	8.8	9.4	9.0	8.9
15. Employment in Agriculture (% total employment)	:	:	5.1	4.6	4.9	4.1	4.1	3.6	2.9	2.5	2.7
16. Activity rate (% population aged 15-64)	:	:	57.7	60.6	61.8	63.3	62.8	62.5	63.8	65.4	65.7
17. Activity rate (% of population aged 15-24)	:	:	39.9	41.2	39.2	40.2	39.0	39.0	38.3	39.7	40.5
18. Activity rate (% of population aged 25-54)	:	:	69.0	72.3	74.9	76.9	77.2	76.5	77.4	78.7	79.1
19. Activity rate (% of population aged 55-64)	:	:	33.7	34.7	33.8	33.2	31.6	32.8	37.8	41.6	41.0
20. Total unemployment (000)	:	:	10	8	7	7	9	10	9	8	8
21. Unemployment rate (% labour force 15+)	:	:	7.2	5.3	4.5	4.8	6.0	6.5	5.4	4.6	4.3
22. Youth unemployment rate (% labour force 15-24)	:	:	13.0	9.7	8.3	9.1	11.6	14.2	11.2	9.5	9.3
23. Long term unemployment rate (% labour force)	:	:	2.2	1.1	1.0	1.4	1.6	1.8	1.1	0.7	0.5
24. Youth unemployment ratio (% population aged 15-24)	:	:	5.1	4.1	3.1	3.6	5.1	5.7	4.3	3.7	3.8

Source: Eurostat.

Labour market indicators: Latvia

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	2 424	2 402	2 384	2 366	2 344	2 330	2 319	2 305	2 294	2 281	2 271
2. Population aged 15-64	1 602	1 601	1 600	1 594	1 590	1 588	1 587	1 583	1 580	1 573	1 568
3. Total employment (000)	991	973	944	965	987	997	1 008	1 024	1 073	1 111	1 120
4. Population in employment aged 15-64	959	941	920	935	960	982	988	1 002	1 047	1 075	1 076
5. Employment rate (% population aged 15-64)	59.9	58.8	57.5	58.6	60.4	61.8	62.3	63.3	66.3	68.3	68.6
6. Employment rate (% population aged 15-24)	33.3	32.3	29.6	28.8	31.0	31.5	30.5	32.6	35.9	38.4	37.2
7. Employment rate (% population aged 25-54)	76.0	74.6	73.6	75.4	76.1	77.7	77.9	78.4	81.1	82.3	82.6
8. Employment rate (% population aged 55-64)	36.3	36.6	36.0	36.9	41.7	44.1	47.9	49.5	53.3	57.7	59.4
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	17.6	16.5	15.0	15.0	13.8	13.0	13.2	11.6	11.7	10.8	10.2
11. Part-time employment (% total employment)	12.8	12.1	11.3	10.3	9.7	10.3	10.4	8.3	6.5	6.4	6.3
12. Fixed term contracts (% total employees)	8.0	7.6	6.7	6.7	13.9	11.1	9.5	8.4	7.1	4.2	3.3
13. Employment in Services (% total employment)	55.9	58.0	59.8	59.2	60.4	60.8	60.9	62.3	61.8	62.0	64.1
14. Employment in Industry (% total employment)	25.5	25.5	25.9	26.0	24.8	25.9	26.5	26.5	26.8	28.2	28.0
15. Employment in Agriculture (% total employment)	18.7	16.5	14.3	14.8	14.9	13.3	12.5	11.2	11.4	9.9	7.9
16. Activity rate (% population aged 15-64)	69.8	68.5	67.2	67.7	68.8	69.2	69.7	69.6	71.3	72.8	74.4
17. Activity rate (% of population aged 15-24)	45.0	42.5	38.1	36.9	39.1	38.4	37.2	37.7	40.8	43.0	42.9
18. Activity rate (% of population aged 25-54)	87.1	86.0	85.5	86.2	85.7	86.3	86.3	85.6	86.4	87.2	88.9
19. Activity rate (% of population aged 55-64)	40.6	39.9	39.7	41.4	46.3	47.9	52.3	53.8	57.1	60.3	63.3
20. Total unemployment (000)	165	158	150	143	138	119	118	101	80	71	91
21. Unemployment rate (% labour force 15+)	14.3	14.0	13.7	12.9	12.2	10.5	10.4	8.9	6.8	6.0	7.5
22. Youth unemployment rate (% labour force 15-24)	26.8	23.6	21.4	22.9	22.0	18.0	18.1	13.6	12.2	10.7	13.1
23. Long term unemployment rate (% labour force)	7.9	7.6	7.9	7.2	5.5	4.4	4.6	4.1	2.5	1.6	1.9
24. Youth unemployment ratio (% population aged 15-24)	11.7	10.2	8.5	8.2	8.1	6.9	6.8	5.1	5.0	4.6	5.6

Male											
1. Total population (000)	1 117	1 105	1 098	1 089	1 078	1 071	1 068	1 062	1 057	1 052	1 047
2. Population aged 15-64	765	765	765	764	762	761	764	763	763	761	759
3. Total employment (000)	513	506	483	487	504	512	516	528	550	569	570
4. Population in employment aged 15-64	498	490	471	473	490	503	507	515	537	552	547
5. Employment rate (% population aged 15-64)	65.1	64.1	61.5	61.9	64.3	66.1	66.4	67.6	70.4	72.5	72.1
6. Employment rate (% population aged 15-24)	37.7	36.9	34.7	32.8	36.4	37.1	36.4	38.7	42.8	43.4	42.4
7. Employment rate (% population aged 25-54)	79.5	77.8	74.8	76.7	78.1	80.7	80.4	81.7	83.7	85.6	85.4
8. Employment rate (% population aged 55-64)	48.1	49.9	48.4	46.2	50.5	51.3	55.8	55.2	59.5	64.6	63.1
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	18.7	17.6	16.4	17.1	15.6	14.9	14.3	13.4	13.4	13.1	12.8
11. Part-time employment (% total employment)	12.5	11.0	9.7	8.6	7.6	7.9	7.7	6.3	4.7	4.9	4.5
12. Fixed term contracts (% total employees)	10.2	10.0	8.8	8.5	17.0	13.1	11.6	10.7	8.8	5.5	4.7
13. Employment in Services (% total employment)	46.8	48.7	50.2	48.1	48.5	49.0	49.5	50.0	48.3	47.6	50.6
14. Employment in Industry (% total employment)	32.1	32.9	33.6	34.0	33.1	34.2	35.2	35.5	37.4	40.2	39.3
15. Employment in Agriculture (% total employment)	21.1	18.5	16.2	18.0	18.4	16.8	15.4	14.5	14.4	12.3	10.1
16. Activity rate (% population aged 15-64)	76.4	75.1	72.7	72.6	74.1	74.1	74.3	74.4	76.2	77.6	78.6
17. Activity rate (% of population aged 15-24)	50.0	49.0	44.1	42.2	44.6	44.5	43.3	43.8	47.8	48.9	48.8
18. Activity rate (% of population aged 25-54)	91.4	90.2	88.2	89.0	89.2	89.7	89.7	89.4	90.0	91.0	92.2
19. Activity rate (% of population aged 55-64)	55.8	54.4	54.0	52.9	57.1	56.1	60.4	61.0	64.4	67.9	68.7
20. Total unemployment (000)	90	85	82	81	78	62	62	53	45	39	50
21. Unemployment rate (% labour force 15+)	15.1	14.4	14.4	14.2	13.3	10.6	10.6	9.1	7.4	6.4	8.0
22. Youth unemployment rate (% labour force 15-24)	27.4	25.5	21.2	23.4	20.4	16.6	16.0	11.8	10.5	11.2	13.2
23. Long term unemployment rate (% labour force)	8.3	7.6	8.3	8.1	6.4	4.3	4.8	4.4	3.0	1.9	1.9
24. Youth unemployment ratio (% population aged 15-24)	12.3	12.1	9.4	9.4	8.2	7.4	6.9	5.2	5.0	5.5	6.4

Female											
1. Total population (000)	1 307	1 297	1 286	1 277	1 266	1 258	1 251	1 244	1 237	1 230	1 224
2. Population aged 15-64	836	836	835	831	828	826	823	820	817	812	808
3. Total employment (000)	478	467	462	478	483	486	492	496	523	542	550
4. Population in employment aged 15-64	461	451	449	462	471	478	482	487	510	523	529
5. Employment rate (% population aged 15-64)	55.1	53.9	53.8	55.7	56.8	57.9	58.5	59.3	62.4	64.4	65.4
6. Employment rate (% population aged 15-24)	28.8	27.6	24.4	24.6	25.4	25.7	24.4	26.2	28.7	33.1	31.9
7. Employment rate (% population aged 25-54)	72.7	71.6	72.5	74.3	74.3	74.9	75.5	75.3	78.6	79.1	79.9
8. Employment rate (% population aged 55-64)	27.5	26.6	26.7	30.0	35.2	38.8	41.9	45.3	48.7	52.4	56.7
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	16.3	15.4	13.6	12.8	11.9	11.0	12.1	9.7	9.9	8.5	7.4
11. Part-time employment (% total employment)	13.1	13.2	12.8	11.9	12.0	12.7	13.2	10.4	8.3	8.0	8.1
12. Fixed term contracts (% total employees)	5.7	5.1	4.6	5.0	10.8	9.1	7.3	6.2	5.4	2.9	2.0
13. Employment in Services (% total employment)	65.5	68.1	69.9	70.6	72.6	73.0	72.9	75.4	76.1	77.1	78.2
14. Employment in Industry (% total employment)	18.4	17.5	17.8	17.8	16.2	17.2	17.5	16.9	15.7	15.6	16.2
15. Employment in Agriculture (% total employment)	16.1	14.4	12.4	11.6	11.2	9.7	9.6	7.7	8.2	7.3	5.6
16. Activity rate (% population aged 15-64)	63.9	62.4	62.1	63.2	63.9	64.7	65.3	65.1	66.7	68.3	70.5
17. Activity rate (% of population aged 15-24)	39.8	35.8	31.9	31.5	33.4	32.1	31.0	31.3	33.6	36.8	36.7
18. Activity rate (% of population aged 25-54)	83.2	82.2	83.1	83.5	82.3	83.0	83.1	82.0	82.9	83.6	85.7
19. Activity rate (% of population aged 55-64)	29.2	29.1	29.0	32.8	38.2	41.8	46.1	48.5	51.6	54.6	59.3
20. Total unemployment (000)	75	73	69	62	60	57	56	48	35	32	41
21. Unemployment rate (% labour force 15+)	13.6	13.6	12.9	11.5	11.0	10.4	10.2	8.7	6.2	5.6	6.9
22. Youth unemployment rate (% labour force 15-24)	26.0	20.8	21.6	22.3	24.3	20.0	21.3	16.2	14.7	10.0	13.1
23. Long term unemployment rate (% labour force)	7.5	7.6	7.5	6.3	4.6	4.4	4.3	3.7	1.9	1.2	1.9
24. Youth unemployment ratio (% population aged 15-24)	11.1	8.1	7.5	6.9	8.1	6.4	6.6	5.1	4.9	3.7	4.8

Source: Eurostat.

Labour market indicators: Lithuania

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	3 563	3 537	3 513	3 483	3 453	3 445	3 434	3 424	3 403	3 385	3 366
2. Population aged 15-64	2 344	2 330	2 319	2 312	2 303	2 305	2 311	2 322	2 321	2 319	2 316
3. Total employment (000)	1 490	1 457	1 399	1 346	1 395	1 426	1 425	1 461	1 487	1 529	1 522
4. Population in employment aged 15-64	1 460	1 438	1 370	1 329	1 379	1 408	1 413	1 454	1 476	1 506	1 490
5. Employment rate (% population aged 15-64)	62.3	61.7	59.1	57.5	59.9	61.1	61.2	62.6	63.6	64.9	64.3
6. Employment rate (% population aged 15-24)	33.1	31.1	25.9	22.7	23.8	22.5	20.3	21.2	23.7	25.2	26.7
7. Employment rate (% population aged 25-54)	78.2	77.6	75.2	74.1	76.9	78.9	79.4	81.0	81.7	82.5	81.2
8. Employment rate (% population aged 55-64)	39.5	40.9	40.4	38.9	41.6	44.7	47.1	49.2	49.6	53.4	53.1
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	20.4	20.1	19.7	19.9	20.2	20.5	18.7	17.1	15.8	13.7	11.5
11. Part-time employment (% total employment)	:	:	10.2	9.9	10.8	9.6	8.4	7.1	9.9	8.6	6.7
12. Fixed term contracts (% total employees)	:	:	4.4	5.8	7.2	7.2	6.3	5.5	4.5	3.5	2.4
13. Employment in Services (% total employment)	52.2	53.5	54.7	55.8	54.9	54.2	56.2	57.1	58.1	59.1	61.7
14. Employment in Industry (% total employment)	28.6	27.2	26.7	26.9	27.3	28.0	28.0	28.9	29.5	30.5	30.4
15. Employment in Agriculture (% total employment)	19.1	19.3	18.7	17.2	17.8	17.8	15.8	14.0	12.4	10.3	7.9
16. Activity rate (% population aged 15-64)	72.1	72.2	70.8	69.7	69.6	69.9	69.1	68.4	67.4	67.9	68.4
17. Activity rate (% of population aged 15-24)	43.2	42.2	36.9	33.1	30.9	30.0	26.2	25.1	26.3	27.4	30.8
18. Activity rate (% of population aged 25-54)	89.8	90.0	89.0	88.5	88.5	88.8	88.7	87.9	86.2	86.0	85.5
19. Activity rate (% of population aged 55-64)	42.4	43.4	45.1	44.9	46.9	50.5	52.6	52.8	52.9	55.6	55.6
20. Total unemployment (000)	226	235	277	273	219	204	184	133	89	69	94
21. Unemployment rate (% labour force 15+)	13.2	13.7	16.4	16.5	13.5	12.5	11.4	8.3	5.6	4.3	5.8
22. Youth unemployment rate (% labour force 15-24)	25.5	26.4	30.6	30.9	22.4	25.1	22.7	15.7	9.8	8.2	13.4
23. Long term unemployment rate (% labour force)	7.5	5.3	8.0	9.3	7.2	6.0	5.8	4.3	2.5	1.4	1.2
24. Youth unemployment ratio (% population aged 15-24)	10.2	11.1	11.0	10.4	7.1	7.5	5.9	3.9	2.6	2.2	4.1

Male											
1. Total population (000)	1 672	1 658	1 645	1 626	1 611	1 607	1 601	1 597	1 587	1 577	1 567
2. Population aged 15-64	1 128	1 121	1 116	1 109	1 104	1 108	1 113	1 119	1 121	1 121	1 121
3. Total employment (000)	:	:	688	661	702	720	728	744	750	775	769
4. Population in employment aged 15-64	747	721	675	653	692	709	720	740	743	761	752
5. Employment rate (% population aged 15-64)	66.2	64.3	60.5	58.9	62.7	64.0	64.7	66.1	66.3	67.9	67.1
6. Employment rate (% population aged 15-24)	37.4	33.8	28.9	24.6	27.1	26.3	24.0	24.8	26.4	29.6	30.9
7. Employment rate (% population aged 25-54)	79.2	77.3	74.0	73.3	78.0	79.8	81.7	83.3	84.1	84.3	82.7
8. Employment rate (% population aged 55-64)	54.4	54.4	50.6	49.2	51.5	55.3	57.6	59.1	55.7	60.8	60.2
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	22.7	23.9	23.4	23.8	21.0	19.4	17.7	16.3	14.2
11. Part-time employment (% total employment)	:	:	9.2	8.4	9.4	7.4	6.5	5.1	7.9	7.0	4.9
12. Fixed term contracts (% total employees)	:	:	5.9	7.6	9.8	9.6	8.7	7.6	6.4	4.9	2.9
13. Employment in Services (% total employment)	:	:	44.2	44.7	44.7	44.5	46.3	46.5	45.9	46.0	48.7
14. Employment in Industry (% total employment)	:	:	33.4	33.6	33.9	34.3	35.6	36.9	39.6	41.1	41.4
15. Employment in Agriculture (% total employment)	:	:	22.4	21.7	21.4	21.2	18.2	16.6	14.6	12.8	9.9
16. Activity rate (% population aged 15-64)	78.2	76.6	74.5	73.7	73.6	73.5	72.8	72.1	70.5	71.0	71.4
17. Activity rate (% of population aged 15-24)	50.9	47.4	42.2	38.3	35.2	34.1	30.9	29.5	29.3	31.8	35.4
18. Activity rate (% of population aged 25-54)	92.4	91.0	89.9	89.7	90.5	90.5	90.7	90.1	88.7	87.9	87.4
19. Activity rate (% of population aged 55-64)	58.2	59.0	58.1	59.0	59.8	62.0	63.7	63.8	59.9	63.4	63.0
20. Total unemployment (000)	130	132	159	156	117	105	91	67	47	35	50
21. Unemployment rate (% labour force 15+)	14.6	15.1	18.6	18.6	14.2	12.7	11.0	8.2	5.8	4.3	6.1
22. Youth unemployment rate (% labour force 15-24)	30.1	29.5	32.3	34.4	22.6	22.9	22.5	15.9	10.0	7.0	12.6
23. Long term unemployment rate (% labour force)	7.9	6.1	9.4	10.8	7.6	6.0	5.5	4.2	2.5	1.4	1.0
24. Youth unemployment ratio (% population aged 15-24)	13.4	13.5	13.3	13.8	8.1	7.8	7.0	4.7	2.9	2.2	4.4

Female											
1. Total population (000)	1 891	1 879	1 868	1 856	1 842	1 839	1 832	1 827	1 817	1 808	1 799
2. Population aged 15-64	1 216	1 209	1 204	1 203	1 200	1 197	1 197	1 202	1 200	1 198	1 196
3. Total employment (000)	:	:	711	685	693	706	698	717	737	754	752
4. Population in employment aged 15-64	713	717	695	676	687	699	693	714	733	745	739
5. Employment rate (% population aged 15-64)	58.6	59.4	57.7	56.2	57.2	58.4	57.8	59.4	61.0	62.2	61.8
6. Employment rate (% population aged 15-24)	28.6	28.2	22.8	20.9	20.5	18.5	16.5	17.4	20.9	20.5	22.2
7. Employment rate (% population aged 25-54)	77.4	77.9	76.3	74.8	75.8	78.0	77.3	78.8	79.5	80.8	79.7
8. Employment rate (% population aged 55-64)	28.3	30.6	32.6	31.1	34.1	36.7	39.3	41.7	45.1	47.9	47.8
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	16.8	16.0	17.0	17.2	16.3	14.7	13.9	11.0	8.8
11. Part-time employment (% total employment)	:	:	11.1	11.4	12.3	11.8	10.5	9.1	12.0	10.2	8.6
12. Fixed term contracts (% total employees)	:	:	3.1	4.2	4.9	4.8	3.9	3.6	2.7	2.3	1.9
13. Employment in Services (% total employment)	:	:	64.8	66.6	65.2	64.0	66.5	68.0	70.5	72.5	75.0
14. Employment in Industry (% total employment)	:	:	20.2	20.5	20.7	21.5	20.2	20.7	19.4	19.7	19.2
15. Employment in Agriculture (% total employment)	:	:	15.0	13.0	14.1	14.4	13.3	11.3	10.1	7.8	5.8
16. Activity rate (% population aged 15-64)	66.5	68.2	67.3	66.0	65.8	66.5	65.6	64.9	64.6	65.0	65.5
17. Activity rate (% of population aged 15-24)	35.5	36.9	31.5	27.8	26.6	25.8	21.4	20.5	23.1	22.8	26.0
18. Activity rate (% of population aged 25-54)	87.3	89.1	88.2	87.4	86.7	87.2	86.8	85.8	83.8	84.2	83.8
19. Activity rate (% of population aged 55-64)	30.4	31.6	35.2	34.3	37.2	41.8	44.2	44.5	47.6	49.7	50.0
20. Total unemployment (000)	96	103	118	117	102	98	94	66	43	34	45
21. Unemployment rate (% labour force 15+)	11.7	12.3	14.1	14.3	12.8	12.2	11.8	8.3	5.4	4.3	5.6
22. Youth unemployment rate (% labour force 15-24)	18.4	22.4	28.3	26.3	22.2	28.1	22.9	15.3	9.6	10.0	14.6
23. Long term unemployment rate (% labour force)	7.0	4.5	6.5	7.7	6.8	6.0	6.2	4.5	2.5	1.3	1.4
24. Youth unemployment ratio (% population aged 15-24)	6.8	8.7	8.7	6.9	6.1	7.3	4.9	3.1	2.2	2.3	3.8

Source: Eurostat.

Note: Indicator 1: 1998-2001 estimate.

Labour market indicators: Luxembourg

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	420	425	430	433	436	443	446	450	456	465	467
2. Population aged 15-64	282	285	288	293	295	300	301	304	307	316	318
3. Total employment (000)	238	250	264	279	287	293	299	308	319	333	349
4. Population in employment aged 15-64	171	176	181	185	187	186	188	193	195	203	202
5. Employment rate (% population aged 15-64)	60.5	61.7	62.7	63.1	63.4	62.2	62.5	63.6	63.6	64.2	63.4
6. Employment rate (% population aged 15-24)	32.9	31.8	31.9	32.3	31.2	27	23.3	24.9	23.3	22.5	23.8
7. Employment rate (% population aged 25-54)	75.1	76.9	78.2	78.7	79.0	77.8	79.3	80.7	81.0	81.9	80.0
8. Employment rate (% population aged 55-64)	25.1	26.4	26.7	25.6	28.1	30.3	30.4	31.7	33.2	32.0	34.1
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	7.9	7.7	7.3	7.0	6.9	6.8	6.7	6.5	6.2	6.0	5.9
11. Part-time employment (% total employment)	9.1	9.8	10.4	10.4	10.7	13.4	16.4	17.4	17.1	17.8	18.0
12. Fixed term contracts (% total employees)	4.9	5.2	5.3	5.6	5.1	3.1	4.8	5.3	6.1	6.8	6.2
13. Employment in Services (% total employment)	73.0	74.3	75.4	76.1	76.2	74.8	75.1	75.5	75.8	76.3	76.7
14. Employment in Industry (% total employment)	25.3	24.0	23.1	22.5	22.4	23.5	23.3	23.0	22.6	22.2	21.8
15. Employment in Agriculture (% total employment)	1.7	1.6	1.5	1.4	1.4	1.6	1.6	1.6	1.5	1.5	1.4
16. Activity rate (% population aged 15-64)	62.1	63.2	64.1	64.4	65.2	64.6	65.8	66.6	66.7	66.9	66.8
17. Activity rate (% of population aged 15-24)	35.2	34.1	34.1	34.5	33.8	30.4	28.0	28.8	27.8	26.5	29.0
18. Activity rate (% of population aged 25-54)	76.9	78.5	79.7	80.0	81.0	80.4	83.0	83.9	84.5	84.7	83.4
19. Activity rate (% of population aged 55-64)	25.3	26.7	27.0	25.7	28.2	30.7	30.9	32.4	33.6	32.7	35.1
20. Total unemployment (000)	5	4	4	4	5	7	10	9	10	9	10
21. Unemployment rate (% labour force 15+)	2.7	2.4	2.2	1.9	2.6	3.8	5.0	4.6	4.6	4.2	4.9
22. Youth unemployment rate (% labour force 15-24)	6.9	6.9	6.6	6.2	7.0	11.2	16.4	14.3	15.8	15.6	16.8
23. Long term unemployment rate (% labour force)	0.9	0.8	0.5	0.5	0.7	1.0	1.0	1.2	1.4	1.2	1.6
24. Youth unemployment ratio (% population aged 15-24)	2.3	2.3	2.2	2.2	2.6	3.3	4.7	3.9	4.5	4.0	5.2

Male											
1. Total population (000)	208	211	212	214	216	219	221	223	232	234	233
2. Population aged 15-64	142	144	146	148	149	151	152	153	153	157	161
3. Total employment (000)	150	158	167	176	179	174	176	179	181	187	199
4. Population in employment aged 15-64	106	107	109	111	112	111	111	112	111	114	115
5. Employment rate (% population aged 15-64)	74.5	74.5	75.0	75.0	75.1	73.3	72.8	73.3	72.6	72.3	71.5
6. Employment rate (% population aged 15-24)	34.9	34.1	35.0	34.6	34.3	28.0	26.0	28.4	25.4	26.5	27.0
7. Employment rate (% population aged 25-54)	92.8	92.8	92.9	93.2	93.1	91.6	92.2	92.8	92.7	92.2	90.2
8. Employment rate (% population aged 55-64)	35.2	35.8	37.2	35.9	37.7	39.7	38.3	38.3	38.7	35.6	38.7
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	8.8	8.2	8.1	7.7	7.9	7.2	7.5	7.1	7.1	6.8	5.9
11. Part-time employment (% total employment)	1.5	1.5	1.7	1.4	1.8	1.6	2.5	2.5	2.6	2.6	2.7
12. Fixed term contracts (% total employees)	4.7	5.2	4.6	5.2	4.7	2.4	4.1	4.9	5.7	6.2	5.9
13. Employment in Services (% total employment)	63.0	64.3	65.2	66.1	65.8	65.1	66.2	66.2	66.2	66.6	68.8
14. Employment in Industry (% total employment)	35.0	34.0	33.0	32.2	32.4	33.0	32.1	32.0	32.0	31.6	29.6
15. Employment in Agriculture (% total employment)	1.9	1.7	1.8	1.7	1.7	1.9	1.8	1.9	1.8	1.8	1.7
16. Activity rate (% population aged 15-64)	75.9	75.9	76.3	76.3	76.7	75.5	75.6	76.0	75.3	75.0	74.7
17. Activity rate (% of population aged 15-24)	37.1	36.3	37.2	37.1	36.6	31.0	29.6	32.1	30.6	30.6	30.9
18. Activity rate (% of population aged 25-54)	94.3	94.2	94.2	94.4	94.9	94.1	95.3	95.5	95.3	94.9	93.7
19. Activity rate (% of population aged 55-64)	35.2	36.2	37.9	36.1	37.9	40.1	38.8	39.4	38.9	36.4	39.7
20. Total unemployment (000)	2	2	2	2	2	3	4	4	4	4	5
21. Unemployment rate (% labour force 15+)	1.9	1.8	1.8	1.6	2.0	3.0	3.6	3.6	3.6	3.4	4
22. Youth unemployment rate (% labour force 15-24)	6.5	6.1	6.0	6.6	5.8	9.9	12.0	12.3	16.3	13.7	12.7
23. Long term unemployment rate (% labour force)	0.7	0.7	0.5	0.6	0.6	0.9	0.8	1.2	1.3	1.3	1.2
24. Youth unemployment ratio (% population aged 15-24)	2.2	2.2	2.2	2.5	2.3	3.0	3.6	3.8	5.2	4.1	3.9

Female											
1. Total population (000)	212	215	218	219	221	224	224	227	225	230	235
2. Population aged 15-64	140	141	142	145	146	148	149	151	154	159	157
3. Total employment (000)	88	92	97	103	109	119	123	129	138	146	150
4. Population in employment aged 15-64	65	69	71	74	76	76	77	81	84	89	87
5. Employment rate (% population aged 15-64)	46.2	48.6	50.1	50.9	51.6	50.9	51.9	53.7	54.6	56.1	55.1
6. Employment rate (% population aged 15-24)	30.8	29.4	28.8	29.8	28.0	26.1	20.5	21.3	21.2	18.4	20.6
7. Employment rate (% population aged 25-54)	56.9	60.5	63.0	63.9	64.6	63.8	66.2	68.4	69.5	71.7	69.5
8. Employment rate (% population aged 55-64)	15.5	17.2	16.4	15.2	18.4	20.6	22.2	24.9	27.8	28.6	29.3
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	6.5	6.7	6.0	5.8	5.3	6.1	5.5	5.7	5.1	5.0	5.8
11. Part-time employment (% total employment)	22.0	24.0	25.1	25.8	25.3	30.7	36.3	38.2	36.2	37.2	38.3
12. Fixed term contracts (% total employees)	5.2	5.2	6.6	6.4	5.6	4.2	5.8	5.8	6.6	7.6	6.6
13. Employment in Services (% total employment)	90.2	91.7	92.7	92.6	92.6	90.9	89.9	90.6	91.1	91.0	89.3
14. Employment in Industry (% total employment)	8.4	6.9	6.3	6.5	6.5	7.9	8.7	8.3	7.8	8.0	9.6
15. Employment in Agriculture (% total employment)	1.3	1.4	1.1	0.9	0.9	1.2	1.3	1.1	1.1	1.0	1.1
16. Activity rate (% population aged 15-64)	48.1	50.3	51.6	52.2	53.6	53.5	55.8	57.0	58.2	58.9	58.7
17. Activity rate (% of population aged 15-24)	33.2	31.7	30.9	31.8	30.9	29.7	26.4	25.5	25.0	22.3	27.1
18. Activity rate (% of population aged 25-54)	59.1	62.3	64.7	65.3	66.8	66.5	70.4	72.2	73.8	74.7	72.9
19. Activity rate (% of population aged 55-64)	15.8	17.4	16.4	15.2	18.5	21.2	22.6	25.1	28.5	29.1	30.3
20. Total unemployment (000)	3	2	2	2	3	4	6	5	5	5	6
21. Unemployment rate (% labour force 15+)	4.0	3.3	2.9	2.4	3.5	4.9	6.8	6.0	6.0	5.1	6.0
22. Youth unemployment rate (% labour force 15-24)	7.3	7.9	7.2	5.7	8.6	12.5	21.5	16.9	15.2	18.2	21.6
23. Long term unemployment rate (% labour force)	1.1	0.8	0.5	0.6	0.8	0.9	1.3	1.2	1.6	1.1	2.1
24. Youth unemployment ratio (% population aged 15-24)	2.4	2.3	2.1	2.0	2.9	3.6	5.9	4.1	3.8	3.9	6.5

Source: Eurostat.

Labour market indicators: Hungary

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	10 016	9 972	9 924	10 038	10 012	9 980	9 944	9 932	9 921	9 907	9 893
2. Population aged 15-64	6 801	6 783	6 764	6 851	6 849	6 836	6 826	6 815	6 816	6 800	6 794
3. Total employment (000)	3 672	3 796	3 846	3 855	3 856	3 906	4 178	4 172	4 187	4 181	4 130
4. Population in employment aged 15-64	3 653	3 769	3 806	3 850	3 850	3 897	3 875	3 879	3 906	3 897	3 849
5. Employment rate (% population aged 15-64)	53.7	55.6	56.3	56.2	56.2	57.0	56.8	56.9	57.3	57.3	56.7
6. Employment rate (% population aged 15-24)	33.9	34.9	33.5	30.7	28.5	26.8	23.6	21.8	21.7	21.0	20.0
7. Employment rate (% population aged 25-54)	70.3	72.3	73.0	73.1	73.0	73.7	73.6	73.7	74.2	74.6	74.4
8. Employment rate (% population aged 55-64)	17.3	19.4	22.2	23.5	25.6	28.9	31.1	33.0	33.6	33.1	31.4
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	16.0	15.6	15.1	14.4	13.8	13.4	17.3	16.7	15.4	15.0	14.7
11. Part-time employment (% total employment)	3.8	3.8	3.5	3.6	3.6	4.4	4.7	4.1	4.0	4.1	4.6
12. Fixed term contracts (% total employees)	6.5	6.2	7.1	7.5	7.3	7.5	6.8	7.0	6.7	7.3	7.9
13. Employment in Services (% total employment)	58.0	58.8	59.6	59.5	59.7	61.2	58.9	59.7	60.1	60.1	60.8
14. Employment in Industry (% total employment)	34.4	34.3	33.8	34.2	34.1	33.3	32.1	31.7	31.7	32.1	31.7
15. Employment in Agriculture (% total employment)	7.6	6.9	6.6	6.3	6.2	5.5	9.1	8.7	8.2	7.8	7.5
16. Activity rate (% population aged 15-64)	58.7	59.8	60.1	59.6	59.7	60.6	60.5	61.3	62.0	61.9	61.5
17. Activity rate (% of population aged 15-24)	40.0	40.1	38.3	34.6	32.6	31.0	27.9	27.1	26.8	25.6	25.0
18. Activity rate (% of population aged 25-54)	75.9	77.1	77.3	77.1	77.0	77.8	77.9	78.7	79.6	80.0	80.1
19. Activity rate (% of population aged 55-64)	18.3	19.9	22.9	24.2	26.4	29.8	32.0	34.3	34.9	34.5	33.1
20. Total unemployment (000)	337	282	261	235	240	245	253	302	317	312	329
21. Unemployment rate (% labour force 15+)	8.4	6.9	6.4	5.7	5.8	5.9	6.1	7.2	7.5	7.4	7.8
22. Youth unemployment rate (% labour force 15-24)	15.0	12.6	12.4	11.3	12.7	13.4	15.5	19.4	19.1	18.0	19.9
23. Long term unemployment rate (% labour force)	4.2	3.3	3.1	2.6	2.5	2.4	2.7	3.2	3.4	3.4	3.6
24. Youth unemployment ratio (% population aged 15-24)	6.0	5.1	4.8	3.9	4.1	4.1	4.3	5.2	5.1	4.6	5.0

Male											
1. Total population (000)	4 773	4 750	4 726	4 756	4 742	4 722	4 703	4 698	4 692	4 691	4 680
2. Population aged 15-64	3 324	3 315	3 313	3 340	3 338	3 329	3 329	3 328	3 328	3 319	3 321
3. Total employment (000)	2 022	2 086	2 112	2 107	2 105	2 118	2 268	2 263	2 277	2 282	2 247
4. Population in employment aged 15-64	2 011	2 069	2 089	2 102	2 100	2 113	2 102	2 101	2 122	2 126	2 093
5. Employment rate (% population aged 15-64)	60.5	62.4	63.1	62.9	62.9	63.5	63.1	63.1	63.8	64.0	63.0
6. Employment rate (% population aged 15-24)	37.6	38.7	37.3	34.4	31.2	29.8	26.3	24.4	24.5	24.2	23.2
7. Employment rate (% population aged 25-54)	76.8	78.7	79.2	79.4	79.7	80.1	80.5	80.3	81.0	81.3	81.0
8. Employment rate (% population aged 55-64)	27.0	29.7	33.2	34.1	35.5	37.8	38.4	40.6	41.4	41.7	38.5
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	19.5	19.3	18.8	17.8	17.0	16.9	21.5	20.7	19.1	18.2	18.4
11. Part-time employment (% total employment)	2.3	2.4	2.0	2.2	2.3	2.8	3.2	2.7	2.6	2.8	3.3
12. Fixed term contracts (% total employees)	7.1	6.5	7.7	8.1	7.9	8.3	7.5	7.6	7.4	7.7	8.7
13. Employment in Services (% total employment)	47.7	48.4	49.7	49.8	49.7	50.6	47.6	48.0	48.6	48.4	49.5
14. Employment in Industry (% total employment)	41.9	42.0	41.1	41.5	41.9	41.6	39.7	40.2	40.4	40.7	40.2
15. Employment in Agriculture (% total employment)	10.5	9.6	9.2	8.6	8.4	7.8	12.7	11.8	11.1	10.9	10.4
16. Activity rate (% population aged 15-64)	66.6	67.6	67.9	67.2	67.1	67.6	67.2	67.9	68.7	69.0	68.3
17. Activity rate (% of population aged 15-24)	45.1	45.0	43.2	39.2	36.0	34.6	31.4	30.3	30.1	29.3	28.6
18. Activity rate (% of population aged 25-54)	83.5	84.3	84.4	84.2	84.3	84.8	85.0	85.5	86.5	86.9	87.0
19. Activity rate (% of population aged 55-64)	28.5	30.8	34.5	35.4	36.9	38.9	39.7	42.3	43.1	43.6	40.5
20. Total unemployment (000)	199	168	159	143	139	139	137	159	165	164	174
21. Unemployment rate (% labour force 15+)	9.0	7.5	7.0	6.3	6.2	6.1	6.1	7.0	7.2	7.1	7.6
22. Youth unemployment rate (% labour force 15-24)	16.6	13.7	13.6	12.3	13.2	13.8	16.2	19.6	18.6	17.6	19.1
23. Long term unemployment rate (% labour force)	4.5	3.7	3.5	3.0	2.8	2.5	2.8	3.2	3.3	3.3	3.6
24. Youth unemployment ratio (% population aged 15-24)	7.5	6.2	5.9	4.8	4.8	4.8	5.1	6.0	5.6	5.2	5.5

Female											
1. Total population (000)	5 243	5 222	5 199	5 282	5 270	5 258	5 241	5 234	5 228	5 216	5 212
2. Population aged 15-64	3 477	3 468	3 452	3 511	3 512	3 506	3 497	3 486	3 488	3 481	3 473
3. Total employment (000)	1 649	1 711	1 734	1 749	1 752	1 788	1 910	1 909	1 910	1 899	1 883
4. Population in employment aged 15-64	1 642	1 700	1 717	1 747	1 750	1 785	1 773	1 777	1 784	1 772	1 756
5. Employment rate (% population aged 15-64)	47.2	49.0	49.7	49.8	49.8	50.9	50.7	51.0	51.1	50.9	50.6
6. Employment rate (% population aged 15-24)	30.2	31.1	29.7	26.9	25.8	23.8	20.8	19.2	18.8	17.8	16.8
7. Employment rate (% population aged 25-54)	63.9	66.1	66.9	67.0	66.5	67.4	67.0	67.2	67.6	67.9	67.9
8. Employment rate (% population aged 55-64)	9.6	11.3	13.3	14.9	17.6	21.8	25.0	26.7	27.1	26.2	25.7
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	11.6	11.2	10.5	10.2	10.0	9.2	12.3	12.0	11.0	11.1	10.4
11. Part-time employment (% total employment)	5.5	5.5	5.2	5.2	5.1	6.2	6.3	5.8	5.6	5.8	6.2
12. Fixed term contracts (% total employees)	5.8	5.8	6.5	6.8	6.6	6.7	6.1	6.4	6.0	6.8	7.0
13. Employment in Services (% total employment)	70.6	71.4	71.6	71.1	71.7	73.9	72.7	73.9	74.2	74.6	74.7
14. Employment in Industry (% total employment)	25.3	25.0	24.9	25.4	24.6	23.4	22.7	21.3	21.1	21.4	21.2
15. Employment in Agriculture (% total employment)	4.1	3.7	3.5	3.5	3.7	2.7	4.6	4.8	4.6	4.0	4.1
16. Activity rate (% population aged 15-64)	51.2	52.3	52.7	52.4	52.7	53.9	54.0	55.1	55.5	55.1	55.0
17. Activity rate (% of population aged 15-24)	34.7	35.0	33.3	29.9	29.3	27.3	24.3	23.8	23.4	21.8	21.3
18. Activity rate (% of population aged 25-54)	68.6	70.0	70.4	70.1	69.9	71.0	70.9	72.1	72.9	73.2	73.3
19. Activity rate (% of population aged 55-64)	10.2	11.4	13.5	15.1	18.0	22.4	25.8	27.7	28.2	27.3	27.0
20. Total unemployment (000)	138	114	102	92.0	101	106	116	143	152	148	155
21. Unemployment rate (% labour force 15+)	7.8	6.3	5.6	5.0	5.4	5.6	6.1	7.4	7.8	7.7	8.1
22. Youth unemployment rate (% labour force 15-24)	13.0	11.2	10.8	10.0	11.9	12.8	14.4	19.0	19.8	18.6	20.9
23. Long term unemployment rate (% labour force)	3.8	2.9	2.5	2.1	2.2	2.3	2.6	3.2	3.4	3.6	3.7
24. Youth unemployment ratio (% population aged 15-24)	4.5	4.0	3.6	3.0	3.5	3.5	3.5	4.5	4.6	4.1	4.4

Source: Eurostat.

Labour market indicators: Malta

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	:	:	433	438	396	399	400	402	406	409	411
2. Population aged 15-64	:	:	263	267	269	271	272	274	281	285	289
3. Total employment (000)	:	:	146	149	150	151	151	153	154	159	163
4. Population in employment aged 15-64	:	:	143	145	147	147	147	148	151	156	159
5. Employment rate (% population aged 15-64)	:	:	54.2	54.3	54.4	54.2	54.0	53.9	53.6	54.6	55.2
6. Employment rate (% population aged 15-24)	:	:	52.8	52.3	50.5	47.2	46.2	45.3	44.2	45.7	45.8
7. Employment rate (% population aged 25-54)	:	:	60.6	61.0	61.6	61.8	62.1	62.4	64.4	66.2	67.3
8. Employment rate (% population aged 55-64)	:	:	28.5	29.4	30.1	32.5	31.5	30.8	29.8	28.5	29.1
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	11.8	11.2	11.2	11.5	11.8	11.8	11.8	11.9	11.9
11. Part-time employment (% total employment)	:	:	6.8	7.4	8.3	9.2	8.7	9.6	10.0	10.9	11.5
12. Fixed term contracts (% total employees)	:	:	4.1	4.0	4.3	3.6	4.0	4.5	3.7	5.1	4.3
13. Employment in Services (% total employment)	62.0	63.1	63.7	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	36.0	35.0	34.3	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	2.0	2.0	1.9	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	:	:	58.0	58.1	58.5	58.6	58.2	58.1	57.6	58.4	58.8
17. Activity rate (% of population aged 15-24)	:	:	58.7	60.8	58.8	56.5	55.3	54.4	52.6	53.1	52.2
18. Activity rate (% of population aged 25-54)	:	:	64.3	63.8	65.0	65.4	65.3	65.7	67.9	69.7	70.8
19. Activity rate (% of population aged 55-64)	:	:	29.6	30.1	30.7	33.4	32.3	31.9	30.6	29.6	30.3
20. Total unemployment (000)	10	11	10	12	12	12	12	12	12	11	10
21. Unemployment rate (% labour force 15+)	:	:	6.7	7.6	7.5	7.6	7.4	7.2	7.1	6.4	6.0
22. Youth unemployment rate (% labour force 15-24)	:	:	13.7	18.8	17.1	17.2	16.8	16.2	16.5	13.8	11.9
23. Long term unemployment rate (% labour force)	:	:	4.5	3.7	3.2	3.2	3.4	3.3	2.8	2.7	2.5
24. Youth unemployment ratio (% population aged 15-24)	:	:	5.9	8.5	8.3	9.3	9.2	9.1	8.4	7.4	6.4

Male											
1. Total population (000)	:	:	211	213	196	198	198	199	202	203	204
2. Population aged 15-64	:	:	132	134	135	136	137	138	143	145	147
3. Total employment (000)	:	:	102	105	104	105	105	105	107	108	109
4. Population in employment aged 15-64	:	:	99	103	101	102	103	102	105	106	106
5. Employment rate (% population aged 15-64)	:	:	75.0	76.2	74.7	74.5	75.1	73.8	73.3	72.9	72.5
6. Employment rate (% population aged 15-24)	:	:	53.4	54.3	51.7	49.1	50.4	46.7	46.9	48.1	47.7
7. Employment rate (% population aged 25-54)	:	:	88.1	90.0	88.5	88.3	88.8	88.9	89.6	90.0	89.5
8. Employment rate (% population aged 55-64)	:	:	50.8	50.4	50.8	53.8	53.4	50.8	49.4	45.9	46.4
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	14.4	13.6	14.1	13.8	14.6	14.7	14.8	14.6	15.1
11. Part-time employment (% total employment)	:	:	3.0	3.2	3.9	3.8	4.1	4.5	4.9	4.4	4.5
12. Fixed term contracts (% total employees)	:	:	3.4	2.8	3.4	3.0	3.1	3.7	2.7	3.7	3.4
13. Employment in Services (% total employment)	:	:	59.5	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	38.0	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	2.5	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	:	:	80.5	81.3	80.1	80.2	80.2	79.1	78.1	77.6	76.9
17. Activity rate (% of population aged 15-24)	:	:	60.9	64.8	61.1	58.8	59.9	56.4	56.6	57.1	55.3
18. Activity rate (% of population aged 25-54)	:	:	93.5	94.0	93.2	93.5	93.3	93.2	93.9	94.2	93.7
19. Activity rate (% of population aged 55-64)	:	:	52.7	51.6	52.0	55.5	54.7	53.1	50.6	47.3	47.9
20. Total unemployment (000)	7	7	7	8	7	8	7	7	7	7	6
21. Unemployment rate (% labour force 15+)	:	:	6.4	6.9	6.6	6.9	6.6	6.4	6.3	5.9	5.6
22. Youth unemployment rate (% labour force 15-24)	:	:	14.9	20.5	17.6	16.8	16.3	16.6	17.8	15.7	13.6
23. Long term unemployment rate (% labour force)	:	:	4.5	4.0	3.5	3.4	3.6	3.4	3.0	2.8	2.6
24. Youth unemployment ratio (% population aged 15-24)	:	:	7.5	10.5	9.4	9.7	9.5	9.7	9.7	9.0	7.6

Female											
1. Total population (000)	:	:	222	225	200	201	202	203	204	205	207
2. Population aged 15-64	:	:	131	133	134	135	136	136	139	140	142
3. Total employment (000)	:	:	44	44	46	47	45	47	47	51	54
4. Population in employment aged 15-64	:	:	43	43	45	45	44	46	46	50	53
5. Employment rate (% population aged 15-64)	:	:	33.1	32.1	33.9	33.6	32.7	33.7	33.4	35.7	37.4
6. Employment rate (% population aged 15-24)	:	:	52.2	50.2	49.2	45.2	41.8	43.9	41.3	43.2	43.8
7. Employment rate (% population aged 25-54)	:	:	32.7	31.4	34.2	34.7	34.8	35.4	38.1	41.3	44.1
8. Employment rate (% population aged 55-64)	:	:	8.4	10.2	10.9	13.0	11.5	12.4	10.8	11.6	12.4
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	5.9	5.6	4.6	6.4	5.4	5.2	5.0	6.1	5.6
11. Part-time employment (% total employment)	:	:	15.5	17.5	18.3	21.3	19.3	21.1	21.5	24.6	25.5
12. Fixed term contracts (% total employees)	:	:	5.6	6.4	5.9	4.8	5.8	6.1	5.8	7.7	5.8
13. Employment in Services (% total employment)	:	:	73.5	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	25.8	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	0.7	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	:	:	35.2	34.6	36.7	36.8	36.0	36.9	36.5	38.6	40.1
17. Activity rate (% of population aged 15-24)	:	:	56.3	56.6	56.4	54.0	50.6	52.4	48.3	48.9	48.9
18. Activity rate (% of population aged 25-54)	:	:	34.6	33.1	36.2	36.8	36.8	37.6	40.8	44.0	46.8
19. Activity rate (% of population aged 55-64)	:	:	8.8	10.3	11.1	13.1	11.9	12.4	11.2	12.3	13.3
20. Total unemployment (000)	3	4	4	5	5	5	4	5	4	4	4
21. Unemployment rate (% labour force 15+)	:	:	7.4	9.3	9.3	9.1	9.0	8.9	8.7	7.6	6.6
22. Youth unemployment rate (% labour force 15-24)	:	:	12.3	16.9	16.7	17.8	17.4	15.8	14.9	11.6	9.9
23. Long term unemployment rate (% labour force)	:	:	4.5	2.7	2.5	2.4	3.0	3.4	2.4	2.4	2.5
24. Youth unemployment ratio (% population aged 15-24)	:	:	4.1	6.4	7.2	8.8	8.8	8.5	6.9	5.7	5.1

Source: Eurostat.

Note: Indicator 1: 2000-2001 estimate.

Labour market indicators: Netherlands

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	15 485	15 591	15 680	15 837	15 964	16 037	16 119	16 107	16 142	16 180	16 190
2. Population aged 15-64	10 618	10 670	10 722	10 801	10 871	10 920	10 960	10 943	10 964	10 986	10 970
3. Total employment (000)	7 738	7 937	8 116	8 283	8 324	8 283	8 211	8 252	8 403	8 613	8 743
4. Population in employment aged 15-64	7 458	7 650	7 819	8 005	8 089	8 042	8 014	8 013	8 152	8 345	8 468
5. Employment rate (% population aged 15-64)	70.2	71.7	72.9	74.1	74.4	73.6	73.1	73.2	74.3	76.0	77.2
6. Employment rate (% population aged 15-24)	61.9	64.5	68.7	70.4	70.0	68.3	65.9	65.2	66.2	68.4	69.3
7. Employment rate (% population aged 25-54)	80.0	81.1	81.7	82.8	82.8	82.6	82.5	82.9	84.2	85.4	86.8
8. Employment rate (% population aged 55-64)	33.9	36.4	38.2	39.6	42.3	44.3	45.2	46.1	47.7	50.9	53.0
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	15.2	14.2	13.9	13.7	13.5	13.5	13.7	13.9	14.1	14.0	13.8
11. Part-time employment (% total employment)	38.9	39.7	41.5	42.2	43.9	45.0	45.5	46.1	46.2	46.8	47.3
12. Fixed term contracts (% total employees)	13.0	12.3	13.7	14.3	14.4	14.5	14.8	15.5	16.6	18.1	18.2
13. Employment in Services (% total employment)	76.5	76.9	77.1	77.5	77.9	78.5	78.9	79.3	79.7	80.1	80.3
14. Employment in Industry (% total employment)	19.9	19.6	19.4	19.0	18.7	18.1	17.8	17.5	17.2	16.9	16.7
15. Employment in Agriculture (% total employment)	3.6	3.5	3.4	3.4	3.4	3.4	3.3	3.2	3.1	3.0	3.0
16. Activity rate (% population aged 15-64)	73.0	74.1	75.2	75.8	76.5	76.5	76.6	76.9	77.4	78.5	79.3
17. Activity rate (% of population aged 15-24)	67.4	69.3	72.9	73.8	73.7	72.9	71.6	71.0	70.8	72.7	73.2
18. Activity rate (% of population aged 25-54)	82.5	83.3	83.7	84.3	84.8	85.3	85.9	86.5	87.1	87.6	88.5
19. Activity rate (% of population aged 55-64)	34.5	37.3	39.0	40.2	43.3	45.5	46.9	48.1	49.6	52.8	54.7
20. Total unemployment (000)	296	253	230	183	232	311	387	402	336	278	243
21. Unemployment rate (% labour force 15+)	3.8	3.2	2.8	2.2	2.8	3.7	4.6	4.7	3.9	3.2	2.8
22. Youth unemployment rate (% labour force 15-24)	7.6	6.8	5.7	4.5	5.0	6.3	8.0	8.2	6.6	5.9	5.3
23. Long term unemployment rate (% labour force)	1.5	1.2	0.8	0.6	0.7	1.0	1.6	1.9	1.7	1.3	1.0
24. Youth unemployment ratio (% population aged 15-24)	5.5	4.8	4.2	3.4	3.7	4.6	5.7	5.8	4.6	4.3	3.9

Male											
1. Total population (000)	7 690	7 741	7 789	7 865	7 930	7 969	8 012	7 992	8 006	8 022	8 027
2. Population aged 15-64	5 382	5 405	5 431	5 469	5 502	5 525	5 543	5 519	5 524	5 529	5 516
3. Total employment (000)	4 489	4 543	4 635	4 695	4 681	4 626	4 572	4 561	4 631	4 713	4 758
4. Population in employment aged 15-64	4 314	4 372	4 460	4 526	4 536	4 479	4 447	4 411	4 471	4 547	4 588
5. Employment rate (% population aged 15-64)	80.2	80.9	82.1	82.8	82.4	81.1	80.2	79.9	80.9	82.2	83.2
6. Employment rate (% population aged 15-24)	62.8	64.6	70.0	71.2	70.6	68.9	66.3	65.5	67.2	68.9	69.8
7. Employment rate (% population aged 25-54)	91.4	91.7	92.2	92.7	91.8	90.6	90.2	90.3	91.4	92.1	93.0
8. Employment rate (% population aged 55-64)	47.5	49.6	50.2	51.1	54.6	56.7	56.9	56.9	58.0	61.5	63.7
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	17.0	15.8	15.7	15.3	15.5	15.9	16.0	16.3	16.7	16.7	16.5
11. Part-time employment (% total employment)	18.1	18.0	19.3	20.0	21.2	22.0	22.3	22.6	23.0	23.6	23.9
12. Fixed term contracts (% total employees)	10.5	9.7	11.2	11.9	12.1	12.9	13.4	14.3	15.4	16.6	16.6
13. Employment in Services (% total employment)	67.7	68.0	68.2	68.6	68.8	69.2	69.4	69.9	70.2	70.8	71.4
14. Employment in Industry (% total employment)	28.0	27.8	27.6	27.4	27.0	26.5	26.3	25.9	25.7	25.3	24.8
15. Employment in Agriculture (% total employment)	4.4	4.3	4.2	4.1	4.2	4.3	4.3	4.1	4.0	3.9	3.8
16. Activity rate (% population aged 15-64)	82.6	82.9	84.1	84.3	84.5	84.0	83.9	83.7	83.9	84.6	85.3
17. Activity rate (% of population aged 15-24)	68.1	68.8	73.7	74.4	74.5	73.5	72.0	71.2	71.5	73.0	73.7
18. Activity rate (% of population aged 25-54)	93.4	93.4	93.9	94.0	93.6	93.5	93.7	93.8	94.1	94.0	94.5
19. Activity rate (% of population aged 55-64)	48.2	50.6	51.2	51.8	55.8	58.2	59.1	59.5	60.4	64.0	65.9
20. Total unemployment (000)	132	104	102	83	116	165	204	209	167	133	122
21. Unemployment rate (% labour force 15+)	3.0	2.3	2.2	1.8	2.5	3.5	4.3	4.5	3.5	2.8	2.5
22. Youth unemployment rate (% labour force 15-24)	7.4	5.2	4.9	4.3	5.2	6.3	7.9	8.0	6.1	5.6	5.4
23. Long term unemployment rate (% labour force)	1.3	0.9	0.6	0.5	0.6	1.0	1.5	1.9	1.6	1.2	0.9
24. Youth unemployment ratio (% population aged 15-24)	5.2	4.2	3.7	3.2	3.9	4.6	5.7	5.7	4.3	4.1	4.0

Female											
1. Total population (000)	7 795	7 850	7 890	7 972	8 035	8 068	8 107	8 116	8 136	8 157	8 164
2. Population aged 15-64	5 236	5 266	5 291	5 332	5 368	5 395	5 417	5 424	5 441	5 457	5 454
3. Total employment (000)	3 249	3 394	3 480	3 588	3 644	3 657	3 639	3 691	3 773	3 900	3 985
4. Population in employment aged 15-64	3 145	3 278	3 359	3 479	3 553	3 562	3 567	3 603	3 681	3 798	3 880
5. Employment rate (% population aged 15-64)	60.1	62.3	63.5	65.2	66.2	66.0	65.8	66.4	67.7	69.6	71.1
6. Employment rate (% population aged 15-24)	61.0	64.4	67.3	69.6	69.5	67.8	65.4	64.9	65.1	67.9	68.8
7. Employment rate (% population aged 25-54)	68.3	70.2	70.8	72.5	73.6	74.4	74.6	75.5	77.0	78.7	80.5
8. Employment rate (% population aged 55-64)	20.3	23.1	26.1	28.0	29.9	31.8	33.4	35.2	37.2	40.1	42.2
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	12.6	12.1	11.5	11.4	10.9	10.4	10.9	10.9	10.9	10.7	10.5
11. Part-time employment (% total employment)	67.6	68.9	71.0	71.3	73.1	74.1	74.7	75.1	74.7	75.0	75.3
12. Fixed term contracts (% total employees)	16.4	15.6	16.8	17.4	17.1	16.4	16.5	16.9	18.0	19.7	20.0
13. Employment in Services (% total employment)	89.0	89.2	89.2	89.5	89.9	90.5	90.8	90.8	91.2	91.3	91.0
14. Employment in Industry (% total employment)	8.5	8.3	8.3	7.9	7.8	7.4	7.1	7.1	6.8	6.8	7.1
15. Employment in Agriculture (% total employment)	2.5	2.5	2.4	2.6	2.3	2.2	2.1	2.1	2.0	1.9	1.9
16. Activity rate (% population aged 15-64)	63.2	65.2	66.0	67.1	68.3	68.7	69.2	70.0	70.7	72.2	73.3
17. Activity rate (% of population aged 15-24)	66.8	69.8	72.0	73.1	73.0	72.3	71.1	70.8	70.1	72.4	72.6
18. Activity rate (% of population aged 25-54)	71.3	72.9	73.2	74.3	75.7	77.0	77.9	79.0	80.1	81.2	82.5
19. Activity rate (% of population aged 55-64)	20.9	24.0	26.7	28.4	30.6	32.6	34.4	36.5	38.6	41.4	43.5
20. Total unemployment (000)	164	150	128	100	116	145	183	194	169	145	121
21. Unemployment rate (% labour force 15+)	5.0	4.4	3.6	2.8	3.1	3.9	4.8	5.1	4.4	3.6	3.0
22. Youth unemployment rate (% labour force 15-24)	7.9	8.5	6.5	4.8	4.8	6.3	8.1	8.4	7.1	6.2	5.2
23. Long term unemployment rate (% labour force)	1.8	1.5	1.0	0.8	0.9	1.1	1.6	1.9	1.8	1.4	1.0
24. Youth unemployment ratio (% population aged 15-24)	5.8	5.4	4.7	3.6	3.5	4.6	5.7	5.9	4.9	4.5	3.8

Source: Eurostat.

Labour market indicators: Austria

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	7 915	7 930	7 944	7 963	7 893	7 998	8 045	8 109	8 155	8 191	8 220
2. Population aged 15-64	5 333	5 345	5 375	5 404	5 356	5 459	5 485	5 516	5 532	5 551	5 576
3. Total employment (000)	3 813	3 881	3 931	3 959	3 960	3 971	3 986	4 031	4 090	4 162	4 240
4. Population in employment aged 15-64	3 621	3 666	3 678	3 707	3 682	3 763	3 716	3 786	3 881	3 963	4 020
5. Employment rate (% population aged 15-64)	67.9	68.6	68.5	68.5	68.7	68.9	67.8	68.6	70.2	71.4	72.1
6. Employment rate (% population aged 15-24)	54.5	54.1	52.4	51.3	51.7	51.1	51.9	53.1	54.0	55.5	55.9
7. Employment rate (% population aged 25-54)	81.0	81.9	82.6	82.9	83.6	84.0	82.6	82.6	83.5	84.0	84.4
8. Employment rate (% population aged 55-64)	28.4	29.7	28.8	28.9	29.1	30.3	28.8	31.8	35.5	38.6	41.0
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	16.5	16.5	16.6	16.6	16.8	16.9	16.8	16.8	16.7	16.4	16.1
11. Part-time employment (% total employment)	15.7	16.4	16.3	18.2	19.0	18.7	19.8	21.1	21.8	22.6	23.3
12. Fixed term contracts (% total employees)	7.9	7.9	8.0	7.9	7.4	6.9	9.6	9.1	9.0	8.9	9.0
13. Employment in Services (% total employment)	65.0	65.9	66.6	67.1	67.8	68.3	68.7	69.0	69.5	69.8	70.1
14. Employment in Industry (% total employment)	26.6	26.0	25.5	25.1	24.6	24.2	23.9	23.8	23.6	23.6	23.6
15. Employment in Agriculture (% total employment)	8.4	8.2	7.9	7.8	7.7	7.6	7.4	7.2	6.9	6.6	6.4
16. Activity rate (% population aged 15-64)	71.0	71.2	71.0	71.0	71.6	72.0	71.3	72.4	73.7	74.7	75.0
17. Activity rate (% of population aged 15-24)	58.0	59.2	55.4	54.5	55.1	55.0	57.4	59.2	59.4	60.8	60.8
18. Activity rate (% of population aged 25-54)	84.4	84.7	85.3	85.4	86.6	87.3	86.3	86.4	87.1	87.4	87.3
19. Activity rate (% of population aged 55-64)	29.8	29.1	30.5	30.1	30.8	32.0	29.9	33.0	36.8	39.8	41.9
20. Total unemployment (000)	170	150	138	138	163	166	194	208	196	186	162
21. Unemployment rate (% labour force 15+)	4.5	3.9	3.6	3.6	4.2	4.3	4.9	5.2	4.8	4.4	3.8
22. Youth unemployment rate (% labour force 15-24)	6.4	5.4	5.3	5.8	6.7	8.1	9.7	10.3	9.1	8.7	8.0
23. Long term unemployment rate (% labour force)	1.3	1.2	1.0	0.9	1.1	1.1	1.4	1.3	1.3	1.2	0.9
24. Youth unemployment ratio (% population aged 15-24)	3.5	3.0	2.8	3.1	3.4	3.9	5.6	6.1	5.4	5.3	4.9

Male											
1. Total population (000)	3 821	3 830	3 840	3 854	3 805	3 877	3 898	3 939	3 964	3 985	4 001
2. Population aged 15-64	2 661	2 663	2 678	2 693	2 653	2 718	2 728	2 745	2 753	2 763	2 775
3. Total employment (000)	2 159	2 189	2 216	2 214	2 180	2 192	2 195	2 209	2 236	2 282	2 303
4. Population in employment aged 15-64	2 050	2 067	2 069	2 060	2 026	2 076	2 043	2 070	2 118	2 168	2 178
5. Employment rate (% population aged 15-64)	77.0	77.6	77.3	76.4	76.4	76.4	74.9	75.4	76.9	78.4	78.5
6. Employment rate (% population aged 15-24)	57.9	58.6	57.0	55.6	56.0	55.7	56.0	56.8	58.2	59.6	59.5
7. Employment rate (% population aged 25-54)	90.5	90.8	91.3	90.6	91.1	91.1	89.4	89.1	89.9	90.6	90.2
8. Employment rate (% population aged 55-64)	40.5	42.6	41.2	40.1	39.6	40.4	38.9	41.3	45.3	49.8	51.8
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	17.0	17.3	17.6	17.8	18.3	18.5	19.5	19.3	18.9	18.3	18.3
11. Part-time employment (% total employment)	4.4	4.2	4.1	4.8	5.1	4.7	4.9	6.1	6.5	7.2	8.1
12. Fixed term contracts (% total employees)	8.0	7.9	7.4	7.2	7.6	7.1	10.2	9.3	9.1	8.8	8.9
13. Employment in Services (% total employment)	54.1	54.7	55.2	56.0	55.8	56.2	58.0	57.9	58.4	58.9	59.3
14. Employment in Industry (% total employment)	38.2	37.6	37.0	36.5	36.6	36.2	34.7	34.8	34.6	34.5	34.2
15. Employment in Agriculture (% total employment)	7.7	7.7	7.8	7.5	7.5	7.5	7.3	7.3	7.0	6.5	6.5
16. Activity rate (% population aged 15-64)	80.3	80.5	80.1	79.4	79.6	79.9	78.5	79.3	80.5	81.7	81.4
17. Activity rate (% of population aged 15-24)	61.2	63.9	60.3	59.2	59.9	60.3	61.7	63.6	63.9	65.0	64.6
18. Activity rate (% of population aged 25-54)	94.1	93.9	94.0	93.7	94.3	94.6	92.9	92.8	93.2	93.7	93.0
19. Activity rate (% of population aged 55-64)	42.8	42.2	43.6	42.1	42.1	42.9	40.6	43.0	47.3	51.3	52.8
20. Total unemployment (000)	79	71	65	66	85	84	97	108	97	90	82
21. Unemployment rate (% labour force 15+)	3.8	3.3	3.1	3.1	4.0	4.0	4.5	4.9	4.3	3.9	3.6
22. Youth unemployment rate (% labour force 15-24)	5.0	4.3	4.7	5.2	6.4	7.3	9.3	10.7	8.9	8.3	7.9
23. Long term unemployment rate (% labour force)	1.0	1.0	0.9	0.7	1.0	1.1	1.3	1.3	1.3	1.0	0.9
24. Youth unemployment ratio (% population aged 15-24)	3.3	2.9	3.0	3.4	3.9	4.5	5.7	6.8	5.7	5.4	5.1

Female											
1. Total population (000)	4 093	4 100	4 104	4 109	4 088	4 120	4 147	4 170	4 191	4 206	4 219
2. Population aged 15-64	2 672	2 682	2 696	2 711	2 704	2 741	2 757	2 770	2 779	2 788	2 801
3. Total employment (000)	1 654	1 692	1 715	1 745	1 780	1 779	1 791	1 823	1 854	1 880	1 936
4. Population in employment aged 15-64	1 571	1 599	1 608	1 647	1 656	1 688	1 673	1 717	1 764	1 796	1 842
5. Employment rate (% population aged 15-64)	58.8	59.6	59.6	60.7	61.3	61.6	60.7	62.0	63.5	64.4	65.8
6. Employment rate (% population aged 15-24)	51.2	49.7	47.9	47.1	47.4	46.5	47.9	49.4	49.9	51.5	52.3
7. Employment rate (% population aged 25-54)	71.3	73.0	73.8	75.2	76.2	76.9	75.8	76.0	77.0	77.5	78.6
8. Employment rate (% population aged 55-64)	17.1	17.6	17.2	18.4	19.3	20.8	19.3	22.9	26.3	28.0	30.8
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	15.8	15.6	15.4	15.2	15.1	14.9	13.6	13.8	14.0	14.0	13.4
11. Part-time employment (% total employment)	30.5	32.2	32.2	35.0	35.9	36.0	38.0	39.3	40.2	41.2	41.5
12. Fixed term contracts (% total employees)	7.7	8.0	8.8	8.7	7.3	6.7	9.0	8.8	8.9	9.0	9.1
13. Employment in Services (% total employment)	78.7	79.5	80.4	80.5	81.4	82.0	81.2	81.9	82.2	82.4	82.5
14. Employment in Industry (% total employment)	12.1	11.8	11.5	11.4	10.7	10.4	11.2	11.0	11.0	11.0	11.2
15. Employment in Agriculture (% total employment)	9.2	8.7	8.1	8.1	7.9	7.6	7.6	7.1	6.9	6.6	6.3
16. Activity rate (% population aged 15-64)	61.7	62.0	62.0	62.5	63.7	64.3	64.2	65.6	67.0	67.8	68.6
17. Activity rate (% of population aged 15-24)	54.9	54.7	50.5	49.7	50.3	49.8	53.3	54.8	55.1	56.7	56.9
18. Activity rate (% of population aged 25-54)	74.6	75.5	76.5	77.2	79.0	79.9	79.6	79.9	80.9	81.1	81.5
19. Activity rate (% of population aged 55-64)	17.7	16.8	18.0	18.8	20.1	21.7	19.9	23.5	26.9	28.9	31.6
20. Total unemployment (000)	90	79	73	72	78	82	97	100	99	96	81
21. Unemployment rate (% labour force 15+)	5.4	4.7	4.3	4.2	4.4	4.7	5.4	5.5	5.2	5.0	4.1
22. Youth unemployment rate (% labour force 15-24)	7.9	6.6	6.0	6.5	7.1	8.9	10.2	9.9	9.3	9.1	8.2
23. Long term unemployment rate (% labour force)	1.8	1.5	1.2	1.1	1.2	1.1	1.4	1.4	1.3	1.4	0.9
24. Youth unemployment ratio (% population aged 15-24)	3.7	3.0	2.7	2.8	2.9	3.2	5.4	5.4	5.1	5.2	4.7

Source: Eurostat.

Note: EU LFS indicators: 2004 break in series. Indicators 3, 4 and 10, 13-15: in unit of 1000 jobs.

Labour market indicators: Poland

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	37 978	37 985	38 033	38 109	38 070	37 657	37 601	37 527	37 446	37 277	37 158
2. Population aged 15-64	25 247	25 461	25 739	25 986	26 159	26 031	26 142	26 211	26 325	26 299	26 266
3. Total employment (000)	16 281	16 138	15 749	14 195	13 766	13 606	13 773	14 075	14 530	15 174	15 783
4. Population in employment aged 15-64	14 894	14 664	14 155	13 866	13 470	13 324	13 504	13 834	14 338	14 997	15 557
5. Employment rate (% population aged 15-64)	59.0	57.6	55.0	53.4	51.5	51.2	51.7	52.8	54.5	57.0	59.2
6. Employment rate (% population aged 15-24)	28.5	25.9	24.5	24.0	21.7	21.2	21.7	22.5	24.0	25.8	27.3
7. Employment rate (% population aged 25-54)	75.3	73.8	70.9	69.2	67.4	67.5	68.2	69.6	71.8	74.9	77.5
8. Employment rate (% population aged 55-64)	32.1	31.9	28.4	27.4	26.1	26.9	26.2	27.2	28.1	29.7	31.6
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	35.1	35.6	36.2	28.1	28.2	27.3	26.8	25.8	24.5	23.5	23.2
11. Part-time employment (% total employment)	10.4	10.5	10.5	10.3	10.8	10.5	10.8	10.8	9.8	9.2	8.5
12. Fixed term contracts (% total employees)	4.7	4.6	5.8	11.7	15.4	19.4	22.7	25.7	27.3	28.2	27.0
13. Employment in Services (% total employment)	44.6	45.4	46.2	50.4	52.1	53.0	53.2	53.5	54.4	54.6	:
14. Employment in Industry (% total employment)	28.6	27.7	26.3	30.5	28.6	28.6	28.8	29.2	29.9	30.6	:
15. Employment in Agriculture (% total employment)	26.8	26.9	27.5	19.1	19.3	18.4	18.0	17.4	15.8	14.7	:
16. Activity rate (% population aged 15-64)	65.7	65.9	65.8	65.5	64.6	63.9	64.0	64.4	63.4	63.2	63.8
17. Activity rate (% of population aged 15-24)	36.2	36.1	37.8	39.7	37.8	36.4	35.9	35.7	34.2	33.0	33.1
18. Activity rate (% of population aged 25-54)	82.6	82.5	82.4	81.9	81.5	81.4	81.9	82.5	81.7	81.7	82.5
19. Activity rate (% of population aged 55-64)	34.1	34.5	31.3	30.2	29.1	30.1	29.6	30.5	30.7	31.8	33.3
20. Total unemployment (000)	1 730	2 300	2 793	3 170	3 431	3 323	3 230	3 045	2 344	1 619	1 211
21. Unemployment rate (% labour force 15+)	10.2	13.4	16.1	18.3	20.0	19.7	19.0	17.8	13.9	9.6	7.1
22. Youth unemployment rate (% labour force 15-24)	22.5	30.1	35.1	39.5	42.5	41.9	39.6	36.9	29.8	21.7	17.3
23. Long term unemployment rate (% labour force)	4.7	5.8	7.4	9.2	10.9	11.0	10.3	10.3	7.8	4.9	2.4
24. Youth unemployment ratio (% population aged 15-24)	7.7	10.2	13.3	15.7	16.1	15.2	14.2	13.2	10.2	7.1	5.7

Male											
1. Total population (000)	18 335	18 339	18 371	18 408	18 381	18 169	18 139	18 104	18 052	17 924	17 831
2. Population aged 15-64	12 447	12 561	12 713	12 832	12 919	12 873	12 940	12 986	13 027	12 976	12 931
3. Total employment (000)	9 043	8 881	8 678	7 790	7 521	7 426	7 553	7 787	8 045	8 366	8 709
4. Population in employment aged 15-64	8 279	8 064	7 783	7 592	7 352	7 271	7 400	7 643	7 927	8 258	8 573
5. Employment rate (% population aged 15-64)	66.5	64.2	61.2	59.2	56.9	56.5	57.2	58.9	60.9	63.6	66.3
6. Employment rate (% population aged 15-24)	32.7	29.5	27.3	26.6	24.2	23.9	24.8	25.4	26.9	29.2	31.0
7. Employment rate (% population aged 25-54)	83.1	80.5	77.6	75.4	73.0	73.0	73.9	76.1	78.3	81.1	84.0
8. Employment rate (% population aged 55-64)	41.5	40.6	36.7	35.6	34.5	35.2	34.1	35.9	38.4	41.4	44.1
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	37.4	38.2	39.0	30.0	30.5	29.8	29.0	28.0	26.7	25.6	25.3
11. Part-time employment (% total employment)	8.1	8.0	8.2	8.3	8.5	8.2	8.2	8.0	7.1	6.6	5.9
12. Fixed term contracts (% total employees)	5.3	5.2	6.5	12.4	16.4	20.8	23.7	26.5	28.5	28.4	26.3
13. Employment in Services (% total employment)	:	36.7	37.4	40.4	42.1	42.9	42.9	43.1	43.7	43.7	:
14. Employment in Industry (% total employment)	:	35.9	34.5	40.4	38.1	38.0	38.4	38.9	39.9	41.1	:
15. Employment in Agriculture (% total employment)	:	27.5	28.1	19.2	19.8	19.1	18.7	18.0	16.4	15.2	:
16. Activity rate (% population aged 15-64)	72.8	72.5	71.7	71.5	70.6	70.0	70.1	70.8	70.1	70.0	70.9
17. Activity rate (% of population aged 15-24)	40.5	40.1	40.9	43.1	41.6	40.5	39.7	39.5	37.5	36.5	36.5
18. Activity rate (% of population aged 25-54)	89.6	88.9	88.3	87.7	87.2	87.1	87.8	88.7	88.2	87.9	88.8
19. Activity rate (% of population aged 55-64)	44.1	44.3	40.4	39.6	38.7	39.7	39.1	40.9	42.6	44.7	46.8
20. Total unemployment (000)	782	1 097	1 343	1 583	1 779	1 738	1 681	1 553	1 202	831	599
21. Unemployment rate (% labour force 15+)	8.5	11.8	14.4	16.9	19.2	19.0	18.2	16.6	13.0	9.0	6.4
22. Youth unemployment rate (% labour force 15-24)	20.2	28.5	33.4	38.3	41.9	40.9	37.7	35.7	28.3	20	15.2
23. Long term unemployment rate (% labour force)	3.5	4.5	6.0	7.8	9.8	10.4	9.6	9.3	7.1	4.6	2.0
24. Youth unemployment ratio (% population aged 15-24)	7.8	10.6	13.6	16.5	17.4	16.6	15.0	14.1	10.6	7.3	5.6

Female											
1. Total population (000)	19 639	19 642	19 659	19 699	19 688	19 487	19 461	19 422	19 394	19 353	19 327
2. Population aged 15-64	12 800	12 899	13 027	13 153	13 241	13 158	13 203	13 225	13 298	13 322	13 335
3. Total employment (000)	7 238	7 257	7 071	6 404	6 246	6 180	6 220	6 288	6 485	6 808	7 075
4. Population in employment aged 15-64	6 616	6 603	6 372	6 274	6 119	6 054	6 103	6 191	6 411	6 738	6 984
5. Employment rate (% population aged 15-64)	51.7	51.2	48.9	47.7	46.2	46.0	46.2	46.8	48.2	50.6	52.4
6. Employment rate (% population aged 15-24)	24.3	22.4	21.8	21.5	19.3	18.3	18.6	19.6	21.0	22.4	23.7
7. Employment rate (% population aged 25-54)	67.5	67.0	64.3	63.0	61.9	62.1	62.6	63.1	65.3	68.8	71.0
8. Employment rate (% population aged 55-64)	24.1	24.5	21.4	20.4	18.9	19.8	19.4	19.7	19.0	19.4	20.7
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	32.2	32.3	32.8	25.8	25.5	24.3	24.1	23.2	21.9	21.0	20.7
11. Part-time employment (% total employment)	13.2	13.6	13.4	12.7	13.4	13.2	14.0	14.3	13.0	12.5	11.7
12. Fixed term contracts (% total employees)	4.0	3.9	4.9	10.9	14.4	17.8	21.5	24.7	26.0	27.9	27.7
13. Employment in Services (% total employment)	:	56.3	56.9	62.5	64.1	65.2	65.7	66.3	67.6	68.0	:
14. Employment in Industry (% total employment)	:	17.5	16.4	18.4	17.2	17.2	17.1	17.1	17.4	17.8	:
15. Employment in Agriculture (% total employment)	:	26.2	26.7	19.0	18.8	17.6	17.2	16.6	15.0	14.2	:
16. Activity rate (% population aged 15-64)	58.8	59.4	59.9	59.7	58.7	58.0	57.9	58.1	56.8	56.5	57.0
17. Activity rate (% of population aged 15-24)	32.0	32.2	34.8	36.4	34.1	32.2	32.0	31.8	30.7	29.3	29.6
18. Activity rate (% of population aged 25-54)	75.6	76.1	76.5	76.2	75.8	75.8	76.0	76.4	75.4	75.6	76.3
19. Activity rate (% of population aged 55-64)	25.6	26.2	23.6	22.2	20.9	22.0	21.4	21.5	20.3	20.6	21.6
20. Total unemployment (000)	948	1 204	1 450	1 587	1 652	1 585	1 550	1 493	1 142	788	612
21. Unemployment rate (% labour force 15+)	12.2	15.3	18.2	19.9	21.0	20.5	20.0	19.2	14.9	10.4	8.0
22. Youth unemployment rate (% labour force 15-24)	25.1	32.0	37.1	41.0	43.3	43.1	41.9	38.3	31.6	23.8	19.9
23. Long term unemployment rate (% labour force)	6.3	7.4	9.1	10.8	12.3	11.8	11.1	11.4	8.6	5.4	2.8
24. Youth unemployment ratio (% population aged 15-24)	7.6	9.8	13.0	14.9	14.8	13.9	13.4	12.2	9.7	7.0	5.9

Source: Eurostat.

Note: Indicator 1: 1998-2005 estimate; Indicators 3 and 10: 2005 break in series, 2008 forecast; Indicators 13-15: 2005 break in series.

Labour market indicators: Portugal

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	10 116	10 156	10 211	10 284	10 357	10 435	10 504	10 563	10 586	10 604	10 623
2. Population aged 15-64	6 842	6 871	6 909	6 950	6 992	7 038	7 084	7 115	7 116	7 135	7 145
3. Total employment (000)	4 860	4 927	5 030	5 121	5 151	5 121	5 117	5 100	5 126	5 125	5 147
4. Population in employment aged 15-64	4 572	4 633	4 724	4 796	4 812	4 792	4 806	4 800	4 830	4 837	4 872
5. Employment rate (% population aged 15-64)	66.8	67.4	68.4	69.0	68.8	68.1	67.8	67.5	67.9	67.8	68.2
6. Employment rate (% population aged 15-24)	42.5	42.6	42.2	42.9	42.2	38.8	37.1	36.1	35.8	34.9	34.7
7. Employment rate (% population aged 25-54)	80.1	80.6	81.8	82.3	81.5	81.0	81.1	80.8	81.3	81.0	81.6
8. Employment rate (% population aged 55-64)	49.6	50.1	50.7	50.2	51.4	51.6	50.3	50.5	50.1	50.9	50.8
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	21.0	20.4	20.4	20.7	20.0	20.2	19.5	19.1	18.6	18.8	18.5
11. Part-time employment (% total employment)	11.0	11.0	10.9	11.1	11.2	11.7	11.3	11.2	11.3	12.1	11.9
12. Fixed term contracts (% total employees)	17.2	18.7	19.9	20.3	21.5	20.6	19.8	19.5	20.6	22.4	22.8
13. Employment in Services (% total employment)	53.8	54.7	54.5	55.4	56.0	56.7	57.8	58.8	59.5	59.6	60.5
14. Employment in Industry (% total employment)	33.0	32.8	32.9	31.8	31.7	30.8	30.2	29.3	28.7	28.6	27.9
15. Employment in Agriculture (% total employment)	13.2	12.5	12.6	12.8	12.3	12.5	12.0	11.9	11.8	11.8	11.6
16. Activity rate (% population aged 15-64)	70.6	70.8	71.4	72.1	72.7	72.9	73.0	73.4	73.9	74.1	74.2
17. Activity rate (% of population aged 15-24)	47.6	46.8	46.3	47.3	47.7	45.4	43.8	43.0	42.7	41.9	41.6
18. Activity rate (% of population aged 25-54)	83.9	84.1	84.8	85.3	85.3	85.9	86.3	87.1	87.7	87.8	88.0
19. Activity rate (% of population aged 55-64)	51.3	51.8	52.4	51.9	53.4	54.0	53.2	53.8	53.5	54.4	54.4
20. Total unemployment (000)	252	226	206	214	271	342	365	422	428	449	427
21. Unemployment rate (% labour force 15+)	5.0	4.5	4.0	4.1	5.1	6.4	6.7	7.7	7.8	8.1	7.7
22. Youth unemployment rate (% labour force 15-24)	10.4	8.8	8.6	9.4	11.6	14.5	15.3	16.1	16.3	16.6	16.4
23. Long term unemployment rate (% labour force)	2.2	1.8	1.7	1.5	1.8	2.2	3.0	3.7	3.9	3.8	3.7
24. Youth unemployment ratio (% population aged 15-24)	5.1	4.3	4.1	4.4	5.5	6.6	6.7	6.9	6.9	6.9	6.8

Male											
1. Total population (000)	4 871	4 893	4 922	4 961	5 001	5 042	5 083	5 115	5 125	5 133	5 141
2. Population aged 15-64	3 346	3 365	3 388	3 414	3 440	3 467	3 498	3 516	3 518	3 527	3 536
3. Total employment (000)	2 704	2 718	2 770	2 815	2 824	2 789	2 781	2 753	2 772	2 765	2 770
4. Population in employment aged 15-64	2 538	2 550	2 593	2 627	2 632	2 599	2 595	2 581	2 601	2 605	2 617
5. Employment rate (% population aged 15-64)	75.9	75.8	76.5	77.0	76.5	75.0	74.2	73.4	73.9	73.8	74.0
6. Employment rate (% population aged 15-24)	46.9	47.4	48.1	48.7	47.8	43.1	41.5	40.5	39.8	39.1	38.5
7. Employment rate (% population aged 25-54)	89.8	89.6	89.9	90.1	89.2	87.8	87.4	86.7	87.4	87.2	87.6
8. Employment rate (% population aged 55-64)	62.9	61.4	62.1	61.6	61.9	62.1	59.1	58.1	58.2	58.6	58.5
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	21.8	21.1	21.4	21.7	21.0	21.3	20.9	20.1	19.6	20.1	19.5
11. Part-time employment (% total employment)	6.1	6.4	6.4	6.7	7.0	7.3	7.1	7.0	7.4	8.0	7.4
12. Fixed term contracts (% total employees)	16.1	17.2	18.3	18.4	19.9	19.0	18.7	18.7	19.5	21.8	21.7
13. Employment in Services (% total employment)	46.5	47.2	46.4	47.5	47.3	47.8	48.9	50.0	50.7	50.4	51.1
14. Employment in Industry (% total employment)	41.5	41.6	42.3	41.0	41.4	40.4	39.7	39.1	38.1	38.4	37.8
15. Employment in Agriculture (% total employment)	12.0	11.2	11.4	11.6	11.3	11.8	11.4	10.9	11.2	11.3	11.1
16. Activity rate (% population aged 15-64)	79.3	79.1	79.2	79.6	80.0	79.6	79.1	79.0	79.5	79.4	79.5
17. Activity rate (% of population aged 15-24)	51.3	51.2	51.5	52.5	53.0	49.2	47.9	46.9	46.6	45.3	44.4
18. Activity rate (% of population aged 25-54)	93.1	92.9	92.5	92.6	92.5	92.3	92.2	92.4	92.9	92.8	93.2
19. Activity rate (% of population aged 55-64)	65.3	63.9	64.4	63.6	64.3	65.2	62.8	62.4	62.7	63.0	63.0
20. Total unemployment (000)	111	109	89	92	121	161	173	198	195	197	194
21. Unemployment rate (% labour force 15+)	4.0	3.9	3.2	3.2	4.2	5.6	5.9	6.8	6.6	6.7	6.6
22. Youth unemployment rate (% labour force 15-24)	8.2	7.2	6.2	7.2	9.8	12.4	13.5	13.6	14.5	13.5	13.3
23. Long term unemployment rate (% labour force)	1.7	1.5	1.4	1.2	1.4	1.8	2.6	3.2	3.4	3.2	3.2
24. Youth unemployment ratio (% population aged 15-24)	4.4	3.8	3.4	3.8	5.2	6.1	6.5	6.4	6.8	6.1	5.9

Female											
1. Total population (000)	5 244	5 263	5 289	5 323	5 357	5 393	5 421	5 448	5 461	5 471	5 481
2. Population aged 15-64	3 496	3 506	3 521	3 536	3 553	3 572	3 586	3 599	3 598	3 608	3 609
3. Total employment (000)	2 157	2 209	2 260	2 306	2 327	2 332	2 336	2 347	2 355	2 360	2 377
4. Population in employment aged 15-64	2 033	2 084	2 131	2 168	2 180	2 193	2 211	2 219	2 229	2 232	2 255
5. Employment rate (% population aged 15-64)	58.2	59.4	60.5	61.3	61.4	61.4	61.7	61.7	62.0	61.9	62.5
6. Employment rate (% population aged 15-24)	38.1	37.7	36.2	37.0	36.5	34.4	32.5	31.4	31.6	30.6	30.8
7. Employment rate (% population aged 25-54)	70.7	72.0	73.9	74.7	74.0	74.3	74.9	74.9	75.3	74.9	75.8
8. Employment rate (% population aged 55-64)	38.0	40.3	40.6	40.3	42.2	42.4	42.5	43.7	42.8	44.0	43.9
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	19.9	19.4	19.3	19.5	18.8	18.9	18.0	17.8	17.5	17.4	17.2
11. Part-time employment (% total employment)	17.1	16.7	16.4	16.4	16.4	16.9	16.3	16.2	15.8	16.9	17.2
12. Fixed term contracts (% total employees)	18.5	20.5	21.9	22.5	23.4	22.3	21.1	20.4	21.7	23.0	24.1
13. Employment in Services (% total employment)	63.0	63.9	64.4	65.1	66.4	67.2	68.5	69.2	69.8	70.4	71.5
14. Employment in Industry (% total employment)	22.2	22.0	21.5	20.6	20.1	19.4	18.7	17.8	17.6	17.2	16.3
15. Employment in Agriculture (% total employment)	14.8	14.1	14.1	14.2	13.5	13.4	12.7	13.0	12.5	12.4	12.2
16. Activity rate (% population aged 15-64)	62.3	62.9	63.9	64.8	65.6	66.5	67.0	67.9	68.4	68.8	68.9
17. Activity rate (% of population aged 15-24)	43.9	42.5	41.0	42.1	42.4	41.5	39.5	38.9	38.7	38.4	38.6
18. Activity rate (% of population aged 25-54)	75.1	75.7	77.4	78.2	78.4	79.7	80.6	81.8	82.7	82.8	82.9
19. Activity rate (% of population aged 55-64)	39.1	41.2	41.8	41.5	43.8	44.0	44.8	46.1	45.1	46.7	46.6
20. Total unemployment (000)	141	117	116	122	149	181	192	224	233	252	233
21. Unemployment rate (% labour force 15+)	6.2	5.1	5.0	5.1	6.1	7.3	7.7	8.8	9.1	9.7	9.0
22. Youth unemployment rate (% labour force 15-24)	12.9	10.8	11.6	12.1	13.9	17.0	17.6	19.1	18.4	20.3	20.2
23. Long term unemployment rate (% labour force)	2.8	2.0	2.0	2.0	2.2	2.7	3.5	4.3	4.5	4.5	4.2
24. Youth unemployment ratio (% population aged 15-24)	5.8	4.8	4.8	5.1	5.9	7.0	6.9	7.4	7.1	7.8	7.8

Source: Eurostat.

Labour market indicators: Romania

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	22 377	22 346	22 334	22 326	22 309	21 686	21 638	21 609	21 575	21 551	21 517
2. Population aged 15-64	15 190	15 189	15 231	15 277	15 327	14 933	14 964	15 021	15 035	15 046	15 042
3. Total employment (000)	:	:	:	:	9 574	9 569	9 410	9 267	9 331	9 372	9 396
4. Population in employment aged 15-64	9 754	9 598	9 590	9 529	8 833	8 602	8 635	8 651	8 838	8 843	8 882
5. Employment rate (% population aged 15-64)	64.2	63.2	63.0	62.4	57.6	57.6	57.7	57.6	58.8	58.8	59.0
6. Employment rate (% population aged 15-24)	35.5	33.5	33.1	32.6	28.7	26.4	27.9	24.9	24.0	24.4	24.8
7. Employment rate (% population aged 25-54)	79.0	78.1	77.5	76.6	72.7	73.1	72.9	73.3	74.7	74.6	74.4
8. Employment rate (% population aged 55-64)	51.5	49.6	49.5	48.2	37.3	38.1	36.9	39.4	41.7	41.4	43.1
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	:	:	35.9	38.3	31.9	33.5	31.3	31.2	30.3
11. Part-time employment (% total employment)	15.8	15.9	16.5	16.6	11.8	11.5	10.6	10.2	9.7	9.7	9.9
12. Fixed term contracts (% total employees)	3.0	3.0	2.8	3.0	1.0	2.0	2.5	2.4	1.8	1.6	1.3
13. Employment in Services (% total employment)	:	:	:	:	34.6	33.5	36.3	36.9	38.7	:	:
14. Employment in Industry (% total employment)	:	:	:	:	30.0	28.8	30.4	29.8	30.7	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	35.4	37.6	33.3	33.3	30.6	:	:
16. Activity rate (% population aged 15-64)	68.9	68.4	68.4	67.3	63.4	62.2	63.0	62.3	63.6	63.0	62.9
17. Activity rate (% of population aged 15-24)	44.1	42.1	41.4	40.0	37.4	32.9	35.8	31.2	30.6	30.5	30.4
18. Activity rate (% of population aged 25-54)	83.2	83.2	83.0	81.6	78.6	78.0	78.3	78.2	79.9	79.0	78.3
19. Activity rate (% of population aged 55-64)	51.8	50.1	50.0	48.7	37.9	38.8	37.9	40.4	42.8	42.4	44.2
20. Total unemployment (000)	:	790	821	750	884	692	800	705	728	641	576
21. Unemployment rate (% labour force 15+)	:	7.1	7.3	6.8	8.6	7.0	8.1	7.2	7.3	6.4	5.8
22. Youth unemployment rate (% labour force 15-24)	:	20.4	20.0	18.6	23.2	19.6	21.9	20.2	21.4	20.1	18.6
23. Long term unemployment rate (% labour force)	:	3.1	3.8	3.4	4.6	4.3	4.8	4.0	4.2	3.2	2.4
24. Youth unemployment ratio (% population aged 15-24)	8.6	8.6	8.3	7.5	8.7	6.5	7.8	6.3	6.6	6.1	5.7

Male											
1. Total population (000)	10 888	10 866	10 864	10 863	10 855	10 549	10 527	10 521	10 506	10 504	10 484
2. Population aged 15-64	7 484	7 481	7 512	7 543	7 577	7 397	7 423	7 467	7 481	7 502	7 501
3. Total employment (000)	:	:	:	:	5 161	5 215	5 092	5 063	5 073	5 126	5 172
4. Population in employment aged 15-64	5 271	5 164	5 155	5 115	4 817	4 718	4 705	4 760	4 835	4 863	4 925
5. Employment rate (% population aged 15-64)	70.4	69.0	68.6	67.8	63.6	63.8	63.4	63.7	64.6	64.8	65.7
6. Employment rate (% population aged 15-24)	39.4	36.9	35.8	35.2	31.4	29.9	30.7	28.2	27.3	28.3	29.1
7. Employment rate (% population aged 25-54)	85.3	84.3	83.7	82.8	79.6	80.1	79.2	80.0	80.8	80.6	80.9
8. Employment rate (% population aged 55-64)	59.5	56.9	56.0	54.3	42.7	43.5	43.1	46.7	50.0	50.3	53.0
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	:	:	34.8	37.8	32.2	34.0	32.0	31.5	30.5
11. Part-time employment (% total employment)	13.5	13.8	14.6	14.9	10.9	10.9	10.2	10.0	9.5	9.2	9.1
12. Fixed term contracts (% total employees)	3.0	3.0	2.8	3.2	1.1	2.2	2.9	2.8	2.0	1.7	1.3
13. Employment in Services (% total employment)	:	:	:	:	31.6	30.5	32.5	33.0	34.9	:	:
14. Employment in Industry (% total employment)	:	:	:	:	34.6	33.0	34.7	34.4	35.2	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	33.8	36.5	32.8	32.6	29.9	:	:
16. Activity rate (% population aged 15-64)	75.7	75.2	75	73.6	70.4	69.3	70.0	69.4	70.7	70.1	70.6
17. Activity rate (% of population aged 15-24)	49.0	47.2	46.0	43.8	41.5	37.5	40.5	35.9	35.1	35.9	35.9
18. Activity rate (% of population aged 25-54)	90.0	90.2	90.0	88.5	86.4	85.8	85.7	85.8	87.1	85.9	85.8
19. Activity rate (% of population aged 55-64)	60.1	57.7	56.9	55.3	43.9	44.6	44.9	48.4	52.0	52.1	55.1
20. Total unemployment (000)	:	463	482	436	515	408	491	420	452	399	369
21. Unemployment rate (% labour force 15+)	:	7.7	8.0	7.3	9.2	7.6	9.1	7.8	8.2	7.2	6.7
22. Youth unemployment rate (% labour force 15-24)	:	21.8	22.2	19.7	24.3	20.3	24.2	21.6	22.3	21.1	18.8
23. Long term unemployment rate (% labour force)	:	3.2	4.0	3.6	4.8	4.6	5.5	4.6	4.7	3.6	2.9
24. Youth unemployment ratio (% population aged 15-24)	9.5	10.3	10.2	8.6	10.1	7.6	9.8	7.7	7.8	7.6	6.8

Female											
1. Total population (000)	11 489	11 480	11 471	11 463	11 454	11 136	11 111	11 089	11 069	11 047	11 032
2. Population aged 15-64	7 706	7 708	7 719	7 733	7 750	7 536	7 541	7 554	7 554	7 545	7 541
3. Total employment (000)	:	:	:	:	4 413	4 354	4 319	4 205	4 257	4 245	4 224
4. Population in employment aged 15-64	4 484	4 435	4 435	4 414	4 016	3 884	3 930	3 891	4 003	3 980	3 958
5. Employment rate (% population aged 15-64)	58.2	57.5	57.5	57.1	51.8	51.5	52.1	51.5	53.0	52.8	52.5
6. Employment rate (% population aged 15-24)	31.6	30.2	30.5	30.0	26.1	22.9	25.1	21.6	20.6	20.2	20.2
7. Employment rate (% population aged 25-54)	72.7	72.0	71.2	70.6	65.9	66.0	66.6	66.5	68.6	68.5	67.8
8. Employment rate (% population aged 55-64)	44.5	43.3	43.8	42.9	32.6	33.3	31.4	33.1	34.5	33.6	34.4
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	:	:	37.2	39.0	31.5	33.0	30.4	30.9	30.1
11. Part-time employment (% total employment)	18.3	18.2	18.6	18.4	13.0	12.2	11.2	10.5	9.8	10.4	10.8
12. Fixed term contracts (% total employees)	3.0	3.1	2.8	2.8	0.8	1.7	2.0	1.9	1.6	1.5	1.2
13. Employment in Services (% total employment)	:	:	:	:	38.1	37.1	40.9	41.6	43.2	:	:
14. Employment in Industry (% total employment)	:	:	:	:	24.6	23.9	25.3	24.3	25.4	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	37.3	39.0	33.8	34.1	31.3	:	:
16. Activity rate (% population aged 15-64)	62.3	61.8	61.9	61.1	56.6	55.3	56.2	55.3	56.6	56.0	55.2
17. Activity rate (% of population aged 15-24)	39.3	37.1	36.8	36.3	33.4	28.2	31.0	26.5	25.9	24.9	24.7
18. Activity rate (% of population aged 25-54)	76.4	76.3	76.0	74.8	70.8	70.1	70.9	70.7	72.6	72.0	70.7
19. Activity rate (% of population aged 55-64)	44.5	43.5	43.9	43.1	32.8	33.6	31.9	33.5	34.8	33.9	34.7
20. Total unemployment (000)	:	327	340	314	369	284	309	284	276	242	206
21. Unemployment rate (% labour force 15+)	:	6.3	6.5	6.1	7.9	6.4	6.9	6.4	6.1	5.4	4.7
22. Youth unemployment rate (% labour force 15-24)	:	18.6	17.2	17.4	21.8	18.7	18.9	18.4	20.2	18.7	18.3
23. Long term unemployment rate (% labour force)	:	3.0	3.5	3.1	4.4	4.1	3.8	3.4	3.6	2.7	1.8
24. Youth unemployment ratio (% population aged 15-24)	7.7	6.9	6.3	6.3	7.3	5.3	5.8	4.9	5.2	4.7	4.5

Source: Eurostat.

Note: EU LFS indicators: 2002 break in series; Indicators 3 and 10: 2007-2008 forecast.

Labour market indicators: Slovenia

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	1 985	1 983	1 989	1 992	1 995	1 996	1 997	1 999	2 006	2 015	2 033
2. Population aged 15-64	1 385	1 384	1 397	1 399	1 401	1 405	1 405	1 402	1 407	1 412	1 422
3. Total employment (000)	881	893	905	909	923	919	922	921	935	963	990
4. Population in employment aged 15-64	872	861	877	893	889	879	917	925	937	957	975
5. Employment rate (% population aged 15-64)	62.9	62.2	62.8	63.8	63.4	62.6	65.3	66.0	66.6	67.8	68.6
6. Employment rate (% population aged 15-24)	37.5	34.0	32.8	30.5	30.6	29.1	33.8	34.1	35.0	37.6	38.4
7. Employment rate (% population aged 25-54)	81.6	81.7	82.6	83.6	83.4	82.5	83.8	83.8	84.2	85.3	86.8
8. Employment rate (% population aged 55-64)	23.9	22.0	22.7	25.5	24.5	23.5	29.0	30.7	32.6	33.5	32.8
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	19.1	19.1	18.5	18.0	18.2	17.8	17.8	17.5	17.4	17.3	17.0
11. Part-time employment (% total employment)	:	6.1	6.5	6.1	6.1	6.2	9.3	9.0	9.2	9.3	9.0
12. Fixed term contracts (% total employees)	:	10.5	13.7	13.0	14.3	13.7	17.8	17.4	17.3	18.5	17.4
13. Employment in Services (% total employment)	48.9	49.9	50.6	51.1	52.8	53.6	54.5	54.9	55.8	56.3	56.8
14. Employment in Industry (% total employment)	38.1	37.8	37.6	37.5	36.3	35.8	35.3	35.1	34.7	34.7	34.6
15. Employment in Agriculture (% total employment)	13.0	12.3	11.8	11.3	10.9	10.5	10.2	10.0	9.5	9.0	8.6
16. Activity rate (% population aged 15-64)	68.2	67.3	67.5	68.1	67.8	67.1	69.8	70.7	70.9	71.3	71.8
17. Activity rate (% of population aged 15-24)	45.5	41.3	39.2	37.1	36.6	35.2	40.3	40.5	40.6	41.8	42.9
18. Activity rate (% of population aged 25-54)	87.0	87.1	87.4	88.0	88.1	87.5	88.6	88.8	89.0	89.3	90.1
19. Activity rate (% of population aged 55-64)	24.5	23.1	24.0	26.5	25.2	24.3	29.9	32.1	33.4	34.6	34.2
20. Total unemployment (000)	72	70	65	60	61	64	63	66	61	50	46
21. Unemployment rate (% labour force 15+)	7.4	7.3	6.7	6.2	6.3	6.7	6.3	6.5	6.0	4.9	4.4
22. Youth unemployment rate (% labour force 15-24)	17.8	17.6	16.3	17.8	16.5	17.3	16.1	15.9	13.9	10.1	10.4
23. Long term unemployment rate (% labour force)	3.3	3.3	4.1	3.7	3.5	3.5	3.2	3.1	2.9	2.2	1.9
24. Youth unemployment ratio (% population aged 15-24)	8.1	7.3	6.4	6.6	6.1	6.1	6.5	6.5	5.6	4.2	4.5

Male											
1. Total population (000)	968	967	972	974	976	976	977	979	984	991	1 007
2. Population aged 15-64	702	701	707	709	710	712	712	713	716	721	732
3. Total employment (000)	:	483	489	495	502	502	502	500	509	527	540
4. Population in employment aged 15-64	471	466	475	487	484	479	499	502	510	525	532
5. Employment rate (% population aged 15-64)	67.2	66.5	67.2	68.6	68.2	67.4	70.0	70.4	71.1	72.7	72.7
6. Employment rate (% population aged 15-24)	39.5	35.8	35.7	34.1	34.4	33.7	38.8	38.1	39.2	43.2	43.0
7. Employment rate (% population aged 25-54)	85.2	85.2	85.7	87.0	86.7	85.7	86.4	86.4	87.1	88.1	88.6
8. Employment rate (% population aged 55-64)	31.8	31.1	32.3	35.9	35.4	33.2	40.9	43.1	44.5	45.3	44.7
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	21.8	21.2	20.8	21.3	21.0	20.2	19.9	20.0	19.6	19.8
11. Part-time employment (% total employment)	:	5.2	5.3	5.0	4.9	5.2	7.9	7.2	7.2	7.7	7.1
12. Fixed term contracts (% total employees)	:	9.9	12.7	12.1	12.6	12.6	16.7	15.7	15.5	16.5	15.3
13. Employment in Services (% total employment)	:	40.9	42.4	42.6	44.2	44.3	44.9	45.1	45.8	46.2	:
14. Employment in Industry (% total employment)	:	47.0	46.1	46.0	44.8	44.9	44.9	44.9	44.6	45.1	:
15. Employment in Agriculture (% total employment)	:	12.1	11.5	11.4	11.0	10.8	10.3	9.9	9.7	8.7	:
16. Activity rate (% population aged 15-64)	72.6	71.8	71.9	72.8	72.5	72.0	74.5	75.1	74.9	75.8	75.8
17. Activity rate (% of population aged 15-24)	47.7	43.2	41.7	40.5	40.4	39.9	45.1	44.5	44.4	47.6	47.7
18. Activity rate (% of population aged 25-54)	90.7	90.6	90.6	91.1	91.2	90.6	91.0	91.1	91.0	91.3	91.6
19. Activity rate (% of population aged 55-64)	32.9	33.0	34.6	37.5	36.7	34.5	42.5	45.4	45.8	46.7	46.4
20. Total unemployment (000)	38	37	34	30	31	33	32	33	27	22	23
21. Unemployment rate (% labour force 15+)	7.3	7.2	6.5	5.7	5.9	6.3	5.9	6.1	4.9	4.0	4.0
22. Youth unemployment rate (% labour force 15-24)	16.9	16.8	14.6	15.7	15.0	15.6	13.9	14.5	11.6	9.4	9.9
23. Long term unemployment rate (% labour force)	3.3	3.5	4.1	3.5	3.5	3.4	3.1	2.9	2.5	1.8	1.6
24. Youth unemployment ratio (% population aged 15-24)	8.2	7.4	6.1	6.4	6.1	6.2	6.2	6.5	5.2	4.5	4.7

Female											
1. Total population (000)	1 017	1 016	1 017	1 018	1 019	1 020	1 020	1 021	1 022	1 024	1 026
2. Population aged 15-64	683	683	689	690	691	693	693	690	691	691	691
3. Total employment (000)	:	410	416	414	421	417	420	421	426	435	451
4. Population in employment aged 15-64	400	394	403	406	405	400	419	423	427	432	443
5. Employment rate (% population aged 15-64)	58.6	57.7	58.4	58.8	58.6	57.6	60.5	61.3	61.8	62.6	64.2
6. Employment rate (% population aged 15-24)	35.4	32.2	29.7	26.8	26.5	24.3	28.6	29.8	30.3	31.4	33.2
7. Employment rate (% population aged 25-54)	77.8	78.0	79.3	80.1	80.0	79.3	81.2	81.1	81.2	82.4	84.8
8. Employment rate (% population aged 55-64)	16.1	13.4	13.8	15.8	14.2	14.6	17.8	18.5	21.0	22.2	21.1
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	15.9	15.3	14.7	14.6	14.0	14.9	14.6	14.3	14.4	13.6
11. Part-time employment (% total employment)	:	7.2	7.8	7.4	7.5	7.5	11.0	11.1	11.6	11.3	11.4
12. Fixed term contracts (% total employees)	:	11.2	14.8	14.0	16.1	14.9	19.1	19.3	19.3	20.8	19.7
13. Employment in Services (% total employment)	:	60.6	60.5	61.5	63.1	65.0	66.0	66.6	68.3	68.9	:
14. Employment in Industry (% total employment)	:	26.8	27.4	27.3	26.1	24.8	23.8	23.3	22.4	21.6	:
15. Employment in Agriculture (% total employment)	:	12.6	12.1	11.3	10.7	10.2	10.2	10.1	9.4	9.5	:
16. Activity rate (% population aged 15-64)	63.6	62.6	62.9	63.2	63.0	62.1	65.0	66.1	66.7	66.6	67.5
17. Activity rate (% of population aged 15-24)	43.3	39.4	36.4	33.7	32.5	30.3	35.4	36.3	36.4	35.4	37.4
18. Activity rate (% of population aged 25-54)	83.1	83.4	84.2	84.7	84.9	84.3	86.1	86.4	87.0	87.3	88.5
19. Activity rate (% of population aged 55-64)	16.4	13.7	14.1	16.2	14.4	14.9	18.1	18.9	21.4	23.1	22.2
20. Total unemployment (000)	34	33	31	30	30	31	31	33	34	28	23
21. Unemployment rate (% labour force 15+)	7.5	7.6	7.0	6.8	6.8	7.1	6.9	7.1	7.2	5.9	4.8
22. Youth unemployment rate (% labour force 15-24)	18.8	18.6	18.3	20.4	18.6	19.8	19.2	17.8	16.8	11.2	11.3
23. Long term unemployment rate (% labour force)	3.2	3.1	4.2	4.0	3.6	3.6	3.4	3.3	3.5	2.7	2.1
24. Youth unemployment ratio (% population aged 15-24)	7.9	7.1	6.7	6.9	6.0	6.0	6.8	6.4	6.1	4.0	4.2

Source: Eurostat.

Labour market indicators: Slovakia

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	5 358	5 369	5 377	5 379	5 384	5 389	5 370	5 379	5 389	5 391	5 396
2. Population aged 15-64	3 619	3 657	3 693	3 723	3 728	3 733	3 792	3 824	3 862	3 873	3 892
3. Total employment (000)	2 119	2 065	2 025	2 037	2 038	2 061	2 056	2 084	2 132	2 177	2 237
4. Population in employment aged 15-64	2 191	2 125	2 096	2 115	2 118	2 155	2 160	2 207	2 295	2 351	2 423
5. Employment rate (% population aged 15-64)	60.6	58.1	56.8	56.8	56.8	57.7	57.0	57.7	59.4	60.7	62.3
6. Employment rate (% population aged 15-24)	35.0	31.0	29.0	27.7	27.0	27.4	26.3	25.6	25.9	27.6	26.2
7. Employment rate (% population aged 25-54)	78.5	76.1	74.7	74.8	75.0	76.0	74.7	75.3	77.2	78.0	80.1
8. Employment rate (% population aged 55-64)	22.8	22.3	21.3	22.4	22.8	24.6	26.8	30.3	33.1	35.6	39.2
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	7.1	8.0	8.3	8.8	9.0	10.1	12.3	13.0	12.9	13.2	13.8
11. Part-time employment (% total employment)	2.3	2.1	2.1	2.3	1.9	2.4	2.7	2.5	2.8	2.6	2.7
12. Fixed term contracts (% total employees)	4.2	3.9	4.8	4.9	4.9	4.9	5.5	5.0	5.1	5.1	4.7
13. Employment in Services (% total employment)	56.3	58.0	59.4	60.2	60.9	60.9	60.9	61.6	62.1	62.1	62.0
14. Employment in Industry (% total employment)	36.6	35.7	34.8	34.4	34.1	34.6	34.6	34.0	33.9	34.3	34.4
15. Employment in Agriculture (% total employment)	7.0	6.3	5.7	5.4	5.0	4.5	4.5	4.4	4.0	3.6	3.6
16. Activity rate (% population aged 15-64)	69.3	69.5	69.9	70.4	69.9	70.0	69.7	68.9	68.6	68.3	68.8
17. Activity rate (% of population aged 15-24)	46.8	46.8	46.0	45.5	43.4	41.1	39.3	36.6	35.3	34.6	32.4
18. Activity rate (% of population aged 25-54)	87.4	87.6	88.4	88.9	88.6	89.5	88.9	88.0	87.6	86.9	87.8
19. Activity rate (% of population aged 55-64)	24.6	24.6	24.3	25.5	26.9	28.5	31.7	35.0	36.7	38.8	41.9
20. Total unemployment (000)	317	417	485	507	487	460	483	430	355	296	256
21. Unemployment rate (% labour force 15+)	12.6	16.4	18.8	19.3	18.7	17.6	18.2	16.3	13.4	11.1	9.5
22. Youth unemployment rate (% labour force 15-24)	25.1	33.8	36.9	39.2	37.7	33.4	33.1	30.1	26.6	20.3	19.0
23. Long term unemployment rate (% labour force)	6.5	7.8	10.3	11.3	12.2	11.4	11.8	11.7	10.2	8.3	6.6
24. Youth unemployment ratio (% population aged 15-24)	11.8	15.8	17.0	17.8	16.3	13.7	13.0	11.0	9.4	7.0	6.2

Male											
1. Total population (000)	2 593	2 600	2 604	2 602	2 608	2 613	2 601	2 609	2 616	2 617	2 621
2. Population aged 15-64	1 780	1 802	1 822	1 836	1 842	1 847	1 878	1 899	1 922	1 928	1 940
3. Total employment (000)	1 167	1 127	1 096	1 098	1 107	1 119	1 130	1 159	1 196	1 221	1 254
4. Population in employment aged 15-64	1 207	1 159	1 133	1 139	1 149	1 170	1 186	1 227	1 288	1 319	1 357
5. Employment rate (% population aged 15-64)	67.8	64.3	62.2	62.0	62.4	63.3	63.2	64.6	67.0	68.4	70.0
6. Employment rate (% population aged 15-24)	38.0	32.9	29.8	28.9	28.7	29.3	28.0	28.1	29.2	30.9	30.8
7. Employment rate (% population aged 25-54)	84.9	81.7	79.6	79.0	79.5	80.5	80.0	81.4	84.1	85.0	86.4
8. Employment rate (% population aged 55-64)	39.1	36.8	35.4	37.7	39.1	41.0	43.8	47.8	49.8	52.5	56.7
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	9.5	10.8	11.3	11.9	12.5	13.5	16.4	17.6	17.2	17.6	18.4
11. Part-time employment (% total employment)	1.1	1.2	1.1	1.2	1.1	1.3	1.4	1.3	1.3	1.1	1.4
12. Fixed term contracts (% total employees)	4.0	4.1	5.1	5.1	5.2	5.3	6.0	5.1	5.0	4.9	4.6
13. Employment in Services (% total employment)	44.6	46.2	47.8	48.5	49.6	49.4	49.4	50.2	50.7	49.7	49.6
14. Employment in Industry (% total employment)	46.4	45.5	44.4	44.1	43.8	44.5	44.2	43.8	43.8	45.2	45.5
15. Employment in Agriculture (% total employment)	9.1	8.3	7.8	7.4	6.6	6.1	6.3	6.1	5.5	5.1	5.0
16. Activity rate (% population aged 15-64)	77.2	76.9	76.8	77.4	76.7	76.7	76.5	76.5	76.4	75.9	76.4
17. Activity rate (% of population aged 15-24)	51.8	50.9	49.4	49.8	47.5	44.9	42.9	40.7	39.7	38.9	37.8
18. Activity rate (% of population aged 25-54)	93.7	93.7	93.9	94.0	93.4	94.1	93.8	93.8	94.0	93.1	93.4
19. Activity rate (% of population aged 55-64)	42.0	41.1	41.0	43.1	46.3	48.1	51.9	55.1	55.2	57.0	59.9
20. Total unemployment (000)	168	227	265	282	264	247	251	225	181	145	124
21. Unemployment rate (% labour force 15+)	12.2	16.3	18.9	19.8	18.6	17.4	17.4	15.5	12.3	9.9	8.4
22. Youth unemployment rate (% labour force 15-24)	26.6	35.3	39.7	42.1	39.5	34.8	34.7	31.0	26.4	20.4	18.5
23. Long term unemployment rate (% labour force)	6.0	7.4	10.3	11.3	11.9	11.3	11.3	11.2	9.4	7.5	5.8
24. Youth unemployment ratio (% population aged 15-24)	13.8	18.0	19.6	21.0	18.7	15.6	14.9	12.6	10.5	7.9	7.0

Female											
1. Total population (000)	2 766	2 770	2 774	2 776	2 776	2 777	2 768	2 770	2 773	2 774	2 775
2. Population aged 15-64	1 839	1 855	1 871	1 886	1 886	1 886	1 914	1 926	1 940	1 946	1 952
3. Total employment (000)	952	938	929	939	931	941	926	925	936	956	984
4. Population in employment aged 15-64	985	966	963	976	969	985	974	980	1 008	1 032	1 066
5. Employment rate (% population aged 15-64)	53.5	52.1	51.5	51.8	51.4	52.2	50.9	50.9	51.9	53.0	54.6
6. Employment rate (% population aged 15-24)	32.1	29.0	28.2	26.5	25.3	25.4	24.6	23.1	22.5	24.1	21.5
7. Employment rate (% population aged 25-54)	72.1	70.6	69.8	70.7	70.6	71.5	69.3	69.2	70.2	71.0	73.7
8. Employment rate (% population aged 55-64)	9.4	10.3	9.8	9.8	9.5	11.2	12.6	15.6	18.9	21.2	24.2
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	4.2	4.6	4.8	5.1	4.9	6.1	7.2	7.1	7.5	7.5	7.8
11. Part-time employment (% total employment)	3.8	3.2	3.1	3.5	2.7	3.8	4.2	4.1	4.7	4.5	4.2
12. Fixed term contracts (% total employees)	4.4	3.6	4.5	4.7	4.5	4.6	5.1	4.9	5.2	5.3	4.8
13. Employment in Services (% total employment)	70.0	71.6	72.7	73.3	73.6	73.9	74.2	75.4	76.1	77.0	77.1
14. Employment in Industry (% total employment)	25.3	24.5	23.9	23.5	23.2	23.5	23.3	22.3	21.8	21.2	21.0
15. Employment in Agriculture (% total employment)	4.7	3.9	3.4	3.2	3.2	2.7	2.4	2.4	2.1	1.9	1.9
16. Activity rate (% population aged 15-64)	61.7	62.3	63.2	63.7	63.2	63.5	63.0	61.5	60.9	60.8	61.3
17. Activity rate (% of population aged 15-24)	41.9	42.7	42.6	41.3	39.2	37.2	35.7	32.4	30.9	30.2	26.7
18. Activity rate (% of population aged 25-54)	81.1	81.5	82.9	83.9	83.9	84.8	84.1	82.1	81.2	80.7	82.1
19. Activity rate (% of population aged 55-64)	10.3	11.1	10.7	11.0	11.1	12.4	14.8	18.1	20.9	23.3	26.4
20. Total unemployment (000)	150	190	220	225	223	213	232	205	175	150	131
21. Unemployment rate (% labour force 15+)	13.1	16.4	18.6	18.7	18.7	17.8	19.2	17.2	14.7	12.7	10.9
22. Youth unemployment rate (% labour force 15-24)	23.4	32.1	33.8	35.7	35.5	31.7	31.0	28.8	27.0	20.2	19.8
23. Long term unemployment rate (% labour force)	7.1	8.3	10.2	11.3	12.5	11.7	12.4	12.3	11.2	9.3	7.6
24. Youth unemployment ratio (% population aged 15-24)	9.8	13.7	14.4	14.7	13.9	11.8	11.1	9.3	8.3	6.1	5.3

Source: Eurostat.

Note: Indicators 3 and 10, 13-15: 2008 estimate.

Labour market indicators: Finland

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	4 171	4 353	4 920	5 166	5 180	5 193	5 205	5 225	5 242	5 266	5 289
2. Population aged 15-64	3 416	3 441	3 452	3 450	3 458	3 464	3 467	3 476	3 484	3 497	3 514
3. Total employment (000)	2 193	2 247	2 297	2 331	2 353	2 356	2 365	2 397	2 440	2 493	2 534
4. Population in employment aged 15-64	2 212	2 282	2 319	2 350	2 354	2 345	2 345	2 378	2 416	2 459	2 497
5. Employment rate (% population aged 15-64)	64.6	66.4	67.2	68.1	68.1	67.7	67.6	68.4	69.3	70.3	71.1
6. Employment rate (% population aged 15-24)	36.1	40.0	41.1	41.8	40.7	39.7	39.4	40.5	42.1	44.6	44.7
7. Employment rate (% population aged 25-54)	79.1	80.4	80.9	81.5	81.6	81.1	81.0	81.7	82.4	83.4	84.3
8. Employment rate (% population aged 55-64)	36.2	39.0	41.6	45.7	47.8	49.6	50.9	52.7	54.5	55.0	56.5
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	12.4	12.4	12.2	11.9	11.8	11.8	11.7	11.7	11.8	11.7	11.9
11. Part-time employment (% total employment)	11.4	12.1	12.3	12.2	12.8	13.0	13.5	13.7	14.0	14.1	13.3
12. Fixed term contracts (% total employees)	17.4	16.8	16.3	16.4	16.0	16.3	16.1	16.5	16.4	15.9	15.0
13. Employment in Services (% total employment)	65.9	66.0	66.3	67.0	67.9	68.5	69.1	69.1	69.2	69.3	69.6
14. Employment in Industry (% total employment)	27.8	27.8	27.8	27.4	26.8	26.3	25.8	25.8	25.8	25.8	25.6
15. Employment in Agriculture (% total employment)	6.3	6.2	6.0	5.6	5.4	5.3	5.1	5.1	5.0	4.9	4.8
16. Activity rate (% population aged 15-64)	72.3	73.9	74.5	75	74.9	74.5	74.2	74.7	75.2	75.6	76.0
17. Activity rate (% of population aged 15-24)	45.1	50.9	52.3	52.1	51.5	50.7	49.7	50.7	51.8	53.4	53.5
18. Activity rate (% of population aged 25-54)	87.0	87.7	87.9	88.0	88.0	87.5	87.4	87.7	87.8	88.0	88.6
19. Activity rate (% of population aged 55-64)	41.8	43.2	45.9	50.3	52.1	53.7	54.9	56.6	58.5	58.8	59.7
20. Total unemployment (000)	285	261	253	238	237	235	229	220	204	183	172
21. Unemployment rate (% labour force 15+)	11.4	10.2	9.8	9.1	9.1	9.0	8.8	8.4	7.7	6.9	6.4
22. Youth unemployment rate (% labour force 15-24)	23.5	21.4	21.4	19.8	21.0	21.8	20.7	20.1	18.7	16.5	16.5
23. Long term unemployment rate (% labour force)	4.1	3.0	2.8	2.5	2.3	2.3	2.1	2.2	1.9	1.6	1.2
24. Youth unemployment ratio (% population aged 15-24)	10.8	10.9	11.2	10.3	10.8	11.0	10.3	10.2	9.7	8.8	8.8

Male											
1. Total population (000)	2 049	2 111	2 386	2 512	2 521	2 529	2 536	2 547	2 555	2 569	2 581
2. Population aged 15-64	1 714	1 729	1 734	1 733	1 738	1 741	1 742	1 747	1 750	1 758	1 766
3. Total employment (000)	1 161	1 180	1 207	1 221	1 219	1 223	1 229	1 241	1 264	1 290	1 316
4. Population in employment aged 15-64	1 168	1 196	1 216	1 227	1 216	1 213	1 214	1 228	1 249	1 268	1 291
5. Employment rate (% population aged 15-64)	67.8	69.2	70.1	70.8	70.0	69.7	69.7	70.3	71.4	72.1	73.1
6. Employment rate (% population aged 15-24)	38.3	41.7	42.2	42.9	41.1	40.1	39.4	40.4	42.6	44.5	44.3
7. Employment rate (% population aged 25-54)	82.4	83.5	84.3	84.7	83.8	83.3	83.8	84.4	85.2	86.0	87.3
8. Employment rate (% population aged 55-64)	38.4	40.1	42.9	46.6	48.5	51.0	51.4	52.8	54.8	55.1	57.1
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	15.6	15.9	15.8	15.4	15.2	15.2	15.3	15.3	15.6	15.5	15.5
11. Part-time employment (% total employment)	7.3	7.7	8.0	7.9	8.3	8.7	9.0	9.2	9.3	9.3	8.9
12. Fixed term contracts (% total employees)	14.3	13.8	12.9	12.9	12.5	12.6	12.6	12.9	12.6	12.4	11.2
13. Employment in Services (% total employment)	51.9	51.7	51.7	52.7	53.4	53.8	54.6	54.5	54.2	53.8	54.2
14. Employment in Industry (% total employment)	40.0	40.2	40.4	39.9	39.6	39.2	38.4	38.6	38.9	39.4	39.2
15. Employment in Agriculture (% total employment)	8.1	8.1	7.9	7.4	7.0	7.0	7.1	6.9	6.8	6.9	6.6
16. Activity rate (% population aged 15-64)	75.6	76.7	77.2	77.6	77.0	76.8	76.4	76.6	77.1	77.2	77.9
17. Activity rate (% of population aged 15-24)	47.9	52.8	53.6	53.3	52.1	51.4	50.5	50.9	52.6	53.3	53.4
18. Activity rate (% of population aged 25-54)	89.9	90.6	90.8	90.9	90.5	90.1	90.1	90.3	90.3	90.4	91.2
19. Activity rate (% of population aged 55-64)	44.8	44.7	47.3	51.3	53.0	55.3	55.6	56.9	58.9	59.1	60.6
20. Total unemployment (000)	143	130	122	117	123	124	118	111	101	90	85
21. Unemployment rate (% labour force 15+)	10.9	9.8	9.1	8.6	9.1	9.2	8.7	8.2	7.4	6.5	6.1
22. Youth unemployment rate (% labour force 15-24)	22.8	20.8	21.1	19.6	21.2	21.9	22.0	20.6	19.0	16.4	17.1
23. Long term unemployment rate (% labour force)	4.3	3.2	2.8	2.7	2.5	2.6	2.3	2.4	2.1	1.7	1.3
24. Youth unemployment ratio (% population aged 15-24)	11.1	11.0	11.3	10.4	11.0	11.3	11.1	10.5	10.0	8.8	9.2

Female											
1. Total population (000)	2 122	2 241	2 534	2 654	2 659	2 664	2 669	2 678	2 687	2 697	2 708
2. Population aged 15-64	1 702	1 712	1 718	1 717	1 720	1 723	1 725	1 728	1 734	1 739	1 748
3. Total employment (000)	1 032	1 067	1 090	1 110	1 134	1 133	1 136	1 156	1 176	1 203	1 218
4. Population in employment aged 15-64	1 044	1 086	1 103	1 123	1 138	1 132	1 131	1 150	1 167	1 191	1 206
5. Employment rate (% population aged 15-64)	61.2	63.4	64.2	65.4	66.2	65.7	65.6	66.5	67.3	68.5	69.0
6. Employment rate (% population aged 15-24)	33.9	38.3	40.0	40.7	40.3	39.2	39.4	40.6	41.6	44.7	45.1
7. Employment rate (% population aged 25-54)	75.7	77.1	77.3	78.1	79.2	78.9	78.2	79.0	79.6	80.6	81.2
8. Employment rate (% population aged 55-64)	34.1	38.0	40.4	45.0	47.2	48.3	50.4	52.7	54.3	55.0	55.8
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	8.8	8.5	8.3	8.2	8.1	8.1	7.9	7.8	7.8	7.7	8.0
11. Part-time employment (% total employment)	15.9	16.9	17.0	16.8	17.5	17.7	18.4	18.6	19.2	19.3	18.2
12. Fixed term contracts (% total employees)	20.5	19.8	19.8	19.9	19.5	20.0	19.5	20.0	20.0	19.4	18.7
13. Employment in Services (% total employment)	81.5	81.7	82.3	82.6	83.2	84.2	84.6	84.8	85.2	85.8	86.2
14. Employment in Industry (% total employment)	14.1	14.2	13.8	13.7	13.1	12.4	12.3	12.2	11.8	11.4	10.9
15. Employment in Agriculture (% total employment)	4.4	4.1	3.8	3.7	3.6	3.4	3.1	3.1	3.0	2.8	2.9
16. Activity rate (% population aged 15-64)	69.1	71.1	71.9	72.4	72.8	72.2	72	72.8	73.3	73.8	73.9
17. Activity rate (% of population aged 15-24)	42.5	49.1	51.0	50.9	50.9	50.0	48.9	50.4	51.0	53.6	53.5
18. Activity rate (% of population aged 25-54)	84.0	84.8	84.9	85.0	85.5	84.8	84.5	85.1	85.3	85.6	85.9
19. Activity rate (% of population aged 55-64)	38.9	41.8	44.5	49.4	51.2	52.2	54.3	56.4	58.2	58.4	58.8
20. Total unemployment (000)	142	131	131	121	114	111	111	109	104	93	87
21. Unemployment rate (% labour force 15+)	12.0	10.7	10.6	9.7	9.1	8.9	8.9	8.6	8.1	7.2	6.7
22. Youth unemployment rate (% labour force 15-24)	24.3	22.1	21.6	20	20.9	21.6	19.4	19.5	18.4	16.6	15.8
23. Long term unemployment rate (% labour force)	3.9	2.8	2.7	2.3	2.0	2.0	2.0	2.0	1.8	1.4	1.1
24. Youth unemployment ratio (% population aged 15-24)	10.6	10.9	11.1	10.2	10.6	10.8	9.5	9.8	9.4	8.9	8.4

Source: Eurostat.

Labour market indicators: Sweden

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	8 818	8 834	8 857	8 889	8 930	8 969	9 006	9 039	9 084	9 147	9 203
2. Population aged 15-64	5 670	5 686	5 708	5 739	5 776	5 821	5 855	5 896	5 951	6 002	6 046
3. Total employment (000)	4 112	4 198	4 301	4 391	4 393	4 368	4 337	4 349	4 423	4 518	4 559
4. Population in employment aged 15-64	3 988	4 078	4 168	4 249	4 252	4 242	4 220	4 272	4 352	4 453	4 494
5. Employment rate (% population aged 15-64)	70.3	71.7	73.0	74.0	73.6	72.9	72.1	72.5	73.1	74.2	74.3
6. Employment rate (% population aged 15-24)	37.7	39.9	42.2	44.2	42.8	41.2	39.2	38.7	40.3	42.2	42.2
7. Employment rate (% population aged 25-54)	81.4	82.7	83.9	84.6	84.1	83.5	82.9	83.9	84.7	86.1	86.5
8. Employment rate (% population aged 55-64)	63.0	63.9	64.9	66.7	68.0	68.6	69.1	69.4	69.6	70.0	70.1
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	6.7	6.7	6.5	6.1	5.9	5.5	5.7	5.7	5.7	5.6	5.3
11. Part-time employment (% total employment)	19.8	19.7	19.5	21.1	21.5	22.9	23.6	24.7	25.1	25.0	26.6
12. Fixed term contracts (% total employees)	16.1	16.5	15.8	15.3	15.2	15.1	15.5	16.0	17.3	17.5	16.1
13. Employment in Services (% total employment)	71.8	72.3	72.7	72.9	73.4	74.0	74.6	74.8	75.1	75.1	75.1
14. Employment in Industry (% total employment)	25.1	24.7	24.3	24.4	24.0	23.6	23.0	22.9	22.8	22.7	22.7
15. Employment in Agriculture (% total employment)	3.1	3.0	3.0	2.7	2.6	2.5	2.4	2.3	2.2	2.2	2.2
16. Activity rate (% population aged 15-64)	76.2	76.8	77.3	77.9	77.6	77.3	77.2	78.7	78.8	79.1	79.3
17. Activity rate (% of population aged 15-24)	45.7	46.8	48.1	50.0	49.1	47.7	47.2	50.2	51.3	52.2	52.8
18. Activity rate (% of population aged 25-54)	87.3	87.6	87.9	88.0	87.7	87.7	87.7	89.5	89.4	90.0	90.4
19. Activity rate (% of population aged 55-64)	66.4	67.6	68.6	70.0	71.2	71.9	72.7	72.6	72.8	72.8	72.8
20. Total unemployment (000)	362	300	253	224	229	260	296	349	336	296	303
21. Unemployment rate (% labour force 15+)	8.2	6.7	5.6	4.9	4.9	5.6	6.3	7.4	7.0	6.1	6.2
22. Youth unemployment rate (% labour force 15-24)	16.1	12.3	10.5	10.9	11.9	13.4	16.3	21.7	21.5	19.1	20.0
23. Long term unemployment rate (% labour force)	2.6	1.9	1.4	1.0	1.0	1.0	1.2	:	1.1	0.8	0.8
24. Youth unemployment ratio (% population aged 15-24)	8.0	6.9	5.9	5.9	6.3	6.5	8.0	11.5	11.0	10.1	10.7

Male											
1. Total population (000)	4 340	4 353	4 371	4 393	4 421	4 443	4 463	4 479	4 504	4 540	4 567
2. Population aged 15-64	2 879	2 887	2 899	2 916	2 935	2 957	2 974	2 993	3 020	3 048	3 071
3. Total employment (000)	2 163	2 204	2 256	2 293	2 286	2 272	2 259	2 282	2 327	2 378	2 404
4. Population in employment aged 15-64	2 096	2 137	2 179	2 208	2 200	2 195	2 189	2 228	2 280	2 333	2 357
5. Employment rate (% population aged 15-64)	72.8	74.0	75.1	75.7	74.9	74.2	73.6	74.4	75.5	76.5	76.7
6. Employment rate (% population aged 15-24)	41.2	43.0	44.2	43.7	41.8	40.4	38.6	37.7	40.2	42.0	42.2
7. Employment rate (% population aged 25-54)	83.4	84.4	85.8	86.6	85.9	85.3	85.0	86.6	87.8	89.1	89.4
8. Employment rate (% population aged 55-64)	66.1	67.3	67.8	69.4	70.4	70.8	71.2	72.0	72.3	72.9	73.4
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	9.5	9.4	9.2	8.6	8.4	7.9	8.2	8.0	8.1	7.9	7.3
11. Part-time employment (% total employment)	7.4	8.0	8.2	10.8	11.1	11.2	12.0	11.5	11.8	11.8	13.3
12. Fixed term contracts (% total employees)	13.9	14.2	13.8	12.9	12.8	12.8	13.5	14.2	15.4	15.0	13.4
13. Employment in Services (% total employment)	58.0	58.6	59.2	59.5	59.9	60.4	61.2	61.8	62.1	62.1	:
14. Employment in Industry (% total employment)	37.4	36.9	36.2	36.4	36.1	35.8	35.1	34.8	34.6	34.5	:
15. Employment in Agriculture (% total employment)	4.7	4.5	4.5	4.1	3.9	3.8	3.7	3.4	3.3	3.4	:
16. Activity rate (% population aged 15-64)	79.0	79.4	79.8	79.9	79.4	79.2	79.1	80.9	81.2	81.4	81.7
17. Activity rate (% of population aged 15-24)	49.1	49.9	50.2	50.0	48.5	47.3	47.1	49.1	50.8	51.8	52.6
18. Activity rate (% of population aged 25-54)	89.6	89.7	90.2	90.4	89.8	89.9	90.0	92.4	92.5	92.9	93.1
19. Activity rate (% of population aged 55-64)	70.3	71.5	72.1	73.1	74.2	74.9	75.6	76.2	76.0	76.2	76.5
20. Total unemployment (000)	194	155	139	124	127	145	160	184	172	149	151
21. Unemployment rate (% labour force 15+)	8.4	6.6	5.9	5.2	5.3	6.0	6.5	7.5	6.9	5.8	5.9
22. Youth unemployment rate (% labour force 15-24)	16.4	12.2	11.0	11.9	12.0	13.0	15.7	21.3	21.0	18.6	19.6
23. Long term unemployment rate (% labour force)	3.2	2.2	1.7	1.2	1.2	1.2	1.4	:	1.2	0.9	0.8
24. Youth unemployment ratio (% population aged 15-24)	7.9	7.0	6.0	6.3	6.7	6.9	8.4	11.4	10.7	9.7	10.4

Female											
1. Total population (000)	4 477	4 480	4 486	4 496	4 510	4 527	4 543	4 559	4 580	4 607	4 637
2. Population aged 15-64	2 789	2 797	2 809	2 823	2 841	2 864	2 881	2 903	2 931	2 954	2 975
3. Total employment (000)	1 948	1 994	2 045	2 098	2 107	2 096	2 078	2 067	2 095	2 140	2 155
4. Population in employment aged 15-64	1 894	1 942	1 990	2 041	2 053	2 047	2 031	2 044	2 072	2 121	2 137
5. Employment rate (% population aged 15-64)	67.9	69.4	70.9	72.3	72.2	71.5	70.5	70.4	70.7	71.8	71.8
6. Employment rate (% population aged 15-24)	34.3	36.9	40.1	44.7	43.8	42.1	39.7	39.8	40.4	42.3	42.1
7. Employment rate (% population aged 25-54)	79.5	80.9	81.9	82.5	82.4	81.7	80.9	81.1	81.5	83.0	83.5
8. Employment rate (% population aged 55-64)	60.0	60.7	62.1	64.0	65.6	66.3	67.0	66.7	66.9	67.0	66.7
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	3.5	3.6	3.5	3.3	3.1	2.9	3.0	3.1	3.1	3.1	3.0
11. Part-time employment (% total employment)	34.3	33.3	32.3	33.0	33.1	35.5	36.3	39.6	40.2	40.0	41.4
12. Fixed term contracts (% total employees)	18.3	18.7	17.8	17.6	17.6	17.4	17.5	17.7	19.1	19.9	18.7
13. Employment in Services (% total employment)	86.6	87.0	87.2	87.4	87.9	88.5	88.9	89.1	89.2	89.3	:
14. Employment in Industry (% total employment)	12.1	11.7	11.5	11.4	10.9	10.4	10.1	9.9	9.8	9.8	:
15. Employment in Agriculture (% total employment)	1.3	1.3	1.3	1.2	1.2	1.1	1.0	1.0	1.0	0.9	:
16. Activity rate (% population aged 15-64)	73.5	74.2	74.8	75.7	75.8	75.4	75.2	76.3	76.3	76.8	76.9
17. Activity rate (% of population aged 15-24)	42.8	44.0	46.1	50.1	49.7	48.3	47.3	51.3	51.9	52.7	53.1
18. Activity rate (% of population aged 25-54)	85.0	85.4	85.5	85.5	85.5	85.4	85.3	86.5	86.3	87.1	87.6
19. Activity rate (% of population aged 55-64)	62.6	63.8	65.2	66.9	68.2	68.9	69.7	69.0	69.6	69.4	69.0
20. Total unemployment (000)	168	145	114	100	101	115	136	165	164	148	151
21. Unemployment rate (% labour force 15+)	8.0	6.8	5.3	4.5	4.6	5.2	6.1	7.4	7.2	6.4	6.5
22. Youth unemployment rate (% labour force 15-24)	15.8	12.4	9.9	9.9	11.8	13.7	16.9	22.0	21.9	19.6	20.5
23. Long term unemployment rate (% labour force)	1.8	1.4	1.0	0.8	0.8	0.8	1.0	:	1.0	0.8	0.7
24. Youth unemployment ratio (% population aged 15-24)	8.5	7.1	6.0	5.4	5.9	6.2	7.6	11.5	11.4	10.4	11.0

Source: Eurostat.

Note: EU LFS indicators: 2005 break in series.

Labour market indicators: United Kingdom

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	58 117	58 373	57 881	58 106	58 299	58 542	58 815	59 156	59 518	59 862	60 305
2. Population aged 15-64	37 965	38 226	37 793	38 052	38 289	38 534	38 821	39 153	39 540	39 845	40 094
3. Total employment (000)	28 885	29 216	29 604	29 916	30 092	30 399	30 696	31 082	31 298	31 515	31 535
4. Population in employment aged 15-64	26 773	27 139	26 911	27 186	27 332	27 553	27 835	28 090	28 307	28 478	28 671
5. Employment rate (% population aged 15-64)	70.5	71.0	71.2	71.4	71.4	71.5	71.7	71.7	71.6	71.5	71.5
6. Employment rate (% population aged 15-24)	56.7	56.6	56.6	56.6	56.2	55.4	55.6	54.4	53.8	52.9	52.4
7. Employment rate (% population aged 25-54)	79.3	79.9	80.2	80.4	80.4	80.6	80.9	81.2	81.2	81.3	81.4
8. Employment rate (% population aged 55-64)	49.0	49.6	50.7	52.2	53.4	55.4	56.2	56.8	57.3	57.4	58.0
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	12.8	12.5	12.1	12.1	12.2	12.9	12.9	12.8	13.1	13.2	13.2
11. Part-time employment (% total employment)	24.5	24.6	25.1	25.0	25.3	25.6	25.7	25.2	25.3	25.2	25.3
12. Fixed term contracts (% total employees)	7.3	7.0	7.0	6.8	6.4	6.1	6.0	5.8	5.8	5.9	5.4
13. Employment in Services (% total employment)	75.3	76.3	77.1	77.8	78.6	79.3	79.8	80.3	80.6	80.7	80.7
14. Employment in Industry (% total employment)	22.8	22.0	21.3	20.7	20.0	19.3	18.7	18.2	17.9	17.8	17.7
15. Employment in Agriculture (% total employment)	1.9	1.7	1.6	1.5	1.4	1.4	1.4	1.5	1.5	1.4	1.5
16. Activity rate (% population aged 15-64)	75.4	75.7	75.5	75.3	75.3	75.3	75.3	75.4	75.7	75.5	75.8
17. Activity rate (% of population aged 15-24)	65.8	65.3	64.8	64.2	63.8	63.2	63.2	62.3	62.5	61.7	61.7
18. Activity rate (% of population aged 25-54)	83.5	84.0	83.9	83.6	83.8	83.8	83.8	84.1	84.5	84.5	84.9
19. Activity rate (% of population aged 55-64)	51.5	52.1	52.9	54.1	55.3	57.2	57.8	58.4	59.1	59.3	59.9
20. Total unemployment (000)	1 740	1 696	1 554	1 451	1 503	1 465	1 399	1 444	1 642	1 623	1 753
21. Unemployment rate (% labour force 15+)	6.1	5.9	5.4	5.0	5.1	5.0	4.7	4.8	5.4	5.3	5.6
22. Youth unemployment rate (% labour force 15-24)	13.1	12.7	12.2	11.7	12.0	12.2	12.1	12.8	14.0	14.3	15.0
23. Long term unemployment rate (% labour force)	1.9	1.7	1.4	1.3	1.1	1.1	1.0	1.0	1.2	1.3	1.4
24. Youth unemployment ratio (% population aged 15-24)	9.1	8.7	8.2	7.6	7.7	7.8	7.6	8.0	8.7	8.8	9.2

Male											
1. Total population (000)	28 638	28 800	28 234	28 375	28 499	28 645	28 801	28 995	29 199	29 381	29 624
2. Population aged 15-64	19 118	19 264	18 723	18 851	18 996	19 127	19 278	19 448	19 644	19 789	19 918
3. Total employment (000)	15 985	16 147	16 064	16 225	16 282	16 468	16 606	16 778	16 885	17 043	17 009
4. Population in employment aged 15-64	14 785	14 965	14 568	14 707	14 751	14 878	15 012	15 116	15 219	15 341	15 395
5. Employment rate (% population aged 15-64)	77.3	77.7	77.8	78.0	77.7	77.8	77.9	77.7	77.5	77.5	77.3
6. Employment rate (% population aged 15-24)	58.7	58.7	58.7	58.9	57.7	57.0	57.0	56.0	54.9	54.4	53.8
7. Employment rate (% population aged 25-54)	86.6	87.0	87.4	87.4	87.4	87.5	87.7	87.8	87.9	88.2	87.7
8. Employment rate (% population aged 55-64)	59.1	59.7	60.1	61.7	62.6	64.8	65.7	65.9	66.0	66.3	67.3
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	16.8	16.4	15.9	16.1	16.3	17.1	17.3	17.1	17.4	17.5	17.6
11. Part-time employment (% total employment)	8.5	8.8	8.9	9.0	9.6	10.1	10.3	10.4	10.6	10.8	11.3
12. Fixed term contracts (% total employees)	6.4	6.3	6.1	6.0	5.7	5.4	5.5	5.3	5.2	5.3	4.9
13. Employment in Services (% total employment)	64.8	66.0	66.7	67.5	68.3	69.2	69.9	70.5	71.0	71.2	71.3
14. Employment in Industry (% total employment)	32.6	31.6	31.1	30.3	29.7	28.7	28.0	27.4	26.9	26.8	26.6
15. Employment in Agriculture (% total employment)	2.7	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.1
16. Activity rate (% population aged 15-64)	83.2	83.4	82.9	82.6	82.4	82.4	82.1	82.0	82.3	82.2	82.4
17. Activity rate (% of population aged 15-24)	69.3	69.0	68.0	67.9	66.9	66.2	65.7	65.3	65.1	64.5	64.8
18. Activity rate (% of population aged 25-54)	91.6	91.9	91.8	91.3	91.3	91.3	91.0	91.1	91.6	91.6	91.6
19. Activity rate (% of population aged 55-64)	63.1	63.2	63.4	64.6	65.3	67.4	68.1	68.3	68.4	69.0	69.9
20. Total unemployment (000)	1 058	1 022	925	874	901	886	821	847	950	927	1 032
21. Unemployment rate (% labour force 15+)	6.8	6.5	5.9	5.5	5.7	5.5	5.1	5.2	5.8	5.6	6.1
22. Youth unemployment rate (% labour force 15-24)	14.8	14.2	13.2	13.2	13.7	13.8	13.3	14.4	15.7	15.8	17.0
23. Long term unemployment rate (% labour force)	2.4	2.2	1.9	1.7	1.4	1.4	1.2	1.3	1.5	1.6	1.7
24. Youth unemployment ratio (% population aged 15-24)	10.7	10.2	9.3	9.0	9.1	9.2	8.7	9.3	10.2	10.2	11.0

Female											
1. Total population (000)	29 479	29 573	29 647	29 731	29 800	29 897	30 014	30 161	30 318	30 480	30 681
2. Population aged 15-64	18 847	18 963	19 070	19 201	19 293	19 407	19 543	19 705	19 896	20 056	20 176
3. Total employment (000)	12 900	13 069	13 540	13 691	13 810	13 931	14 090	14 304	14 413	14 472	14 526
4. Population in employment aged 15-64	11 988	12 174	12 343	12 479	12 581	12 675	12 823	12 974	13 088	13 137	13 276
5. Employment rate (% population aged 15-64)	63.6	64.2	64.7	65.0	65.2	65.3	65.6	65.8	65.8	65.5	65.8
6. Employment rate (% population aged 15-24)	54.6	54.4	54.6	54.3	54.6	53.7	54.1	52.7	52.6	51.4	51.0
7. Employment rate (% population aged 25-54)	71.8	72.7	73.2	73.5	73.6	73.8	74.2	74.8	74.6	74.6	75.2
8. Employment rate (% population aged 55-64)	39.2	39.9	41.7	43.0	44.5	46.3	47.0	48.0	49.0	48.9	49.0
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	8.0	7.6	7.7	7.3	7.4	7.9	7.6	7.7	8.1	8.2	8.1
11. Part-time employment (% total employment)	44.4	44.0	44.4	43.9	43.8	43.9	43.8	42.6	42.5	42.2	41.8
12. Fixed term contracts (% total employees)	8.4	7.8	7.9	7.6	7.2	6.9	6.6	6.3	6.5	6.4	6.0
13. Employment in Services (% total employment)	88.1	88.8	89.2	89.8	90.6	91.0	91.4	91.6	91.7	91.8	91.8
14. Employment in Industry (% total employment)	10.9	10.3	9.9	9.4	8.7	8.3	7.9	7.6	7.5	7.4	7.4
15. Employment in Agriculture (% total employment)	1.0	0.9	0.8	0.8	0.7	0.7	0.7	0.8	0.7	0.8	0.9
16. Activity rate (% population aged 15-64)	67.4	67.9	68.2	68.0	68.3	68.3	68.5	68.8	69.2	69.0	69.4
17. Activity rate (% of population aged 15-24)	62.0	61.5	61.7	60.4	60.7	60.0	60.5	59.2	59.7	58.7	58.4
18. Activity rate (% of population aged 25-54)	75.2	76.0	76.2	76.1	76.4	76.4	76.7	77.3	77.6	77.6	78.2
19. Activity rate (% of population aged 55-64)	40.4	41.2	42.9	44.0	45.6	47.2	47.9	48.9	50.1	50.0	50.2
20. Total unemployment (000)	682	674	629	577	602	578	577	597	692	696	721
21. Unemployment rate (% labour force 15+)	5.3	5.2	4.8	4.4	4.5	4.3	4.2	4.3	4.9	5.0	5.1
22. Youth unemployment rate (% labour force 15-24)	11.3	11.1	11.0	10.1	10.2	10.5	10.7	11.1	12.0	12.5	12.7
23. Long term unemployment rate (% labour force)	1.2	1.0	0.9	0.8	0.7	0.7	0.6	0.7	0.8	0.9	0.9
24. Youth unemployment ratio (% population aged 15-24)	7.4	7.1	7.1	6.2	6.2	6.3	6.4	6.5	7.2	7.4	7.4

Source: Eurostat.

Note: EU LFS indicators: 1999 break in series. Indicators 3, 4 and 10, 13-15: in unit of 1000 jobs.

Labour market indicators: Croatia

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	:	:	:	:	4 206	4 218	4 215	4 217	4 218	4 219	3 169
2. Population aged 15-64	:	:	:	:	2 773	2 778	2 751	2 746	2 744	2 743	2 061
3. Total employment (000)	1 541	1 490	1 549	1 465	1 526	1 535	1 561	1 573	1 564	1 618	1 635
4. Population in employment aged 15-64	:	:	:	:	1 482	1 482	1 505	1 512	1 526	1 568	1 191
5. Employment rate (% population aged 15-64)	:	:	:	:	53.4	53.4	54.7	55.0	55.6	57.1	57.8
6. Employment rate (% population aged 15-24)	:	:	:	:	26.2	24.9	26.5	25.8	25.5	26.5	26.9
7. Employment rate (% population aged 25-54)	:	:	:	:	70.2	70.1	70.9	71.8	72.2	74.1	75.2
8. Employment rate (% population aged 55-64)	:	:	:	:	24.8	28.4	30.1	32.6	34.3	35.8	36.6
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	24.7	24.8	23.8	24.3	23.5	24.2	23.4	23.8	15.3	14.9	14.7
11. Part-time employment (% total employment)	:	:	:	:	8.3	8.5	8.5	10.1	9.4	8.6	8.9
12. Fixed term contracts (% total employees)	:	:	:	:	10.9	11.3	12.2	12.4	12.9	12.6	12.5
13. Employment in Services (% total employment)	53.5	52.8	56.6	54.3	55.0	53.4	53.7	:	:	:	:
14. Employment in Industry (% total employment)	29.8	30.7	28.9	30.1	29.7	29.8	29.9	:	:	:	:
15. Employment in Agriculture (% total employment)	16.7	16.5	14.5	15.6	15.3	16.9	16.5	:	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	:	62.9	62.4	63.7	63.3	62.8	63.4	63.1
17. Activity rate (% of population aged 15-24)	:	:	:	:	40.6	38.7	39.6	38.1	35.9	34.9	34.3
18. Activity rate (% of population aged 25-54)	:	:	:	:	80.3	79.8	80.7	80.6	80.1	80.9	81.0
19. Activity rate (% of population aged 55-64)	:	:	:	:	26.8	30.4	32.3	35.1	36.5	38.3	38.6
20. Total unemployment (000)	:	:	:	:	263	252	247	227	199	171	149
21. Unemployment rate (% labour force 15+)	:	:	:	:	14.8	14.2	13.7	12.7	11.2	9.6	8.4
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	35.4	35.8	33.2	32.3	28.9	24.0	21.9
23. Long term unemployment rate (% labour force)	:	:	:	:	9.0	8.4	7.4	7.4	6.7	5.9	5.3
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	14.4	13.9	13.1	12.3	10.4	8.4	7.5

Male											
1. Total population (000)	:	:	:	:	1 999	2 000	2 012	2 006	2 008	1 995	1 503
2. Population aged 15-64	:	:	:	:	1 352	1 361	1 357	1 354	1 353	1 359	1 021
3. Total employment (000)	:	:	:	:	:	850	865	867	856	899	905
4. Population in employment aged 15-64	:	:	:	:	818	821	838	835	839	875	663
5. Employment rate (% population aged 15-64)	:	:	:	:	60.5	60.3	61.8	61.7	62.0	64.4	64.9
6. Employment rate (% population aged 15-24)	:	:	:	:	29.2	28.6	30.9	30.0	29.1	31.6	32.3
7. Employment rate (% population aged 25-54)	:	:	:	:	77.6	77.2	77.7	77.9	78.1	80.6	81.3
8. Employment rate (% population aged 55-64)	:	:	:	:	34.2	38.1	40.9	43.0	44.4	48.4	49.0
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	:	:	:	25.2	24.2	24.2	16.3	15.6	15.4
11. Part-time employment (% total employment)	:	:	:	:	6.6	6.3	6.3	7.3	7.5	6.4	6.7
12. Fixed term contracts (% total employees)	:	:	:	:	11.3	11.8	12.1	12.4	13.1	12.2	12.5
13. Employment in Services (% total employment)	:	:	:	:	:	45.2	45.5	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	38.5	38.9	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	16.2	15.6	:	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	:	69.9	69.5	70.5	70.0	68.9	70.4	69.9
17. Activity rate (% of population aged 15-24)	:	:	:	:	44.8	43.4	43.8	43.0	39.9	39.9	39.9
18. Activity rate (% of population aged 25-54)	:	:	:	:	86.7	86.2	86.6	85.9	84.9	86.4	86.0
19. Activity rate (% of population aged 55-64)	:	:	:	:	37.4	41.1	44.0	47.2	47.7	52.2	52.1
20. Total unemployment (000)	:	:	:	:	128	125	118	113	95	81	68
21. Unemployment rate (% labour force 15+)	:	:	:	:	13.3	12.9	12.1	11.6	9.9	8.4	7.0
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	34.7	34.1	29.4	30.2	27.2	20.9	18.5
23. Long term unemployment rate (% labour force)	:	:	:	:	7.5	7.5	6.0	6.5	5.8	4.8	4.2
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	15.5	14.8	12.9	13.0	10.9	8.3	7.6

Female											
1. Total population (000)	:	:	:	:	2 207	2 218	2 203	2 211	2 209	2 225	1 666
2. Population aged 15-64	:	:	:	:	1 421	1 417	1 394	1 392	1 391	1 385	1 041
3. Total employment (000)	:	:	:	:	:	685	696	706	708	719	730
4. Population in employment aged 15-64	:	:	:	:	664	661	667	676	687	692	528
5. Employment rate (% population aged 15-64)	:	:	:	:	46.7	46.7	47.8	48.6	49.4	50.0	50.7
6. Employment rate (% population aged 15-24)	:	:	:	:	23.2	21.0	21.7	21.3	21.8	21.1	21.1
7. Employment rate (% population aged 25-54)	:	:	:	:	63.1	63.2	64.3	65.7	66.3	67.7	69.2
8. Employment rate (% population aged 55-64)	:	:	:	:	16.9	20.3	21.0	23.8	25.7	24.2	25.6
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	:	:	:	23.0	22.5	23.2	14.2	13.9	13.8
11. Part-time employment (% total employment)	:	:	:	:	10.5	11.2	11.2	13.4	11.7	11.3	11.5
12. Fixed term contracts (% total employees)	:	:	:	:	10.4	10.7	12.4	12.3	12.6	13.2	12.6
13. Employment in Services (% total employment)	:	:	:	:	:	63.4	63.9	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	18.9	18.6	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	17.7	17.5	:	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	:	56.2	55.6	57.1	56.7	56.9	56.4	56.4
17. Activity rate (% of population aged 15-24)	:	:	:	:	36.3	33.9	35.1	32.9	31.6	29.5	28.4
18. Activity rate (% of population aged 25-54)	:	:	:	:	74.0	73.5	74.9	75.3	75.2	75.4	76.2
19. Activity rate (% of population aged 55-64)	:	:	:	:	17.9	21.3	22.3	24.9	26.9	25.5	26.5
20. Total unemployment (000)	:	:	:	:	135	127	129	113	104	89	81
21. Unemployment rate (% labour force 15+)	:	:	:	:	16.6	15.8	15.7	13.9	12.8	11.2	10.1
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	36.2	38.2	38.2	35.1	31.1	28.5	27.2
23. Long term unemployment rate (% labour force)	:	:	:	:	10.8	9.6	9.0	8.4	7.8	7.3	6.5
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	13.2	12.9	13.4	11.6	9.8	8.4	7.3

Source: Eurostat.

Note: Indicators 3 and 10: 2005-2008 forecast.

Labour market indicators: Turkey

All	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total population (000)	:	:	:	:	:	:	:	:	68 133	68 894	69 658
2. Population aged 15-64	:	:	:	:	:	:	:	:	44 476	45 134	45 817
3. Total employment (000)	21 594	22 051	21 970	21 744	21 357	21 150	21 794	22 103	22 394	22 645	23 052
4. Population in employment aged 15-64	:	:	:	:	:	:	:	:	20 428	20 689	21 031
5. Employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	45.9	45.8	45.9
6. Employment rate (% population aged 15-24)	:	:	:	:	:	:	:	:	30.9	30.4	30.3
7. Employment rate (% population aged 25-54)	:	:	:	:	:	:	:	:	54.2	54.2	54.3
8. Employment rate (% population aged 55-64)	:	:	:	:	:	:	:	:	30.1	29.5	29.5
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	:	:	:	:	:	:	:	:	:
11. Part-time employment (% total employment)	:	:	:	:	:	:	:	:	7.9	8.8	9.6
12. Fixed term contracts (% total employees)	:	:	:	:	:	:	:	:	13.3	12.6	11.8
13. Employment in Services (% total employment)	34.3	33.7	:	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	22.7	20.5	:	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	43.0	45.8	:	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	:	:	:	:	:	50.2	50.2	50.8
17. Activity rate (% of population aged 15-24)	:	:	:	:	:	:	:	:	36.8	36.6	36.9
18. Activity rate (% of population aged 25-54)	:	:	:	:	:	:	:	:	58.4	58.4	59.1
19. Activity rate (% of population aged 55-64)	:	:	:	:	:	:	:	:	31.1	30.4	30.8
20. Total unemployment (000)	:	:	:	:	:	:	:	:	1 915	1 969	2 232
21. Unemployment rate (% labour force 15+)	:	:	:	:	:	:	:	:	8.4	8.5	9.4
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	:	:	:	:	16.0	16.8	18.1
23. Long term unemployment rate (% labour force)	:	:	:	:	:	:	:	:	2.5	2.2	2.2
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	:	:	:	:	5.9	6.1	6.7

Male											
1. Total population (000)	:	:	:	:	:	:	:	:	33 983	34 327	34 678
2. Population aged 15-64	:	:	:	:	:	:	:	:	22 209	22 509	22 825
3. Total employment (000)	:	:	:	:	:	:	:	:	:	16 738	16 926
4. Population in employment aged 15-64	:	:	:	:	:	:	:	:	15 116	15 303	15 446
5. Employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	68.1	68.0	67.7
6. Employment rate (% population aged 15-24)	:	:	:	:	:	:	:	:	42.6	42.1	41.4
7. Employment rate (% population aged 25-54)	:	:	:	:	:	:	:	:	81.1	81.2	80.8
8. Employment rate (% population aged 55-64)	:	:	:	:	:	:	:	:	44.1	43.0	43.0
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	:	:	:	:	:	:	:	:	:
11. Part-time employment (% total employment)	:	:	:	:	:	:	:	:	4.4	4.9	5.6
12. Fixed term contracts (% total employees)	:	:	:	:	:	:	:	:	13.3	12.6	11.6
13. Employment in Services (% total employment)	:	:	:	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	:	:	:	:	:	74.4	74.4	74.8
17. Activity rate (% of population aged 15-24)	:	:	:	:	:	:	:	:	50.6	50.6	50.6
18. Activity rate (% of population aged 25-54)	:	:	:	:	:	:	:	:	87.5	87.6	87.9
19. Activity rate (% of population aged 55-64)	:	:	:	:	:	:	:	:	46.0	44.8	45.3
20. Total unemployment (000)	:	:	:	:	:	:	:	:	1 415	1 456	1 636
21. Unemployment rate (% labour force 15+)	:	:	:	:	:	:	:	:	8.4	8.5	9.4
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	:	:	:	:	15.8	16.8	18.1
23. Long term unemployment rate (% labour force)	:	:	:	:	:	:	:	:	2.3	2.0	2.0
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	:	:	:	:	8.0	8.5	9.2

Female											
1. Total population (000)	:	:	:	:	:	:	:	:	34 150	34 567	34 980
2. Population aged 15-64	:	:	:	:	:	:	:	:	22 267	22 626	22 992
3. Total employment (000)	:	:	:	:	:	:	:	:	:	5 907	6 126
4. Population in employment aged 15-64	:	:	:	:	:	:	:	:	5 312	5 387	5 585
5. Employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	23.9	23.8	24.3
6. Employment rate (% population aged 15-24)	:	:	:	:	:	:	:	:	19.8	19.6	19.9
7. Employment rate (% population aged 25-54)	:	:	:	:	:	:	:	:	26.6	26.7	27.3
8. Employment rate (% population aged 55-64)	:	:	:	:	:	:	:	:	16.7	16.5	16.5
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	:	:	:	:	:	:	:	:	:
11. Part-time employment (% total employment)	:	:	:	:	:	:	:	:	17.8	19.7	20.8
12. Fixed term contracts (% total employees)	:	:	:	:	:	:	:	:	13.1	12.4	12.5
13. Employment in Services (% total employment)	:	:	:	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	:	:	:	:	:	26.1	26.1	26.9
17. Activity rate (% of population aged 15-24)	:	:	:	:	:	:	:	:	23.7	23.5	24.3
18. Activity rate (% of population aged 25-54)	:	:	:	:	:	:	:	:	28.5	28.6	29.5
19. Activity rate (% of population aged 55-64)	:	:	:	:	:	:	:	:	16.8	16.6	16.6
20. Total unemployment (000)	:	:	:	:	:	:	:	:	500	512	596
21. Unemployment rate (% labour force 15+)	:	:	:	:	:	:	:	:	8.4	8.5	9.5
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	:	:	:	:	16.5	16.7	18
23. Long term unemployment rate (% labour force)	:	:	:	:	:	:	:	:	3.3	3.0	2.9
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	:	:	:	:	3.9	3.9	4.4

Source: Eurostat.

Note: Indicators 3 and 10: 2000-2008 forecast.

3. DATA SOURCES AND DEFINITIONS

Data sources

Most of the data used in this report originates from Eurostat, the Statistical Office of the European Communities. The main data sources used are:

- European Union Labour Force Survey
- Eurostat Series on Unemployment
- ESA95 National Accounts

The **European Union Labour Force Survey** (EU LFS) is the EU's harmonised survey on labour market developments. While in the early years, it was carried out as an annual survey conducted in the spring quarter in many Member States, it is now a continuous quarterly survey in all EU Member States. If not mentioned otherwise, the results based on the LFS for years before the introduction of the quarterly survey refer to the spring quarter of each year. LFS data covers the population living in private households only (collective households are excluded) and refers to the place of residence (household residence concept). They are broken down by various socio-demographic categories, in particular gender and age. The EU LFS covers all EU Member States as well as the Croatia, Macedonia, Turkey and Iceland plus Norway and Switzerland.

A particular data collection connected to the EU LFS is Eurostat's 'LFS main indicators' which present a selection of the main statistics on the labour market. They encompass annual and quarterly indicators of population, activity and inactivity; employment; unemployment; education and training. Those indicators are mainly but not only based on the results of the EU LFS, in few cases integrated with data sources like national accounts employment or registered unemployment. National accounts employment data covers all people employed in resident producer units (domestic concept), including people living in collective households. In the main indicators, these national accounts figures are broken down by sex, working-time status (full-time/part-time) and contract status (permanent/temporary) using LFS distributions. Where available, all key employment indicators in this report are based on the 'LFS main indicators'.

For the unemployment-related indicators, the main source is the Eurostat **Series on Unemployment**. This is a dataset on unemployment collected by Eurostat and comprising of yearly averages, quarterly and monthly data. It is based on the (annual and quarterly) EU LFS data and monthly data on unemployment, either from the national LFS or other national sources, mainly unemployment register data. For the compilation of monthly unemployment estimates, these monthly figures from national sources are benchmarked against the quarterly EU LFS data, and they are used to produce provisional unemployment figures for recent months. Unemployment by skills or duration is not available from this data collection.

Macro-economic indicators are based on Eurostat's collection of national accounts data according to the European System of National Accounts (**ESA95 National Accounts**). Data is compiled by the Member States and collected by Eurostat. The collection comprises aggregates such as GDP, from which derived measures such as productivity and real unit labour costs are calculated. In addition, national accounts also cover population and employment data, the latter also broken down by economic activity, but not by socio-demographic categories. Figures for this report are obtained from DG Economic and Financial Affairs' Annual Macro-economic Database (AMECO), which forms the basis for the Commission's Spring and Autumn Economic Forecasts.

Other data sources

Furthermore, data from other international organisations were used where appropriate, in particular the OECD (Organisation for Economic Cooperation and Development) Labour Market Statistics Database.

Definitions and data sources of macro-economic indicators

Source: ESA95 National Accounts

1. Real GDP: gross domestic product (GDP), chain-linked volumes, reference year 2000, annual change
2. Total employment: Employment, total economy, annual change
3. Labour productivity: GDP (chain-linked volumes, reference year 2000) per person employed, annual change
4. Annual average hours worked, annual change

5. Productivity per hours worked: GDP (chain-linked volumes, reference year 2000) per hours worked, annual change

6. Harmonised CPI: harmonised consumer price index, annual change

7. Price deflator GDP: Implicit price deflator of GDP, annual change

8. Nominal compensation per employee, total economy, annual change

9. Real compensation per employee (GDP deflator): nominal compensation deflated with the implicit deflator of GDP, total economy, per employee, annual change

10. Real compensation per employee (private consumption deflator): nominal compensation deflated with the implicit deflator of private consumption expenditure, per employee, annual change

11. Nominal unit labour costs: Nominal compensation per employee divided by labour productivity, total economy, annual change

12. Real unit labour costs: Real compensation per employee divided by labour productivity, total economy, annual change

Definitions and data sources of labour market indicators

Source: Eurostat EU LFS (main indicators), Eurostat series on unemployment, ESA95 National Accounts

1. Total population in 1000s (Source: Eurostat EU LFS (main indicators), not covering population living in institutional households)

2. Total population aged 15–64 (the 'working age population') in 1000s (Source: Eurostat EU LFS (main indicators))

3. Total employment in 1000s (Source: Eurostat ESA95 National Accounts)

4. Population in employment aged 15–64 in 1000s (Source: Eurostat EU LFS (main indicators))

5-8. Employment rates: calculated by the number of employed divided by the population in the corresponding age bracket (Source: Eurostat EU LFS (main indicators)

9. Full-time equivalent employment rate: calculated by dividing the full-time equivalent employment by the total population in the 15–64 age group. Full-time equivalent employment is defined as total hours worked on both main and second job divided by the average annual number of hours worked in full-time jobs (Source: Eurostat EU LFS)

10. Self-employed in total employment: number of self-employed as the share of total employment (Source: Eurostat EU LFS (main indicators))

11. Part-time employment in total employment: number of part-time employed as a share of total employment (Source: Eurostat EU LFS (main indicators))

12. Fixed-term contracts in total employees: number of employees with contracts of limited duration as a share of total employees (Source: Eurostat EU LFS (main indicators))

13. Employment in services: employed in services (NACE Rev. 1.1 sections G-O) as a share of total employment (Source: Eurostat ESA95 National Accounts)

14. Employment in industry: employed in industry, including construction (NACE Rev. 1.1 sections C-F) as a share of total employment (Source: Eurostat ESA95 National Accounts)

15. Employment in agriculture: employed in agriculture, forestry and fishing (NACE Rev. 1.1 sections A+B) as a share of total employment (Source: ESA95 Eurostat National Accounts)

16-19. Activity rates: labour force (employed and unemployed) as a share of total population in the corresponding age bracket (Source: Eurostat EU LFS (main indicators))

20. Total unemployment in 1000s (Source: Eurostat series on unemployment)

21-22. Unemployment rates: unemployed as a share of the labour force (employed and unemployed persons) in the corresponding age bracket (Source: Eurostat series on unemployment)

23. Long-term unemployment rate: those unemployed for a duration of 12 months of more as a share of the labour force (Source: Eurostat EU LFS (main indicators))

24. Youth unemployment ratio: young unemployed (aged 15–24) as a share of the total population in the same age bracket (Source: Eurostat EU LFS)

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As in previous years, *Employment in Europe 2009* analyses the performance and evolution of the labour market in the EU and candidate countries. In view of the rapidly changing economic situation, this year's report also presents a more up-to-date picture of the short-term developments in labour markets since spring 2008. In addition, key labour market issues are examined, including: labour flows, transitions and unemployment duration; and the link between climate change and European labour markets.

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