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The Wage Formation Process and Labour Market Flexibility in the Community, the US and Japan

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THE WAGE FORMATION PROCESS AND

LABOUR MARKET FLEXIBILITY IN THE COMMUNITY, THE US AND JAPAN

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INTRODUCTION

The importance of ***wages*** *to the short and long-run economic performance of countries needs little emphasis in the context of the present analysis. It is sufficient simply to point to the fact that wage increases are a crucial element of price inflation, of trends in investment profitability and that at the level of real economic aggregates that the demand for labour and for other factors of production are strongly influenced by the evolution of real wages.*

Differences in the ***wage formation process*** *at the individual country level therefore carry enormous implications for economies in general but in particular for inflation and unemployment developments. The behaviour of nominal wages determines the degree and the duration of any short-run trade-off between inflation and unemployment and in this way plays a central role in the transformation of an economy from an inflationary to a less-inflationary regime and the costs associated with that process.*

The wage determination process is consequently at the heart of ***an economy's dynamic adjustment mechanisms****. Adjusting to economic shocks is made easier the greater the flexibility of the wage adjustment process with such* ***"price" flexibility*** *being essential to the restoration of competitiveness and to bringing output and employment back to equilibrium.*

Labour market flexibility*, which includes the concept of wage flexibility, is the overall measure used to describe the responsiveness of an economy's labour market to changes in underlying conditions.*

The degree of overall labour market flexibility existing in a country is the factor which determines the success or failure of an economy in absorbing permanent or temporary shocks to labour demand arising at the national, regional or sectoral levels without provoking large deteriorations in labour market conditions. In this context, it is important to underline that ***if one accepts the existence of hysteresis in Community labour markets then even temporary shocks can provoke permanent or persistent effects with regard to unemployment.***

PURPOSE AND STRUCTURE OF STUDY

Given the points raised in the previous paragraphs, it was considered important to assess the current degree of labour market flexibility in the Community with a view to both quantifying the extent of the present difficulties and to tentatively suggest possible policy initiatives which could be undertaken to strengthen the ***Community's adjustment mechanisms.***

There are substantial economic costs involved in having rigid mechanisms for ***adjusting to cost misalignments*** *and it is these mechanisms which are at the centre of the present study. The present situation in the EC (including an analysis of the four largest Member States) is compared with that pertaining in the US and Japan. The wage formation process is analysed in the different countries and its importance in terms of adjustment is highlighted as is the related process of adjustment in terms of numbers employed.*

The main purpose of the analysis is therefore to assess whether the Community's labour markets have been performing well, in an international comparative sense, in terms of their overall responsiveness to changing circumstances and conditions:

- *Following an overview of labour market flexibility in* ***Section 1, Section 2*** *looks at the wage determination process in detail, looking firstly at the theoretical and empirical aspects of the Phillips curve relationship before going on to examine the essential characteristics of the wage determination process in the different countries and to encapsulate these shared characteristics in wage equations with a common specification.*

- ***Sections 3 and 4*** *then go on to use the price and unemployment coefficients from the respective wage equations to provide quantitative assessments of the performances of the individual labour markets in terms of wage flexibility and NAIRU developments. The NAIRU calculations are supplemented by additional indicators of structural unemployment.*

- *The* ***final section*** *attempts to draw the main policy implications to be retained from the analysis.*

MAIN EMPIRICAL RESULTS

Using an ***expectations-augmented Phillips Curve approach*** *it is possible to provide some indication of the changes in the underlying health of the Community's labour markets (EC15, W.Germany, France, Italy and the UK) relative to those in the US and Japan. In carrying out such an international comparison of the relative performances of individual labour markets two essential aspects of labour market operations need to be assessed:*

Q 1. *How do the labour market adjustment mechanisms of wage flexibility and employment adaptability compare internationally. These mechanisms determine the speed of adjustment of the labour market to temporary and permanent shocks. If a country's labour market exhibits considerable sluggishness in adjustment to a temporary or permanent change in economic conditions then this will have important implications in terms of the cost and duration of the adjustment process.* ***Efficient adjustment mechanisms are crucial to a smooth market clearing process*** *with the greater the degree of clogging of these mechanisms, the greater the degree of unemployment persistence.*

Q 2. *Are there* ***significant differences in rates of equilibrium unemployment between countries.*** *A relatively high rate of equilibrium or structural unemployment would be suggestive of a greater degree of rigidity or malfunctioning in the respective labour market.*

QUESTION 1. HOW DO THE LABOUR MARKET ADJUSTMENT MECHANISMS OF WAGE FLEXIBILITY AND EMPLOYMENT ADAPTABILITY COMPARE INTERNATIONALLY ?

***WAGE FLEXIBILITY**: The main conclusions regarding flexibility to be drawn from the analysis presented in the paper are as follows:*

- *The **short-run "overview" indicator for real wage responsiveness** shows a high degree of short-run real wage flexibility in both the US and Japan due essentially to a high responsiveness of wages to unemployment in the case of Japan and a slow response of wage growth to inflation in the case of the US. A substantially more rigid picture appears for the European countries as a whole because of relatively rapid indexation and a low cyclical responsiveness of wages.*

- *In the short-run, therefore, a **non-accommodation of a one percentage point price rise** (i.e. the rise in the price level is not validated) would require unemployment to increase by only 0.1 percentage points above the natural rate to prevent an acceleration of wages in the US and Japan but by 1 percentage point in the Community.*

- *Since the long-run inflation elasticities are in general close to unity, the **long-run "overview" measure for real wage rigidity** only differs from country to country on the basis of the differences in the estimated unemployment elasticities. Using this measure of rigidity, unemployment would have to increase by 0.1, 1.3 and 1.8 percentage points above the natural rate in Japan, the US and the European Community respectively to offset the inflationary consequences of a real shock which temporarily increased inflation by one percent.*

Given the above evidence, it is safe to conclude, on the basis of the short-run indicator of real wage rigidity, that real wages in the US and Japan are more flexible than in the Community and that using the long-run indicator that differences continue to exist but are less pronounced between the US and the Community and that Japan is the country which stands out as having the most flexible wages even in the long-run. Furthermore, if one groups the countries according to their short-run and long-run real wage rigidity measures and compares them with the rise in unemployment over the period 1973 to 1994, one witnesses a distinct positive correlation between the rigidity measures and the relative deterioration in the labour market situation of the respective countries.

***EMPLOYMENT ADAPTABILITY**: In addition to wage cost flexibility, another indicator of the underlying health of an economy's adjustment processes is the concept of employment adaptability i.e. the speed with which employment adjusts to fluctuations in output.*

Employment adaptability can be measured by calculating the elasticity of labour productivity advances with respect to output growth[1]*. The coefficient estimates for the US, Japan, the EC and the four largest EC countries indicate clearly that the US has the*

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1 *It is important to stress that this is a very rough measure of employment adaptability since it only refers to units of labour employed and makes no allowance for adjustment in terms of the numbers of hours worked. This is particularly important in, for example, the case of Japan where a downturn in labour demand has traditionally been reflected more in the number of hours worked than in the shedding of labour.*

most "flexible" employees with Japan at the other extreme (perhaps reflecting flexibility in hours worked) and the Community as a whole, as well as the individual Member States, in an intermediate position.

***WAGE FLEXIBILITY AND EMPLOYMENT ADAPTABILITY**: It is interesting to combine the wage flexibility and employment adaptability indicators since there would appear to be a trade-off between the two concepts with countries with high wage flexibility exhibiting rigidity in terms of employment adjustment:*

- *It would appear that economies, such as **Japan**, which are characterised by highly flexible real wages in the face of disturbances can better accommodate some degree of labour hoarding.*

- *In the case of the **US**, even though real wage flexibility is not substantially different to that in the Community, this is counterbalanced by a high degree of employment flexibility which reflects a large number of factors including the paucity of hiring/firing legislation.*

- *The "**worst of both worlds**", of course, is where a country's labour market is characterised by both inflexible employment and rigid real wages. This "worse of both worlds" scenario would appear to accurately reflect the situation pertaining in the **Community**.*

***OVERALL CONCLUSION REGARDING ADJUSTMENT MECHANISMS**: The evidence presented above shows clearly that the Community's labour market adjustment mechanisms of wage flexibility and employment adaptability compare poorly with those pertaining internationally. Poorly functioning adjustment mechanisms may go some way towards explaining the Community's relatively high rate of unemployment and the fact that the Community has only managed an employment growth rate of 12 per cent since 1960 compared with increases of 45 percent for Japan and 87 percent in the US.*

***QUESTION 2. ARE THERE SIGNIFICANT DIFFERENCES IN RATES OF EQUILIBRIUM UNEMPLOYMENT BETWEEN COUNTRIES ?** This is the second essential question to be addressed with regard to making an informed comparison of the relative performance of individual labour markets. The labour market adjustment mechanisms discussed in relation to Question 1 above refer essentially to the speed with which disequilibrium unemployment moves to its equilibrium rate. Question 2, on the other hand, looks at the equilibrium rate itself and in particular at whether equilibrium rates have changed over time in the countries examined.*

*The concept of the **NAIRU** was introduced to define that level of unemployment which persisted even when the labour market is in equilibrium i.e. the equilibrium rate of unemployment. The essential conclusion to be drawn from the NAIRU estimates presented in the paper is that the NAIRU has risen in all geographical areas, with the notable exception of the US, over the last number of decades i.e. the level of unemployment consistent with stable inflation is now much higher than before the shocks of the 1970s. This general, almost global, phenomenon is usually explained by the slowdown in the trend of productivity growth, by the large external oil price shocks and by a deterioration in labour market flexibility. But given that all regions were equally affected by the first two of the latter three factors, it is trends in relation to labour market flexibility which must be examined in order to explain the fact that the European Community has been particularly affected with an increase of close to four percentage*

points in the NAIRU over the period compared with a 1 percentage point increase in Japan and virtually no change in the case of the US.

The trends established with regard to the NAIRU calculations are broadly confirmed by:

A. ***Trend unemployment developments as calculated using the Hodrick-Prescott filter approach.***

B. ***Long-Term Unemployment, Outflow Rates and Beveridge Curve Analysis.***

C. ***Okun Curve Analysis.***

In overall terms, the various proxy measures of structural unemployment (NAIRU, Beveridge and Okun Curves) show clearly that there has been a strong upward trend in structural unemployment for the Community since the early 1970s. In contrast there has been no trend increase in US unemployment over the same period despite both experiencing substantial economic shocks (as in the case of the Community) and witnessing increases in both its labour force and employment of close to 50 percent over the period as a whole (compared with 18 % and 5 % respectively in the case of the Community). In addition, other indicators of labour market rigidity such as long-term unemployment and outflow rates paint a similarly negative overall picture for the Community.

IS THE TREND RISE IN COMMUNITY UNEMPLOYMENT A HYSTERESIS OR SLOW ADJUSTMENT PROBLEM?

A large number of commentators have found it hard to accept that the substantial deterioration in structural unemployment in the Community which has occurred, as measured by the NAIRU etc., could be due totally to changes in the determinants of the equilibrium rate of unemployment. Their suspicions have led to an alternative thesis being put forward which suggests that the past level of actual unemployment may strongly influence the current rate of equilibrium unemployment - the idea of hysteresis.

Hysteresis, among other things, is related to the fact that the impact on wages of an increase in unemployment is smaller when the rate of unemployment is already at a high level, than in conditions of low unemployment. Therefore, once unemployment has risen, persistence mechanisms will ensure that it cannot immediately be brought back to the NAIRU without a permanent rise in inflation. To prevent the latter it is necessary to gradually reduce unemployment, thus introducing the idea of "speed limits" on growth.

"Speed limits" on growth, *or hysteresis, is shown up in the wage equations in the coefficient on the change in unemployment variable. These speed limits on unemployment reduction could well reflect the relatively weak impact on wage formation processes of the long-term unemployed. It is highly significant in this regard that for the Community as a whole that the size of the coefficient on the change in unemployment variable is close to that of the coefficient for the level of unemployment. This is also the situation pertaining in Italy where the change in unemployment variable is substantially more important than the level of unemployment as an explanatory variable in wage developments. These developments would suggest that the* ***change in unemployment variable has an independent and significant influence on wage developments*** *and that therefore "speed limits" on growth could be a problem in some Community countries.*

POLICY IMPLICATIONS & CONCLUDING REMARKS

It is suggested in the above discussion that the trend rise in EC unemployment witnessed over the last two decades emanates from no one single factor. It is partially the result of a number of adverse shocks e.g. the two oil price crises in the seventies, counter inflationary demand policies in the 1980s etc. which had a particularly pronounced effect on EC countries because real wage rigidity there was relatively high. However, these adverse shocks alone were not large enough to explain the observed trend increase in actual unemployment during the 1980s. Consequently, other factors such as hysteresis effects, would appear to have been at play.

While it can be argued whether the above factors fully explain the trend rise in Community unemployment over the last twenty years, it appears reasonable to conclude that the explanation for the bulk of the increase in trend unemployment lies in some combination of equilibrium (i.e. NAIRU) and slow adjustment effects.

If the latter analytical conclusion is accepted it has important implications for the balance of macro / micro policies in any solution to the unemployment problem:

i) ***Firstly**, it is clear that macroeconomic policy has an important role to play in preventing unemployment from rising in the first place thereby reducing the impact of hysteresis effects which have the effect of making it more difficult to get unemployment down once it has been allowed to rise.*

ii) ***Secondly**, such an analytical distinction also supports the widely held contention that supply-side measures, both in terms of enhancing labour market flexibility and active labour market policies, must be the most important part of any policy programme aimed at both reducing the already high level of unemployment and of avoiding any further trend increases in the total. **Flexibility enhancing measures** are needed to reduce equilibrium unemployment and to speed up the adjustment process, whereas **active labour market policies**, in combination with human capital policies, are in particular needed to act on persistent unemployment.*

If, for example, the trend rise is due to hysteresis effects (i.e. an equilibrium phenomenon) then macroeconomic policies have little or no role to play in remedying the situation and solutions must therefore be found in structural reforms.

Even if, on the other hand, the trend rise in unemployment is due in part to slow adjustment or "stickiness" of unemployment following negative disturbances to the economy, then while macroeconomic policy interventions have a role to play in attenuating these disturbances, structural policies have the key role in acting on those factors which speed up the duration of the adjustment process between the occurrence of a shock and the return of the system to a state of equilibrium (e.g. acting on the slow adjustment of the reservation wage, minimum wage legislation, hiring/firing rules etc.).

*Structural reforms must therefore aim to **accelerate the real wage and employment adjustment process** following a disturbance in order to avoid the phenomenon of "**temporary**" shocks having permanent or persistent effects on unemployment. It is contended that growing "insider" power has reduced the fear of unemployment among the employed and the social protection / tax system has operated in a way which has diminished the competition for jobs from the unemployed outsiders. **Consequently, the***

whole dynamics of the adjustment process to temporary or permanent shocks has been significantly changed.

Higher unemployment, both current and past, should have the effect of dampening wage demands with this restraining effect being an important channel by which labour markets return to equilibrium. However, substantial intervention in the workings of the labour market is having the effect of clogging up these normal adjustment channels thereby preventing the necessary degree of real wage adjustment from occurring i.e. wages are becoming less responsive to changes in unemployment.

Action to address this ***problem of unemployment persistence will require substantive measures to be taken in a large number of areas,*** *including the operation of centralised wage bargaining, social protection, hiring / firing legislation etc. with the unambiguous objective of reducing the entrenched nature of insider power.*

To sum up therefore, policies aimed at enhancing labour market flexibility will improve the functioning of the labour market in a medium-term perspective with active labour market policies / human capital policies being needed to work on reducing the impact of important persistence mechanisms in the labour market which in particular have resulted in an ever-rising proportion of long-term unemployed in the overall jobless totals.

SECTION 1: OVERVIEW OF LABOUR MARKET FLEXIBILITY

Labour market flexibility is the overall term used to describe the degree of responsiveness of labour markets to changing supply and demand conditions. Flexible labour markets allow adjustments to economic shocks to take place which result at the end of the adjustment process in little or no employment loss. As a result differences in unemployment performances between countries can often be explained in terms of relative differences in the underlying flexibility of the respective labour markets with rigidities being reflected in relatively high and often increasing levels of structural unemployment.

It is important to stress that a certain degree of labour market rigidity could, under particular conditions, be regarded as an indispensable part of labour market efficiency. In circumstances such as for example in the context of long-term work relationships, income smoothing/wage rigidity may be a desirable objective for both employers and employees alike. For employers, income smoothing would be acceptable if fluctuations in demand conditions were within an acceptable range and were perceived to be temporary. For employees, stable wage incomes hold obvious benefits compared to volatile income flows both in terms of security and consumption planning. Consequently, given the mutual benefits emanating from entering into such long-term work arrangements, some degree of wage rigidity may be consistent with an optimal degree of labour market efficiency.

However, the ***compatibility of an element of wage rigidity and labour market efficiency can only be assured in the absence of serious economic disturbances***. Unexpected demand or supply shocks often necessitate a fundamental review of employer and employee expectations embedded into long-term working arrangements.[2]

The ***shocks of the 1970s and 1980s*** required the introduction of fundamental changes in economic relationships as a result of the trend decline in productivity growth and the terms of trade losses experienced. The smoothness of this structural change process is essentially determined by the degree of flexibility of the labour market adjustment mechanisms. The observed high degree of inflexibility was established by the relative strengths of the respective parties to the previously established work contracts with employers wishing to dismantle, and employees wishing to retain, the old framework of wage determination and related non-wage conditions of employment.

Labour market rigidities in the face of such shocks can consequently be regarded as being synonymous with the degree of resistance to fundamental shifts in previous long-term contractual relationships. This resistance, or short-run stickiness of wages in the face of disturbances, slows down the necessary process of adjustment thereby increasing the economic costs of this latter process.

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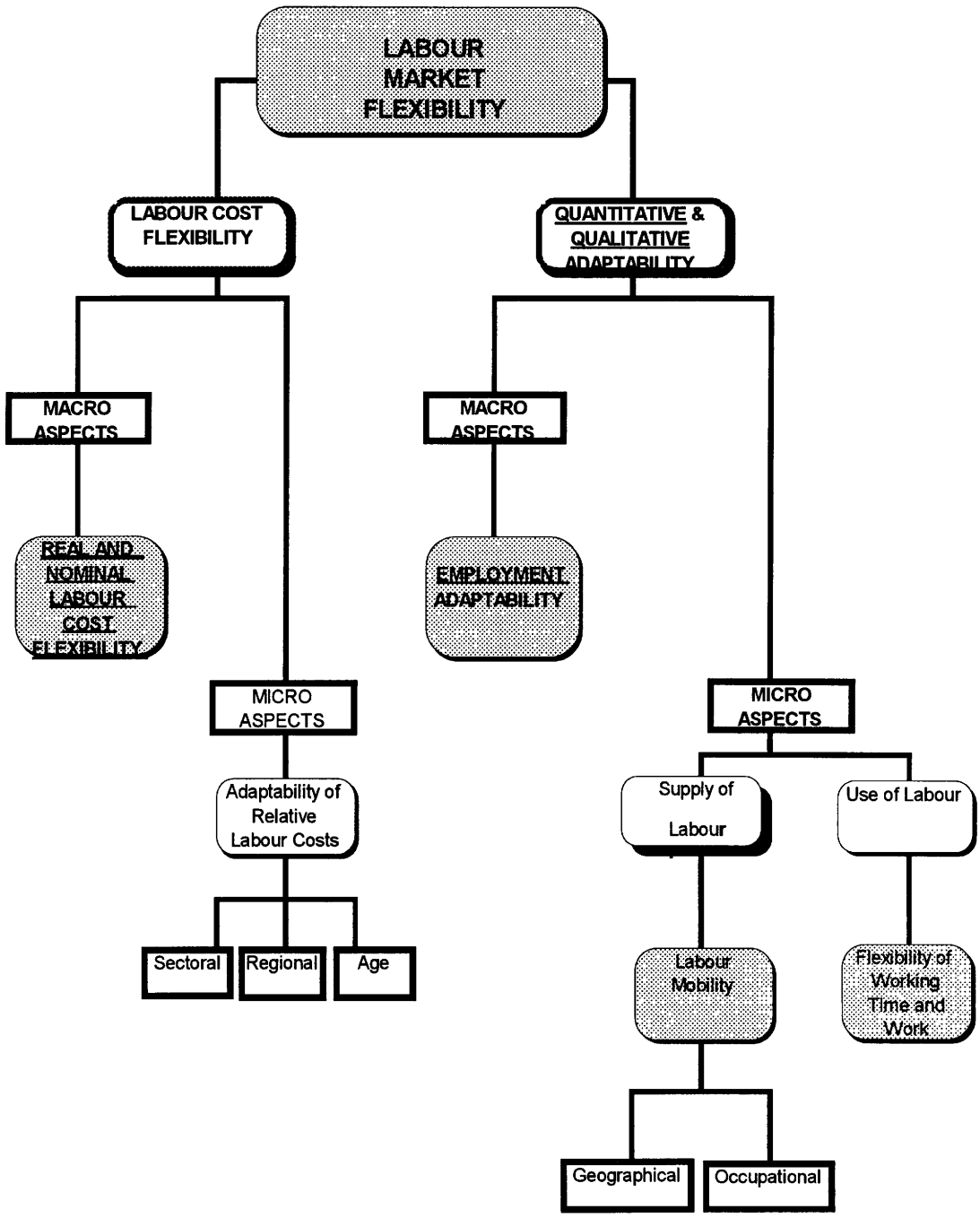
[2] This conclusion may also apply to more temporary shocks if wage persistence, which in this case is due to the length of the wage contract, is only one of many wage persistence mechanisms (e.g. centralised wage bargaining, generous social protection etc.) operating in a particular labour market. Wage persistence of any kind as well as employment persistence (for example due to relatively strict employment protection legislation) imply unemployment persistence i.e. slow adjustment to labour market disequilibria.

FIGURE 1: LABOUR MARKET FLEXIBILITY- A DIAGRAMMATIC OVERVIEW



WAGE FLEXIBILITY / EMPLOYMENT ADAPTABILITY IN THE CONTEXT OF LABOUR MARKET FLEXIBILITY: Given the breadth of the subject matter to be examined it is important to state clearly at the outset the scope of the present study. Figure 1 attempts to give a broad overview of all the essential aspects of labour market flexibility broken down under two main headings:

A) LABOUR COST FLEXIBILITY

B) QUANTITATIVE AND QUALITATIVE ADAPTABILITY

As figure 1 makes clear, labour cost flexibility refers to both aggregate real labour cost flexibility at the macroeconomic level and the adaptability of wage differentials at the microeconomic level (see Klau and Mittelstadt-1986). Adjusting to economic shocks is made easier if absolute and relative real labour costs adjust relatively flexibly. Such cost/price flexibility (i.e. real wage flexibility), as mentioned previously, is essential in restoring both competitiveness and equilibrium levels of output and employment.

With regard to quantitative and qualitative (i.e. non-wage) adaptability, the following issues are the obvious candidates for discussion:

- ***Employment adaptability***;
- ***Geographical and occupational labour mobility; and***
- ***Flexibility in the use of labour reflected in working time and work schedules***.

Clearly all the aspects of labour market flexibility discussed above are of importance. However, for the purposes of this study it has been decided to limit the discussion to the macroeconomic aspects of flexibility i.e. real labour cost flexibility and employment adaptability at the economy-wide level with the main emphasis on the former. It was felt that an assessment at the macro-economic level was the correct starting point for an analysis of labour market flexibility since it gave a rapid and reliable overview of the essential problems presently being faced by the Community and since it was also more amenable to quantitative assessment using internationally comparable indicators.

1.1. DISTINCTION BETWEEN LABOUR COST FLEXIBILITY AND INSTITUTIONALISED WAGE MODERATION

It is important to distinguish at the outset between the concept of labour cost flexibility and wage moderation.

- The former in this study refers to the speed and extent to which real wages ***automatically*** adjust to changes in productivity or the terms of trade (a theoretical possibility) thereby avoiding the development of large positive or negative real wage gaps and unjustified imbalances in factor income distribution.

- The concept of real wage moderation, on the other hand, can be seen as a ***non-automatic*** mechanism for ensuring a moderate wage evolution through direct interference in the wage determination process.

Consequently, real wage moderation can be seen as a substitute for labour cost flexibility and the extent to which countries make recourse to wage moderation can be regarded, to a large extent, as an attempt to offset the negative effects arising from behavioural, and government induced, distortions in their respective wage determination processes.

Real and nominal labour cost flexibility are macroeconomic concepts. Perfect real labour cost flexibility would result in complete and immediate adjustments of real wages to changes in productivity or the terms of trade. This degree of flexibility is not feasible in the real world and as mentioned earlier may not, in certain circumstances, be compatible with labour market efficiency.

However, it is generally agreed that a high degree of aggregate real wage flexibility is desirable with speedy adjustments of real wages to losses in the terms of trade or to trend declines in total factor productivity necessary to avoid the development of ***positive "real wage gaps"***. A sluggish downward adjustment in real wages leads to an unjustified imbalance in factor income distribution. This imbalance tends to be painfully reduced over time by two main mechanisms:

A. **COST-INDUCED LABOUR PRODUCTIVITY INCREASES**: Labour productivity gains result both from the substitution of capital for labour as a result of the reduced relative attractiveness of the latter factor of production (i.e. resulting in an increase in the capital intensity of production) and from rationalisation of unprofitable operations.

B. **WAGE MODERATION**: Cost-induced labour productivity gains arising under mechanism (A) lead to higher unemployment which in turn puts downward pressure on real wage increases (i.e. the weakening demand for labour puts downward pressure on real wages).

The operation of the two adjustment mechanisms mentioned above show clearly that reductions in real wage gaps should not be blindly attributed to enhanced real wage flexibility and to a ***possible shift in wage behaviour***.[3] It is more likely that the elimination of such gaps is due more to real wage moderation associated with the increases in unemployment which typically accompany such cost-induced increases in labour productivity rather than to any genuine improvement in labour cost flexibility i.e. any increase in the responsiveness of real wages to changes in demand or supply conditions.

Reducing real wage gaps in the way described above is consequently a reflection of the underlying degree of rigidity in national or Community labour markets and is often synonymous with rising structural unemployment, with the initial increase in classical "disequilibrium" unemployment leading eventually to an increase in the natural rate.

Real wage moderation becomes therefore an essential mechanism for dealing with the initial real wage rigidity and should not be seen as indicative of a shift in the underlying responsiveness of the system of wage determination. A truly flexible system of wage formation, resulting "naturally" in a moderate wage evolution, is simply the end result of actions aimed at improving labour market flexibility whereas wage moderation brought about by an institutional wage bargaining process can in some ways be seen as a substitute for fundamental labour market reforms.

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[3] Elimination, or reduction, of real wage gaps has essentially been the result of delayed wage adjustments to the earlier supply shocks as well as cost induced productivity adjustments associated with redundancies and accelerated scrapping of capital. This process of removal of real wage gaps represented an ex-post validation of the existence of above-equilibrium real wage levels.

SECTION 2: WAGE FORMATION PROCESS: EXPECTATIONS AUGMENTED PHILLIPS CURVE

The expectation-augmented Phillips curve approach is used in this and the following sections to provide some indication of the changes in the underlying health of the Community's labour markets relative to those in the US and Japan. Have these markets been performing well in terms of their overall responsiveness to changing circumstances and conditions? Has there been fundamental shifts in the wage determination processes in individual countries and how does their performance compare with developments elsewhere in the world?

The Phillips curve approach is a useful analytical tool for assessing the extent and direction of structural change in the labour market as it traces the simultaneous evolution of the ultimate target variables of inflation and unemployment in the countries concerned. It therefore provides essential information as to the performance of individual countries both in terms of these two variables and in terms of their performance relative to other similar countries (Fuhrer, 1995).

Finally, the labour market forms a vital part of the aggregate supply side of the economy and therefore the Phillips curve analysis can provide an interesting picture of the degree of responsiveness inherent in the underlying structure of the economies concerned. This latter characteristic of responsiveness or flexibility will be a crucial determinant of an economy's ability to successfully adapt to a rapidly changing global environment.

2.1 INFLATION AND UNEMPLOYMENT - A PHILLIPS CURVE ANALYSIS

THEORETICAL OVERVIEW: Annex 1 briefly describes the theoretical framework surrounding the inflation-unemployment relationship. A knowledge of this framework is essential in order to assess the key underlying question of whether governments are in a position to make inroads into the unemployment totals by engineering higher rates of unanticipated inflation. The essential points to be retained from Annex 1 are as follows:

- ***Up until the late 1960s*** there appeared to be a stable trade-off between inflation and unemployment but just as policy-makers began their attempts to exploit this apparent trade-off the relationship began to break down.

- The ***empirical breakdown of the Phillips curve relationship had been impressively predicted by Friedman and Phelps***. They argued that what was important to both workers and employers was what happened to real not money wages (i.e. economic agents lack money illusion) and that in the long-run the Phillips curve was in fact vertical with no trade-off between inflation and unemployment. However, they did accept that a short-run trade-off could exist when an economy was moving from one equilibrium to another such as for example in the case of an unexpected rise in inflation.

- Friedman and Phelps introduced two key concepts into the traditional Phillips curve analysis i.e. ***inflation expectations and the natural rate of unemployment***. These insights were quickly incorporated into mainstream thinking in the form of the expectations-augmented Phillips curve. In this view of the world, wage developments depended both on inflationary expectations and on the deviation of unemployment from the natural rate of unemployment

with the price of any expansionary policy to reduce unemployment being an ever-rising or accelerating rate of inflation.

- Therefore, if one accepts this thesis then the only way for governments to reduce unemployment is through a long-term commitment, at the microeconomic level, to improving the workings of the labour market and consequently reducing ***the "natural" rate***.

PHILLIPS CURVE ANALYSIS: INDICATOR OF STRUCTURAL CHANGE AND OF THE UNDERLYING HEALTH OF THE SUPPLY SIDE OF AN ECONOMY.

The Phillips curve is a diagrammatic representation of the inflation-unemployment relationship, depicting the simultaneous evolution of these two key variables over time, with demand side shocks expected to result in short-term movements along a negatively sloped curve (i.e. the short-run Phillips curve) and with structural, supply side, shifts being reflected in movements of the curve itself. Consequently, a Phillips curve analysis is useful not only for assessing the present degree of real wage flexibility/rigidity in an economy but also for assessing structural shifts over time.

The elasticity of the short-run Phillips curve can therefore be seen as representing the ***important structural characteristics or flexibility of the labour market*** at a particular point in time. Over the longer-run, leftward or rightward movements of the curve can be seen as representing a change in the underlying structure of the economy as a result, for example, of experiencing substantial shocks or as a result of economic agents altering their behaviour when faced with substantial shifts in the existing macroeconomic policy environment, such as for example in monetary policy through the adoption of a hard currency stance.

- The latter example would be regarded as ***a policy-induced structural or regime change*** which should reflect itself eventually, following a period of transitional credibility-building which would be needed to alter agents' expectations, in a new short-term trade-off schedule associated with lower inflation.

- The speed with which the latter structural change takes place depends not only on the credibility of the policy pursued but also to an extent on the underlying flexibility of the economy concerned. In addition to slowing down the pace of structural change, the positive gains in terms of reduced inflationary expectations, associated with such a policy regime change, could be offset by a ***deterioration in the underlying responsiveness of the labour market*** as reflected in rising NAIRUs and persistence mechanisms.

This issue of the effect of a "regime" change, represented by for example joining the ERM, is of vital importance in terms of interpreting Phillips curve movements in the Community in the 1980s. Did the ERM have an effect on the adjustment process in terms of making the process quicker and less costly? There is unfortunately very little empirical evidence to support this contention (see Egebo and Englander, 1992). It was expected that joining the ERM would enhance a country's disinflationary credibility and as a result inflationary expectations would fall. While the latter has occurred it would appear that the beneficial effects of enhanced credibility on inflationary expectations have been offset by growing signs of increases in labour market rigidities as reflected in increasing rates of trend unemployment.

EMPIRICAL ANALYSIS OF THE SHORT-RUN PHILLIPS CURVE RELATIONSHIP

Phillips curves diagramatically present the wage adjustment process to a price shock or, in the case of non-accommodation, the unemployment adjustment process to a price shock. Graphs 1 and 2 present the empirical evidence for the existence of a short-run Phillips curve relationship.

In relation to the Phillips curve for the EC, Japan and the US the most striking feature is the flatness of the curve for the Community compared with the almost vertical slope of the Japanese Phillips curve contrasting clearly the highly responsive wage determination process in Japan compared with the sluggishness of the wage adjustment mechanisms in the Community.

Changes in the inflation-unemployment relationship in the Community can be assessed further by dividing the overall Phillips curve movements over the last two decades into four sub-periods.

A. ***Between the oil shocks: (1974-1978):*** Outward shift of the Phillips curve reflecting the simultaneous rise in inflation and unemployment which occurred. In addition, there was a movement downwards along the curve reflecting the influence of demand factors. It is not surprising that the adverse supply side shocks of the 1970s shifted the curve outwards since the underlying theory of the Phillips curve is based on demand side shocks.

B. ***Period from second oil shock to early 1980s:*** A movement to the right (reflects a structural deterioration in the economy), reflecting high inflationary expectations and higher levels of structural unemployment with the latter being linked, perhaps, to the productivity slowdown.

C. ***Early 1980s-Hardening of ERM***: reappearance of the Phillips curve with the trade-off reflecting a substantial disinflation at the cost of a substantial rise in unemployment. The Phillips curve started to move inwards because of the success of restrictive demand policies in fighting inflationary expectations.

D. ***Hardening of ERM-Present***:

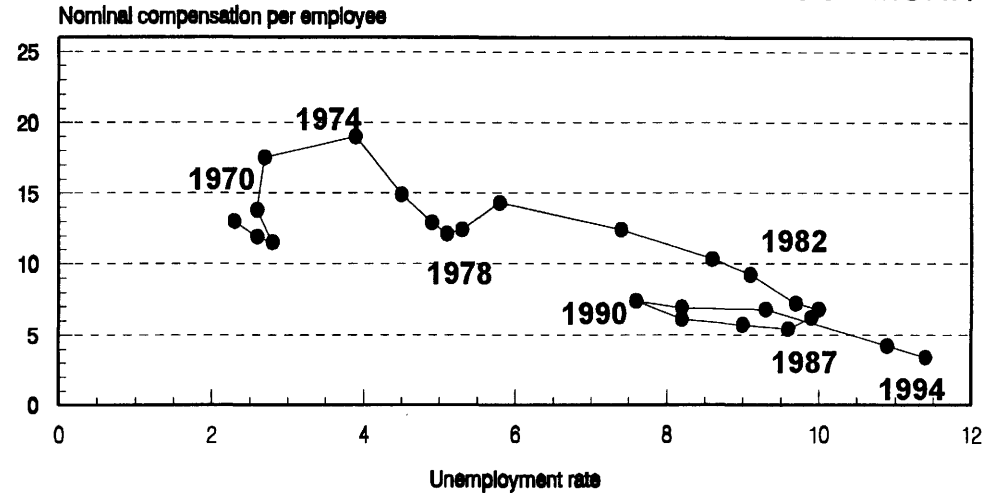
- ▷ In some Community countries, such as Italy, there has been a general continued movement downwards to the right as in period C above, reflecting the on-going lowering of inflationary expectations allied to sharp increases in unemployment. This disinflation process did not therefore represent a fundamental change in wage behaviour.

- ▷ In other countries there was a leftward movement reflecting perhaps a fundamental change in the relationship between wage rate changes and changes in unemployment due to positive supply-side shocks. This reflected itself in a genuine structural disinflation process - structural wage moderation - with the essential trade-off between inflation and unemployment changing for the better. However, while some evidence existed for France over the period 1987-90, it would appear that the only sustained case of a structural improvement towards lower wage settlements is in the UK, although it may be pre-mature to conclude that this trend is permanent.

Graph 1

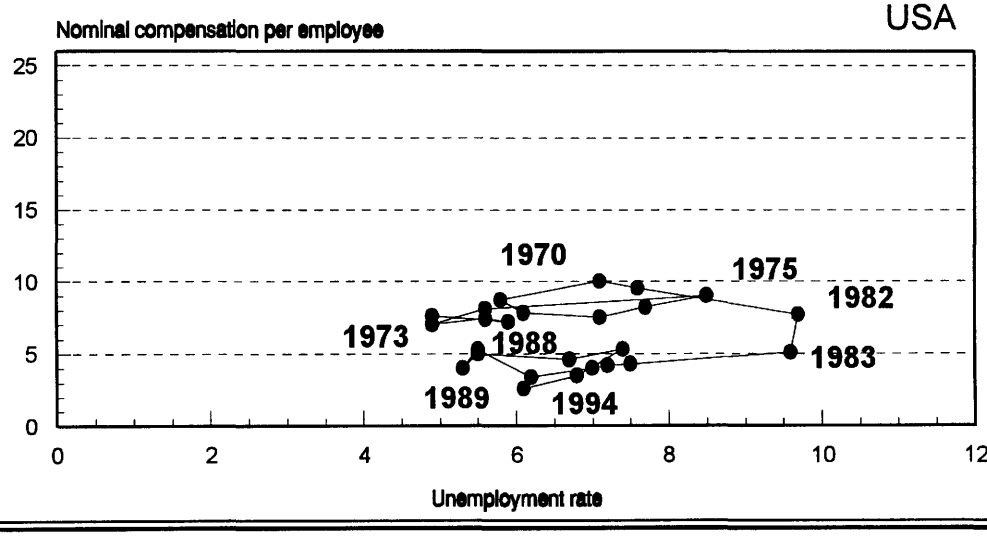
Phillips curves

COMMUNITY



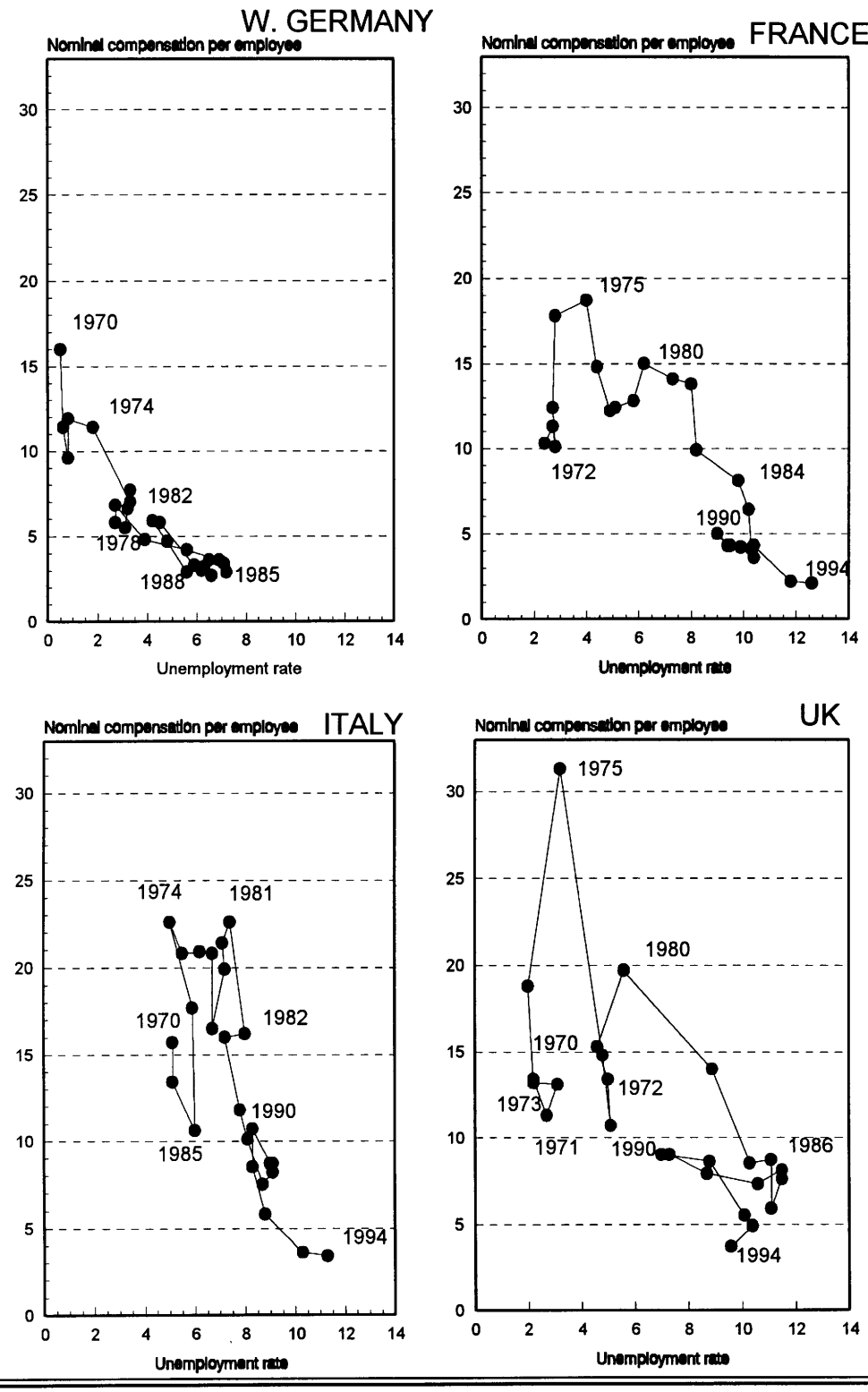
JAPAN

USA



Graph 2

Phillips curves



THE OUTPUT / UNEMPLOYMENT SACRIFICE RATIO: Phillips curves were traditionally used to assess to what extent governments could buy a lower rate of unemployment by accepting a higher rate of inflation. The "Sacrifice" ratio looks at the opposite question i.e. what is the unemployment cost of reducing inflation. In essence the sacrifice ratio is equal to the inverse of the slope of the short-run Phillips curve. It tells us how much a country is prepared to sacrifice (in terms of temporarily higher unemployment) to achieve a permanent reduction in inflation of a certain percentage and clearly the steeper the curve the smaller the sacrifice.

The steepness of the curve is heavily influenced, of course, by expectations which in the case of expected inflation is largely determined by the credibility of government policy. If economic agents believe governments when they say they are going to cut inflation, then unemployment would not have to increase since actual and expected inflation would be the same. Consequently, the higher a government's disinflationary credibility the lower the sacrifice in terms of the temporary rises in unemployment needed in reducing inflation. Linking one's currency to a hard currency regime or substantial evidence of a country's commitment to fiscal consolidation would obviously add to its inflation-fighting credentials and consequently to a break in inflationary expectations.

Given that the NAIRU (equilibrium unemployment) is included in the constant term the slope of the short-run Phillips curve shows how much of a temporary rise in unemployment above the NAIRU is needed to offset the inflationary consequences of a price shock (i.e. what is the price of non-accommodation).

If a price shock of 1 percent occurs then the choice is between allowing wages to increase by 1 percent (absence of money illusion) or increasing unemployment temporarily by a certain amount over the NAIRU to avoid the acceleration in prices. According to estimates from the wage equations in Section 2.2, non-accommodation of a 1 percent price shock would require an increase of:

- ***1.8 percentage points above the NAIRU in the EC*** (due to fast indexation and poor responsiveness of wages to changes in unemployment);
- ***1.3 percentage points above the NAIRU in the US*** (due to slow indexation and slightly more responsive wages); and
- ***0.1 percentage points above the NAIRU in Japan*** (due to highly responsive wage mechanisms to changes in unemployment).

These differences in the respective performances of the three geographical areas can, of course, be corroborated by a visual examination of their respective short-run Phillips curves. It should be stressed however that one should concentrate only on the relative and not the absolute differences in the respective performances since when Phillips curves are shifting and the relative importance of individual determinants changes, the interpretation of sacrifice ratios becomes difficult.

CONCLUSIONS OF EMPIRICAL ANALYSIS

It would appear from this empirical analysis that two broad conclusions can be made in relation to the unemployment-inflation trade off:

1. The ***short-run Phillips curve / sacrifice ratio trade-off exists*** although it varies across countries and is subject to different lag structures. In addition the trade-off appears to be gradually deteriorating in a number of Community countries.

2. There was a ***substantial outward movement of the Phillips curves for the European countries over the 1970s*** reflecting both rising inflationary expectations and the fact that the level of unemployment needed to contain inflation had risen. The onset of the 1980s brought about the introduction of a generally more non-accommodating policy stance which has been reflected in reduced inflationary expectations. However, the enhanced credibility effects emanating from this more non-accommodating stance may have been counterbalanced by an increase in the degree of labour market rigidity in certain countries.

2.2 WAGE FORMATION PROCESS: EXPECTATIONS AUGMENTED WAGE EQUATIONS

Sections 3 and 4 of the present paper attempt to provide some quantification for the main underlying influences at work in terms of the dynamics of the Phillips curve changes i.e. an attempt to provide internationally comparable estimates for real wage rigidities (i.e. slope of the short-run curves) and for NAIRUs (i.e. movements of the curve). This sub-section starts with the estimation of wage equations which include the Phillips curve framework because this is one of the main mechanisms for calculating rigidities and NAIRUs.

While we are essentially only examining the Phillips curve mechanism in the wage equation it is essential to properly specify the wage equation in order to obtain the most robust coefficient estimates for the price and wage variables. Therefore, it would be wrong to simply include an inflation and an activity variable as explanatory variables since an accurate reflection of the wage determination process in each of the countries mentioned should be given.

AUGMENTED PHILLIPS CURVE WAGE EQUATIONS: As the section on the Phillips curve makes clear, most mainstream economists accept the existence of a short-run and a long-run "expectations-augmented" Phillips curve. The Phillips curve can consequently be regarded as a representation of the dynamic adjustment process of nominal wages to changes in those factors which best characterise the macroeconomic wage determination process in the individual countries.

The speed of the adjustment process is determined by the underlying flexibility of wage and price-setting arrangements with the presence of real and nominal rigidities leading to a potentially protracted period of adjustment before equilibrium is restored following a shock.

Consequently, although a trade-off between inflation and unemployment may exist in the short-run (i.e. the coefficient on the price variable in the relevant wage equation is less than 1) it is generally agreed that when inflationary expectations have adjusted fully to the new situation that the long-run Phillips curve is vertical at the natural rate of

unemployment i.e. the labour market is in equilibrium.[4] Normally, however, the labour market is in disequilibrium and nominal wage developments will reflect this situation.

The ***general formulation of the short-run Phillips curve*** used in the attached analysis relates the dependent variable (i.e. the rate of change of nominal compensation per employees) to changes in inflation (private consumption deflator), various measures of the unemployment rate, a terms of trade effect[5] and actual, as opposed to trend, productivity developments. In other words, the specification is virtually identical to the one used in the wage equations in the Quest model and to those used by the OECD's Interlink model. In effect the results presented are simply a re-estimation of these general form equations in order to incorporate more recent data. The only addition is the inclusion of a specific wage equation for the Community as a whole as opposed to using simply a weighted average of the results from the country equations. However, while the general form of the equation is similar, it is nevertheless important to justify the specification adopted. An analysis of the specification issues involved is consequently given in Annex 2.

WAGE EQUATIONS: The general form of the equation is:

$$WAGE = C(1) * PCE + C(2)*UNEMP + C(3)*UNEMPC + C(4)*TOT + C(5)*PROD + C(6)$$

where:

WAGE = Annual % change in Nominal Compensation per Employee (Total Economy)

PCE = Annual % change in the Private Consumption Deflator

UNEMP = Annual Rate of Unemployment (Unemployment as a % of the Civilian Labour Force)

UNEMPC = Change in Annual Unemployment Rate (First Difference)

TOT = Terms of Trade (Difference between the growth rate of the PCE deflator and the GDP deflator)

PROD = Annual % change in Labour Productivity (defined as GDP at constant market prices per person employed)

---

4 The policy implications of this view are clear, governments which are serious in their attempts to reduce "equilibrium" unemployment must concentrate on microeconomic measures to improve the flexibility or responsiveness of the labour market as opposed to resorting to, ultimately fruitless, reflationary macroeconomic policies. Some economists would go as far as calling into question the usefulness of the augmented Phillips Curve approach to modelling aggregate wage and price behaviour on the grounds that if expectations are formed rationally no trade-off exists between inflation and unemployment even in the short-run. This view however is rejected by an extensive array of research on the microeconomics of sluggish adjustment. The slower the pace of adjustment back to equilibrium following a shock the greater the potential for a short-run trade-off to exist between inflation and unemployment.

5 Terms of Trade variable (PCE Deflator-GDP Deflator): This variable is a proxy for the internal terms of trade within the firm and tries to reflect the latter's bargaining power. It can be seen as a counterpart to the Phillips curve effect in the equation. It approximates closely to the concept of net operating surplus and is an indicator of the degree of market power a firm possesses i.e. the degree to which a firm can influence the price of its output and consequently its degree of bargaining power in terms of wage negotiations.

The unemployment rate, in the above equation, is the main disequilibrium component since it serves as a proxy for excess demand in the labour market. Equilibrium phenomena such as the natural rate of unemployment and trend productivity are not modelled explicitly but form part of the constant which is the overall equilibrium component of the equation.

Given the fact that wages and prices are closely interconnected, with each influencing the determination of the other, it would be imprudent to assume that the right hand side inflation variable in the above wage equation is exogenous. In these circumstances, given that the OLS estimation technique would produce biased estimates, it is more appropriate to use an estimation method, such as ***Two-Stage Least Squares (TSLS),*** which would avoid any potential problems associated with simultaneous equation bias.

The TSLS estimates of the basic equations for the US, Japan and the Community, including W.Germany, France, Italy and the UK are given in Table 1 with the detailed regression results for each country contained in Annex 3. For purposes of comparison, the OLS estimates were also calculated. The essential conclusion to be drawn from a comparison of the OLS and TSLS estimates is the remarkable degree of similarity between both sets of results. Although the results may be similar, for the reasons discussed above, it will be the TSLS parameter estimates which will be used for the analysis to be conducted in the subsequent sections.

TABLE 1: WAGE EQUATION COEFFICIENTS FOR THE U.S., JAPAN, EC15, W.GERMANY, FRANCE, ITALY AND THE UK

ESTIMATION METHOD - TSLS*

	CONSTANT	INFLATION	UNEMPLOYMENT		PRODUCT-IVITY	TERMS OF TRADE	R-SQUARED	D-W STAT.
			(Level **)	(change in)				
UNITED STATES	5.48 (0.68)	.98 (0.11)	-.73 (0.14)	-.58 (0.24)	.29 (0.14)	-.75 (0.22)	.86	2.18
JAPAN	13.15 (5.72)	.61 (0.30)	-4.28 (2.04)	-	.20 (0.17)	-.55 (0.21)	.95	1.42
EUROPEAN COMMUNITY	6.03 (1.22)	.91 (0.08)	-.50 (0.08)	-.45 (0.28)	.03 (0.15)	-1.07 (0.24)	.97	2.00
- W.GERMANY	3.31 (1.77)	.89 (0.27)	-.49 (0.17)	-	.43 (0.20)	-1.27 (0.26)	.88	2.22
- FRANCE	4.96 (1.53)	1.03 (0.09)	-.43 (0.10)	-	.13 (0.21)	-.54 (0.21)	.95	2.10
- ITALY	6.57 (2.48)	.95 (0.07)	-.65 (0.24)	-1.12 (0.68)	.46 (0.20)	-1.53 (0.36)	.93	2.21
- UK	4.09 (2.50)	.79 (0.20)	-.18 (0.19)	-.18 (0.24)	.30 (0.21)	-1.50 (0.24)	.91	1.84

* Standard errors appear in parentheses below the coefficient estimates.

** A low coefficient on the unemployment variable translates into a high unemployment cost in terms of reducing inflation.

All the equations perform satisfactorily on the basis of the standard statistical criteria. The overall equation is a good fit explaining a large proportion of the variation in the dependent variable (i.e. wage inflation) and virtually all the coefficients are not only correctly signed in accordance with a priori theoretical guidance for the expected direction of causality but are statistically well determined in terms of low standard errors and confidence intervals.

The good statistical and explanatory performance of the above estimated equations suggests that the augmented Phillips curve framework is a satisfactory method for describing the short-run wage determination process in the countries concerned.

STABILITY OF THE EQUATION ESTIMATES: While the equations appear to perform satisfactorily, it is nevertheless important to examine the stability of the estimated equations given not only the substantial shifts in economic policy which occurred over the period but also the fact that there was a wide range of variation over the estimation period in the growth of wages, inflation and unemployment (see Poret-1990). Such a wide and sharp variation in the variables concerned obviously gives rise to the question as to whether the underlying process of wage determination has changed. An examination of the underlying stability of this relationship can be carried out by using the technique of recursive regressions and with standard ***Chow Tests***.

The recursive least squares procedures provide detailed pictures of the evolution of the estimated relationship by extending the sample one observation at a time and as such provide an important source of information in testing for structural change in the model. Based on the recursive OLS regression residuals, the ***CUSUM test*** (based on the cumulative sum of the residuals) and the ***CUSUM of Squares Test*** (based on the cumulative sum of the squared recursive residuals) test the null hypothesis that the estimated coefficients from the different sub-samples are constant.

The stability of the 2SLS equations were also tested using the standard Chow Tests which tested the null hypothesis of equation stability over the period prior to 1979 compared with the period from 1980 onwards. 1979 was an obvious point at which a break in structure might have been expected to take place following the establishment of the European Monetary System (EMS). In the Chow forecast test, the equation is estimated using the observations up to 1979 and this equation is then used to predict the values of the dependent variable (wage growth) over the period 1980-1994. If there are large discrepancies between the predicted and actual values then the stability of the estimated equation is called into question. In the Chow Breakpoint Test, the total number of observations are divided into two or more subsets with the equation under review fitted separately to each sub-sample. The objective in this case is to test whether the coefficient vector for the wage equation may be regarded as constant over the subsets i.e. over the periods 1961-1979 and 1980-1994.

CONCLUSIONS REGARDING STABILITY: Do the results of these stability tests support the view that there was a structural break in wage behaviour in the 1980s? Unfortunately, the evidence in relation to the four stability tests described above is inconclusive with the Cusum and Cusum of Squares tests suggesting that the estimated equations are in general stable (i.e. that there was no break in behaviour) but with the results of the Chow tests pointing to possible equation instability, at least for some of the countries in question (i.e. the null hypothesis of stability over the two subsets of observations could not be definitively accepted).

(4)

Given the inconclusiveness of the stability tests, additional work will clearly have to be undertaken in order to ascertain whether the wage moderation of the 1980s can be explained simply by reference to external factors, such as the depressed commodity prices of that period or to the collapse in oil prices in 1986, or whether more fundamental factors were at work i.e. factors indicative of a structural change?[6] Such work must try to overcome some of the serious ***limitations of the aggregate wage equations*** estimated above, especially the fact that they ignore or inadequately model key features of the wage formation process such as union power or institutional changes such as a hardening of the ERM commitment.

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[6] ***A fundamental change in wage formation could occur for a number of reasons***:
▷ ***price expectations***, which are a crucial component of wage claims may change in response to the greater credibility of a country's anti-inflationary policies. The widespread adoption of non-accommodating policies in the early 1980s is often represented as a policy regime change which could have fundamentally modified wage determination relationships;
▷ the ***wage determination process*** may become more responsive to rates of unemployment; and
▷ ***wage behaviour*** could be affected by reductions in union militancy and coverage.

SECTION 3 LABOUR MARKET ADJUSTMENT MECHANISMS: QUANTITATIVE ASSESSMENT OF WAGE FLEXIBILITY AND EMPLOYMENT ADAPTABILITY[7]

INTRODUCTION

It is important before going on to discuss the issue of equilibrium unemployment to look at the operation of the labour market adjustment mechanisms and to distinguish these mechanisms from the question of equilibrium unemployment. This is essential in terms of understanding the adjustment dynamics in the labour market (i.e. the speed with which unemployment moves to its equilibrium) which is a separate issue to that of equilibrium unemployment (see Turner, Richardson and Rauffet 1993).

Adjustment dynamics highlight the importance of lagged effects in adjustment (i.e. adjustment is not automatic. They refer to the speed of adjustment of the labour market to temporary (i.e. cyclical) and permanent (i.e. structural) shocks.

If a country's labour market exhibits considerable sluggishness in adjustment to a temporary or permanent change in economic conditions then this will have important implications in terms of the cost and duration of the adjustment process, for example;

- adjustment to ***temporary shocks to labour demand*** such as increases in unemployment following a cyclical slowdown will result in unemployment persisting at the higher level for a longer period;

- adjustment to ***permanent shocks to labour demand*** such as, for example, a lower world demand for unskilled workers, is significantly delayed by the slow adjustment mechanisms - it takes a considerably longer time to reach the new long-run equilibrium.

This section looks at the two-key labour market adjustment mechanisms, wage flexibility and employment adaptability, in an attempt to draw some conclusions regarding the health of the Community's adjustment mechanisms compared with those prevailing in the US and Japan. These adjustment mechanisms are crucial to a smooth market clearing process with the greater the degree of clogging of these mechanisms, the greater the degree of unemployment persistence.

The purpose of this present section therefore is to present an analysis of the dynamic wage adjustment process in the Community, the US and Japan using the augmented Phillips curve framework developed in the previous section and to look at the issue of employment adaptability. This Phillips curve framework is particularly useful in highlighting the two essential features of the wage adjustment process in the Community namely the existence of a substantial degree of real wage rigidity and the related phenomenon of rising NAIRUs and hysteresis. Internationally comparable estimates of nominal and real wage flexibility are useful in helping to explain the large variations over recent decades in the unemployment performances of the US, Japan and the four largest Community economies, namely W.Germany, France, Italy and the UK.

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[7] Labour market clearing (adjustment) can only occur through the adjustment of real wages or an adjustment in numbers employed. Inflexible (rigid) real wages or low employment adaptability increase the cost in terms of lost output and employment (increased unemployment) and in terms of the length of the labour market adjustment process. Wages and employment must therefore become more responsive to changes in labour market conditions.

3.1 NOMINAL AND REAL WAGE FLEXIBILITY

The most commonly used method to derive meaningful cross-country measures of flexibility is to estimate augmented Phillips curve type wage equations for each of the countries concerned and to use the estimated inflation and unemployment coefficients to construct flexibility measures (see Coe 1985 and Chan-Lee, Coe and Prywes 1987).

The equation results presented in Section 2, using the TSLS estimation method, can therefore be used to quantify the extent of real and nominal rigidities in wage setting.

- A high degree of ***real rigidity*** describes a situation where real wages respond little to changes in demand pressure (proxied by unemployment).

- ***Nominal rigidities*** arise when nominal wages respond slowly to changes in prices.

Quantitative measures for both these concepts can be obtained from the estimated parameters from the nominal wage equations.

The nominal wage flexibility concept focuses on the short-run responsiveness of wages with respect to prices i.e the extent of nominal inertia in the determination of nominal wages. If a country's wage determination process is characterised by a slow adjustment of wages to price changes, as in the US because of the long average length of wage contracts, real wages will be more flexible in the face of an inflationary shock. This ***nominal wage rigidity*** or inertia is a positive phenomenon and is the opposite of real wage rigidity. This short-run real wage flexibility is vitally important since it limits the squeeze on profits after a price shock and consequently the need for shedding labour is reduced i.e. the short-run inflation/unemployment trade-off is more favourable. Consequently, real wage rigidity will be higher the more rapidly nominal wages respond to a price shock i.e. the more rapidly indexation, formal or informal, occurs.

However, the above measure of ***real wage flexibility*** is insufficient since it focuses only on the elasticity of wages with respect to prices. It does not say anything about how the level of unemployment will be affected by a particular shock which is probably a more appropriate measure of real wage rigidity. It is more appropriate since we are trying to assess the extent to which divergences in unemployment performances can be explained by the presence of real wage rigidities following shocks to an economy. Consequently, the sensitivity of wages to the unemployment rate must also be looked at, with real wage rigidity being measured by the increase in the unemployment rate necessary to neutralise the inflationary consequences of a real adverse shock i.e. the degree of non-accommodation measured in terms of increases in the unemployment rate. Consequently, the less sensitive are wages to the unemployment rate, the higher will be the measured degree of real wage rigidity.

In order to produce a ***comprehensive aggregate wage flexibility indicator*** it is necessary to produce a synthetic indicator based on the two measures of real wage rigidity mentioned above i.e. the elasticity of wages with respect to prices and the sensitivity of wages to the unemployment rate. This comprehensive wage flexibility indicator would, in the case of an inflationary supply shock, such as an oil price increase, be therefore a two-pronged measure of flexibility capturing both the short-run reaction of wage earners to the terms of trade loss and their reaction to the changed labour market conditions. This "overview" indicator is constructed simply by dividing the short-run elasticity of money wages with respect to consumer prices by the elasticity of money wages with respect to

the unemployment rate. Consequently, a low elasticity of nominal wages with respect to short-run price changes and a high degree of responsiveness of wages to changes in demand pressure would produce a low value for the "overview" indicator indicating real wage flexibility and vice versa.

In ***conclusion***, therefore, countries with a high value for the ratio of the two elasticities can be regarded as demonstrating real wage rigidity with countries with a low ratio indicating real wage flexibility.

Table 2 below draws on the estimation results from the equations in Section 2 and constructs short-run and long-run "overview" measures of real wage rigidity.

TABLE 2: SHORT AND LONG-RUN REAL WAGE RIGIDITY[8]

	ELASTICITY of NOMINAL WAGES WITH RESPECT TO			"OVERVIEW" REAL WAGE RIGIDITY	
	PRICES		UNEMPLOY-MENT	SHORT RUN	LONG RUN
	SHORT RUN* 1	LONG RUN 2	3	4 =1 ÷ 3	5 = 2 ÷ 3
UNITED STATES	0.09	0.98	-0.73	0.12	1.34
JAPAN	0.33	0.61	-4.28	0.08	0.14
EUROPEAN COMMUNITY	0.52 **	0.91	-0.50	1.04	1.82
- W.GERMANY	0.50	0.89	-0.49	1.02	1.82
- FRANCE	0.50	1.03	-0.43	1.16	2.40
- ITALY	0.40	0.95	-0.65	0.62	1.46
- UK	0.67	0.79	-0.18	3.72	4.39

* Quest estimates: The short-run price elasticity refers to the impact after one quarter

** Unweighted average of the four EC countries mentioned

The main conclusions to be drawn from the above table are as follows:

- The ***short-run responsiveness of wages with respect to prices is higher in the European Community and in Japan than in the United States***. This nominal wage rigidity in the US, resulting from money wages reacting slowly to price changes, brings with it a number of positive advantages such as less rapid price-wage spiralling effects and less pressure on profits thus reducing the need for labour shedding.

- ***Over the longer-run wages eventually follow prices in almost all countries*** as evidenced by the convergence towards unity of the price coefficients. This is the result one would expect in the absence of money illusion. The long-run in this

[8] See Coe (1985)

case (i.e. in terms of indexation) is equal to about 6-9 months in the case of the EC and Japan and 1 ½-2 years in the case of the US reflecting the differences in the length of wage contracts.

- Estimates for the ***sensitivity of wages to the unemployment rate*** show the greatest responsiveness of wages to labour demand occurring in Japan. For the United States, the empirical results show a slightly stronger reaction to changing labour market pressure than in the Community as a whole or in the individual Member States.

- Combining the short-run price and unemployment coefficients[9] to produce the ***short-run "overview" indicator for real wage responsiveness*** shows a high degree of short-run real wage flexibility in both the US and Japan due essentially to a high responsiveness of wages to unemployment in the case of Japan and a slow response of wage growth to inflation in the case of the US. A substantially more rigid picture appears for the European countries as a whole because of relatively rapid indexation and a low cyclical responsiveness of wages.

- In the short-run, therefore, a ***non-accommodation of a one percentage point price rise*** would only require unemployment to increase by 0.1 percentage points above the natural rate in the first quarter of the adjustment (i.e. the short-run) to prevent an acceleration of wages in the US and Japan but by 1 percentage point in the Community.

- Since the long-run inflation elasticities are all close to unity, the ***long-run "overview" measure for real wage rigidity*** only differs from country to country on the basis of the differences in the estimated unemployment elasticities. In overall terms, in a long-run comparative-static sense, unemployment would have to increase by 0.1, 1.3 and 1.8 percentage points above the natural rate in Japan, the US and the European Community respectively to offset the inflationary consequences of a real shock which temporarily increased inflation by one percentage point.

One word of warning in relation to the use of the above measures of short and long-run real wage rigidity: not too much reliance should be placed on the absolute size of the elasticities, most attention should be focused on the relative differences across countries. This warning results essentially from the fact that the above results derived from the estimated wage equations are sensitive to changes in specification and to definitional differences concerning the activity variable.

However, despite these reservations, it is safe to conclude on the basis of the short-run indicator of real wage rigidity that real wages in the US and Japan are more flexible than in the Community and that using the long-run indicator that differences continue to exist but are less pronounced between the US and the Community and that Japan is the country which stands out as having the most flexible wages even in the long-run.

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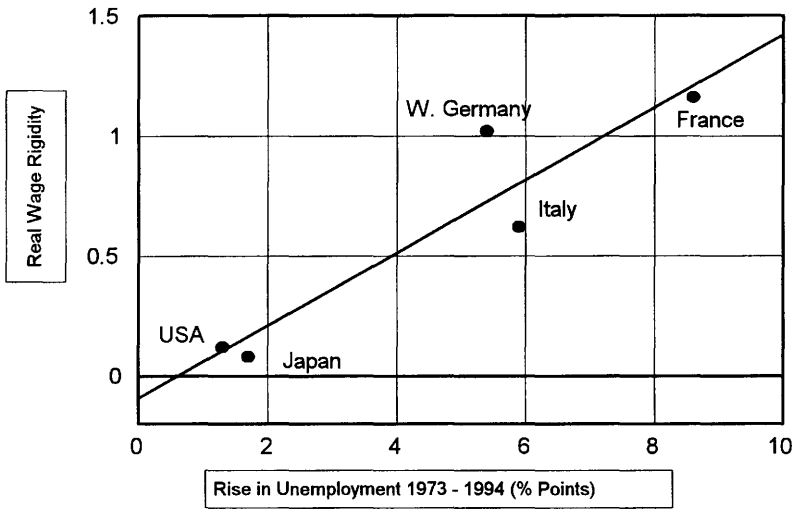
[9] Wage formation may be termed rigid when the ratio of these two elasticities is high with, as Graphs 3 and 3a show, high rigidity certainly playing some part in increasing unemployment. (A high correlation appears to exist between rigidity levels and unemployment changes).

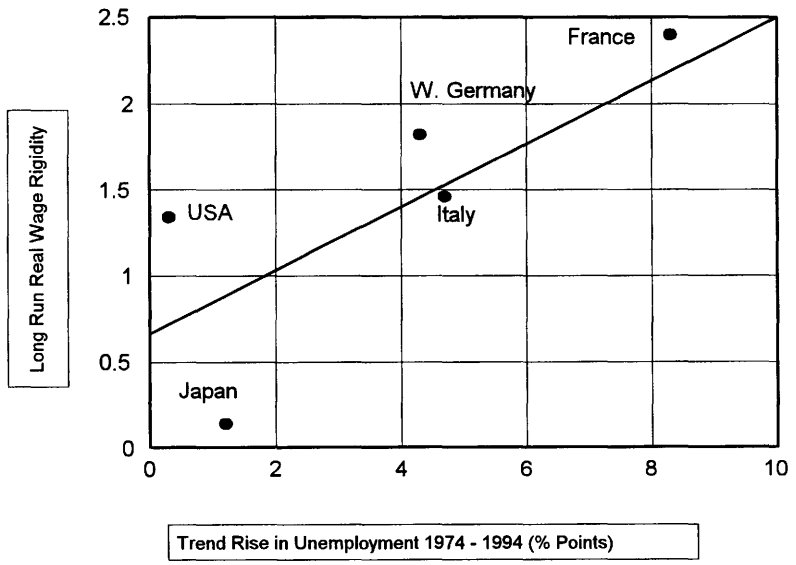
REAL WAGE RIGIDITY AND INCREASES IN UNEMPLOYMENT

Graphs 3 and 3a group the countries shown in Table 2 according to their short-run (Graph 3) and long-run (Graph 3a) real wage rigidity measures and compares them with the actual and trend rise in unemployment between 1973 and 1994. Both graphs reveal a distinct positive correlation between both the rigidity measures and the relative deterioration in the labour market situation of the respective countries. It would appear from these graphs that the non-accommodation of adverse price shocks in conditions of real wage rigidity could carry substantial short and long-run consequences for employment. This is in keeping with the belief that the presence of a relatively large degree of rigidity in the Community is correspondingly reflected in larger disturbances to the real economy following supply or demand shocks than in the US or Japan.

GRAPH 3: Short-Run Real Wage Rigidity and Actual Rise in Unemployment



GRAPH 3 A: Long-run Real Wage Rigidity and Trend Rise in Unemployment



3.2 EMPLOYMENT ADAPTABILITY

In addition to wage cost flexibility, another indicator of the underlying health of an economy's adjustment processes is the concept of employment adaptability i.e. the speed with which employment adjusts to fluctuations in output. Consequently, countries with highly flexible employment and faced with a negative demand or supply shock would respond with a rapid shake-out in the numbers employed and a consequent sharp rise in unemployment. The latter would in turn provoke a stronger response in terms of nominal wage adjustment compared with a country where employment is more secure or rigid.

It is important to stress that this is a very ***rough measure of employment adaptability*** since it only refers to units of labour employed and makes no allowance for adjustment in terms of the numbers of hours worked. This is particularly important in, for example, the case of Japan where a downturn in labour demand has traditionally been reflected more in the number of hours worked than in the shedding of labour.

Employment adaptability can be measured[10] by calculating the output coefficient b in the following equation which essentially measures the elasticity of labour productivity advances with respect to output growth :

$$Lab.Prod = a + b*OUTPUT\ GROWTH_t + c*\ OUTPUT\ GROWTH\ _{t-1}$$

If the b coefficient is low, this is indicative that employment is highly flexible.

TABLE 3: EMPLOYMENT ADADPABILITY INDICATOR*
(The lower the value the greater the adaptability)

US	.42**
JAPAN	.90
EC 15	.76
- W. GERMANY	.68
- FRANCE	.75
- ITALY	.85
- UK	.74

* It must be stressed that this indicator provides only a rough overview of the situation since it does not adjust for differences in working time

** This indicator shows that if output declines by 1 percent in the U.S. then labour productivity goes down by .42 and consequently employment declines by .58 whereas in Japan a 1 percent decline in output leads only to a 0.1 percent fall in the numbers employed.

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[10] See OECD (1989) "Economies in Transition: Structural Adjustment in OECD Countries" and the OECD Economic Survey for Austria 1987/1988

Table 3 shows the b coefficient estimates for the US, Japan, the EC and the four largest EC countries which indicates clearly that the US has the most adaptable employees with Japan at the other extreme and the Community as a whole, as well as the individual Member States, in an intermediate position.

WAGE FLEXIBILITY AND EMPLOYMENT ADAPTABILITY: It is interesting to combine the wage flexibility and employment adaptability indicators since as Table 4 and Graph 4 indicate there would appear to be a trade-off between the two concepts with countries with high wage flexibility exhibiting rigidity in terms of employment adjustment.

TABLE 4: EMPLOYMENT ADAPTABILITY AND REAL WAGE FLEXIBILITY

	Employment Adaptability	Long-run Real Wage Flexibility*
US	.42	1.34
JAPAN	.90	0.14
EC 15	.76	1.82
- *W.GERMANY*	.68	1.82
- *FRANCE*	.75	2.40
- *ITALY*	.85	1.46
- *UK*	.74	4.39

* The lower the value the greater the flexibility.

It would appear from this table that economies, such as ***Japan, which are characterised by highly flexible real wages in the face of disturbances can better accommodate some degree of labour hoarding***. Output can remain profitable despite rigidity in employment adjustment since wages are so flexible. Wage flexibility ensures viability and permits a greater level of employment to be maintained in the event of an adverse shock.

In the case of the ***US***, even though real wage flexibility is not substantially different to that in the Community, this is counterbalanced by a ***high degree of employment flexibility*** which reflects a large number of factors including the paucity of hiring/firing legislation (see Annex 5 on a comparison of US and Community employment performances and the role played by labour market flexibility). In the event of a downturn, therefore, in the US, the employment fallout would lead to a pronounced rise in unemployment which in turn would exert a relatively strong moderating influence on wage developments.

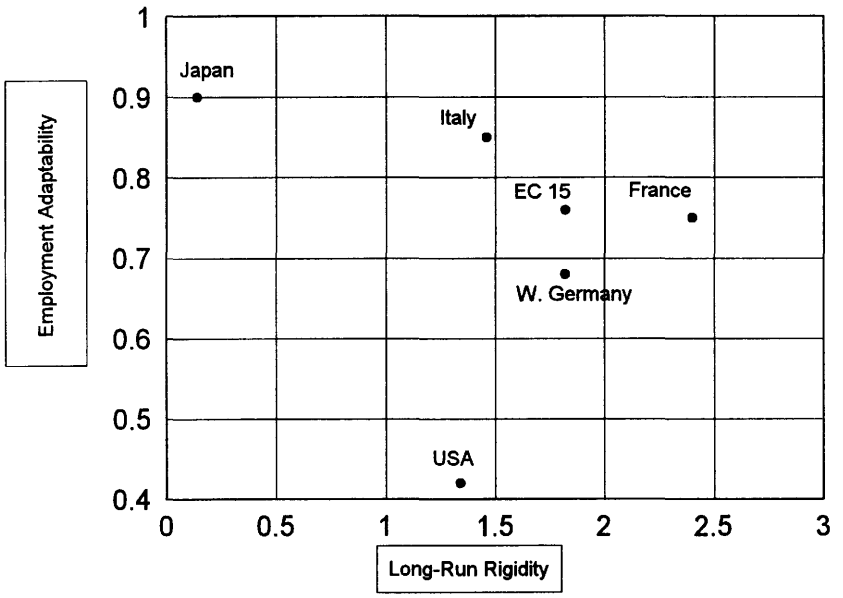
The ***"worst of both worlds"***, of course, is where a country's labour market is characterised by both inflexible employment and rigid real wages. The viability of operations is severely compromised if neither the price of labour nor the quantity employed can be flexibly adjusted to meet the demands of changing operating conditions. An absence of voluntary flexibility both with regard to price and quantity leads inevitably

(5)

to involuntary adjustment ranging from a scaling down of operations to large-scale redundancies associated with the termination of unprofitable operations.

This ***"worse of both worlds" scenario would appear to accurately reflect the situation pertaining in the Community*** and may partly explain why the latter area has only managed an employment growth rate of 12 per cent since 1960 compared with increases of 45 percent for Japan and 87 percent in the US.

GRAPH 4: Overview of Labour Market Adjustment Mechanisms



A country's job creation performance is in effect the best reflection of the underlying health of an economy's labour market. Prima facie, therefore, EC labour markets are functioning badly relative to those in Japan and the US due to inflexible real wages and employment rigidity. The US and Japanese labour markets would appear to be in a better position to weather any negative external supply or deflationary demand shocks than those in the Community due to a high degree of wage flexibility in the case of Japan and to employment flexibility in the case of the US.

Given the political and social difficulties associated with highly flexible employment arrangements it would be ***more appropriate for the Community to aim for a higher degree of real wage flexibility***. When real wage flexibility is high (i.e. when the moderating influence of rising unemployment on wage settlements is relatively strong), the fall in profitability, output and employment following a shock is normally small and short-lived. In other words, the rise in unemployment required to both reduce inflation (i.e. wage inflation) and to restore profit margins to the levels pertaining before the shock is

smaller when real wages are flexible. Therefore, with the speedy and complete adjustment to demand or supply side shocks occurring through a high degree of real wage flexibility, there is less onus on an economy to adjust employment levels in the face of such shocks. In a sense, therefore, countries can live with a high degree of employment rigidity if its aggregate real wage flexibility is high e.g. Japan[11].

---

11 In Japan, it would appear that employment is simultaneously rather resilient to changes in output growth (negative shocks to labour demand tend to be reflected in changes in the number of hours worked rather than in the numbers employed) while, at the same time, Japanese wage-setting procedures appear to be strongly influenced by competitiveness considerations with unions anxious not to price their members out of markets. Consequently, the Japanese economy has not been affected to the same extent as other countries by wage-price spirals following external inflationary shocks. For a major trading nation such as Japan, international competitiveness is a crucial determinant of employment growth over the medium-term with the observed high degree of employment stability in that country apparently being compensated for by greater wage restraint on behalf of employees. Therefore, it is true to say that with this type of "labour hoarding" by Japanese firms that at times of depressed or sluggish economic conditions that the slack in the labour market is higher than that reflected in the official unemployment figures.

SECTION 4: INTERNATIONAL COMPARISON OF OVERALL LABOUR MARKET FLEXIBILITY-EQUILIBRIUM UNEMPLOYMENT

The last section showed clearly that the Community's labour market adjustment mechanisms of wage flexibility and employment adaptability compare poorly with those pertaining internationally. These mechanisms refer essentially to the speed with which disequilibrium unemployment moves to its equilibrium rate. This section will look at the related issue of the equilibrium rate of unemployment and especially the question of whether equilibrium rates have changed over time in the countries examined. The concept of the NAIRU was introduced to define that level of unemployment which persisted even when the labour market is in equilibrium i.e. the equilibrium rate of unemployment (see Annex 4 for a short overview of the concepts of equilibrium and disequilibrium unemployment).

4.1 NAIRU CALCULATIONS

The concept of the natural rate of unemployment encapsulates the idea that a natural level of unemployment persists even when the labour market is in equilibrium. In the absence of a perfectly competitive labour market this "natural" level of unemployment corresponds therefore to the amount of frictional and structural unemployment which continues to exist in an economy even when the supply and demand for labour are in balance.

As with the estimates for real wage flexibility in the last section, the most widely used method for calculating the NAIRU is the one which uses the expectations-augmented Phillips curve approach. While the NAIRU is a useful theoretical concept, its empirical difficulties such as the inaccuracies in measuring it and its variability over time limits its usefulness in terms of macroeconomic policy-making.[12]

However, NAIRU calculations can be used as an overview indicator of international differences in overall labour market flexibility on the assumption that the expectations-augmented Phillips curve for each of the countries concerned has :

- the ***same functional form***;
- has ***comparable data*** for the variables used (i.e. there are no definitional differences); and
- uses the ***same estimation period***.

The estimated wage equations (2SLS) in Section 2 meet the 3 criteria mentioned above and thereby qualify as an appropriate basis for calculating internationally comparable NAIRUs for the US, Japan, EC 15, W.Germany, France, Italy and the UK. These NAIRU calculations will be used to provide a very useful picture of the relative degree of

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[12] It should be stressed, however, that interpreting changes in NAIRUs should be done with caution not only because of the unreliability of the estimates but more importantly because of the notable feature that NAIRUs appear to have increased the most in countries where the actual unemployment rate has also increased by the greatest amount. This appears to suggest that the NAIRU gravitates towards the prevailing rate of unemployment and therefore that the downward pressure which high rates of unemployment exert on wages tends to decline over time. The most common explanation for this phenomenon of shock-induced increases in unemployment having a weak tendency to fall back to earlier levels is the idea of "hysteresis" which is discussed more fully in Section 5. The essential point is that if one accepts the idea of hysteresis i.e. that rises in actual unemployment causes a rise in equilibrium unemployment, then one would have to be sceptical about whether NAIRUs provide good guides to inflationary pressure.

rigidity or malfunctioning among these respective labour markets since the higher the level of the NAIRU the greater the labour market problems and difficulties that an individual country or region faces.

One last aspect of the NAIRU concept needs to be stressed because it is particularly pertinent in the case of the Community. The term "natural" or equilibrium rate of unemployment appears to suggest not only that the NAIRU calculations are constant but more importantly that they are incapable of being shifted due to economic policy changes. However, this view is totally misleading since the natural rate of unemployment is capable of being influenced by economic policy and it is not immutable over time as proven by the experience of a large number of Community economies over the last two decades.

Increases in the natural rate can arise due to the influence of a broad variety of factors which have the effect of shifting either the demand or supply curve for labour to the left. A leftward movement of the demand curve for labour could occur for example due to the introduction of productivity-reducing trade union restrictive practices, with shifts of the labour supply curve to the left occurring, for example, due to increases in real unemployment benefits. Both of the above examples are likely to raise the NAIRU.

While the above points in relation to the NAIRU need to be taken into account, it is clear for our purposes here that the NAIRU can still be used as a meaningful overview measure of cross-country differences in labour market flexibility since it embodies all possible institutional labour market differences between countries.

If we take the general specification for the wage equations included in Section 2:

$$WAGE = c(1) * PCE + c(2) * UNEMP + c(3) * UNEMPC + c(4) * TOT + c(5) * PROD + c(6)$$

This is similar to the specification used by the OECD to compute NAIRUs for the major OECD economies (see COE: OECD Economic Studies N°5, 1985). Unlike the case for estimating wage flexibility where the coefficient on the price variable was allowed to be freely determined, it was decided to impose a coefficient of 1[13] for the NAIRU calculations because of the inherent desirability of the homogeneity property. In a steady state (i.e. equilibrium), productivity is growing at its trend rate and the unemployment rate is at its natural rate. Both trend productivity and the natural rate, as in Section 2, are included in the constant term. Consequently, the above equation can be arranged to compute the NAIRU as follows:

$$NAIRU = (c6 - (1 - c5) * \text{change in trend productivity}/c2$$

The natural rates computed by using the above re-arranged augmented Phillips curve equation are given in Table 5 and in Graphs 5 and 6.

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[13] The implication of the coefficient being less than 1 is that the long-run Phillips curve ceases to be vertical and therefore unemployment can be kept below the NAIRU without accelerating inflation.

TABLE 5

NAIRU ESTIMATES 1970-1994*

	1970	1975	1980	1985	1990	1994
UNITED STATES	6.4	7.0	7.1	6.8	6.7	6.5
JAPAN	1.8	2.3	2.5	2.5	2.7	2.8
EUROPEAN COMMUNITY	4.7	6.8	8.1	8.3	8.5	8.5
- *W.GERMANY*	2.6	3.8	4.8	4.7	4.6	4.6
- *FRANCE*	3.4	5.8	7.0	7.4	7.6	8.2
- *ITALY*	6.5	7.9	8.5	8.6	8.4	8.3
- *UK***	6.2	9.2	9.7	9.2	10.8	9.7

* It should be noted that for some countries the productivity coefficient is not statistically different from zero and care should therefore be taken in drawing inferences from the absolute NAIRU estimates. Attention should be focussed on the relative, not tthe absolute, performance of the countries concerned.

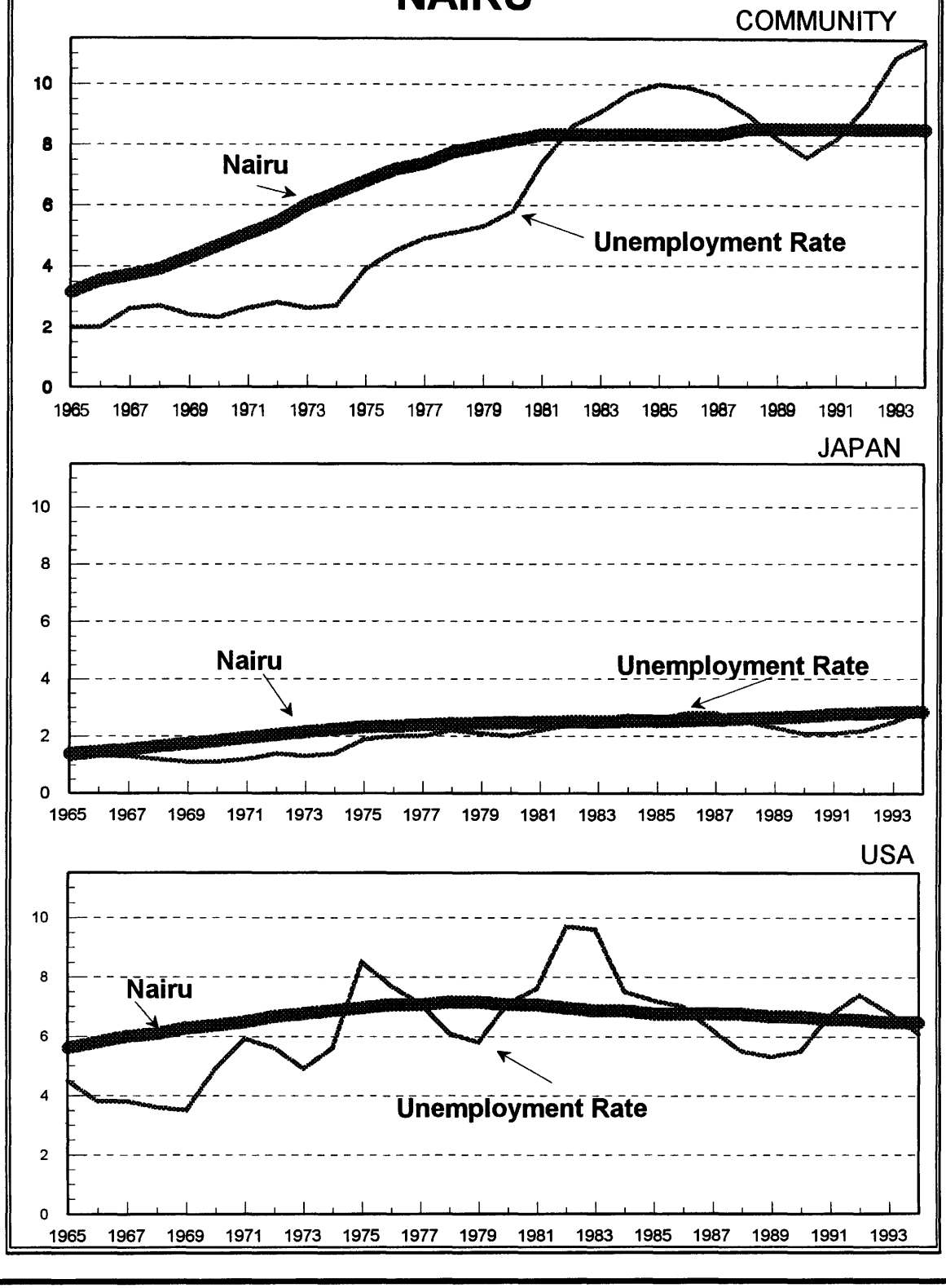
** Estimates in other research work for the UK NAIRU are in some cases lower than the figures presented here. Given the empirical difficulties in measuring this theoretical concept and its variability over time, such differences should not come as a major surprise. Furthermore, it should be stressed that as regards the above estimates that the coefficient on the unemployment variable for the UK, which is used in the NAIRU calculation, is not statistically significant although it is correctly signed.

The overall conclusion to be drawn from the NAIRU estimates generated is that the ***NAIRU has risen in all areas, with the notable exception of the US, over the last number of decades*** i.e. the level of unemployment consistent with stable inflation is now much higher than before the shocks of the 1970s. This general, almost global, phenomenon is usually explained by the slowdown in the trend of productivity growth, by the large external oil price shocks and by a deterioration in labour market flexibility. But given that all areas were equally affected by the first two of the latter three factors, it is trends in relation to labour market flexibility which must be examined in order to explain the fact that the European Community has been particularly affected with an increase of close to four percentage points in the NAIRU over the period compared with a 1 percentage point increase in Japan and virtually no change in the case of the US.

As regards the situation in the individual Member States, the NAIRU figures would suggest that using this measure of structural unemployment that the situation with regard to the "hard core" of unemployment has in effect stabilised in Germany and Italy and that it has continued to deteriorate in France. Finally, little can be concluded from the NAIRU estimates for the UK which have shown a highly erratic pattern over the period under review.

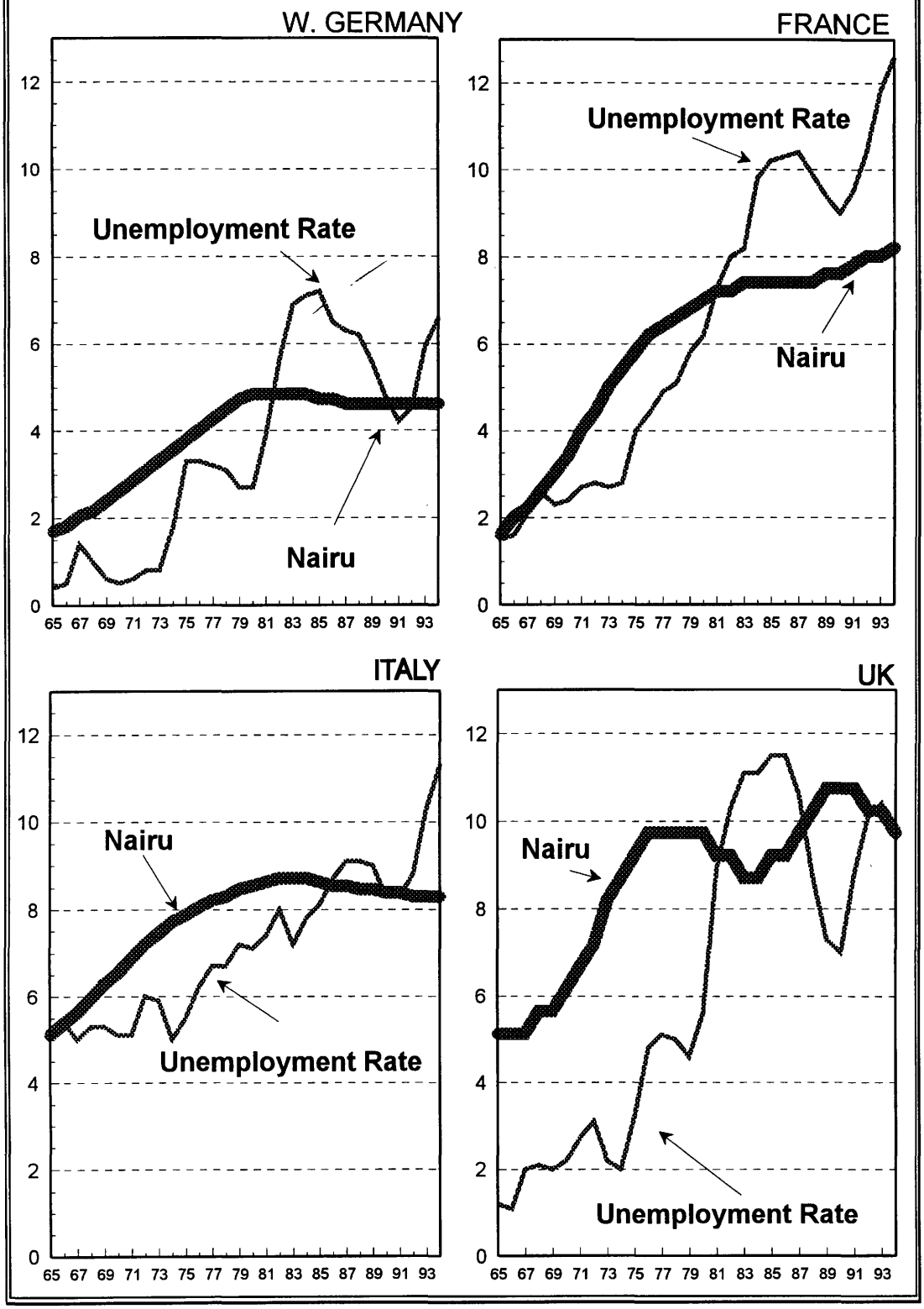
Graph 5

NAIRU



Graph 6

NAIRU



The trends established for the Community, the US and Japan in the above NAIRU calculations are broadly confirmed by:

A. TREND UNEMPLOYMENT DEVELOPMENTS AS CALCULATED USING THE HODRICK-PRESCOTT FILTER APPROACH.

B. AN ANALYSIS OF LONG-TERM UNEMPLOYMENT RATES, OUTFLOW RATES AND BEVERIDGE CURVES.

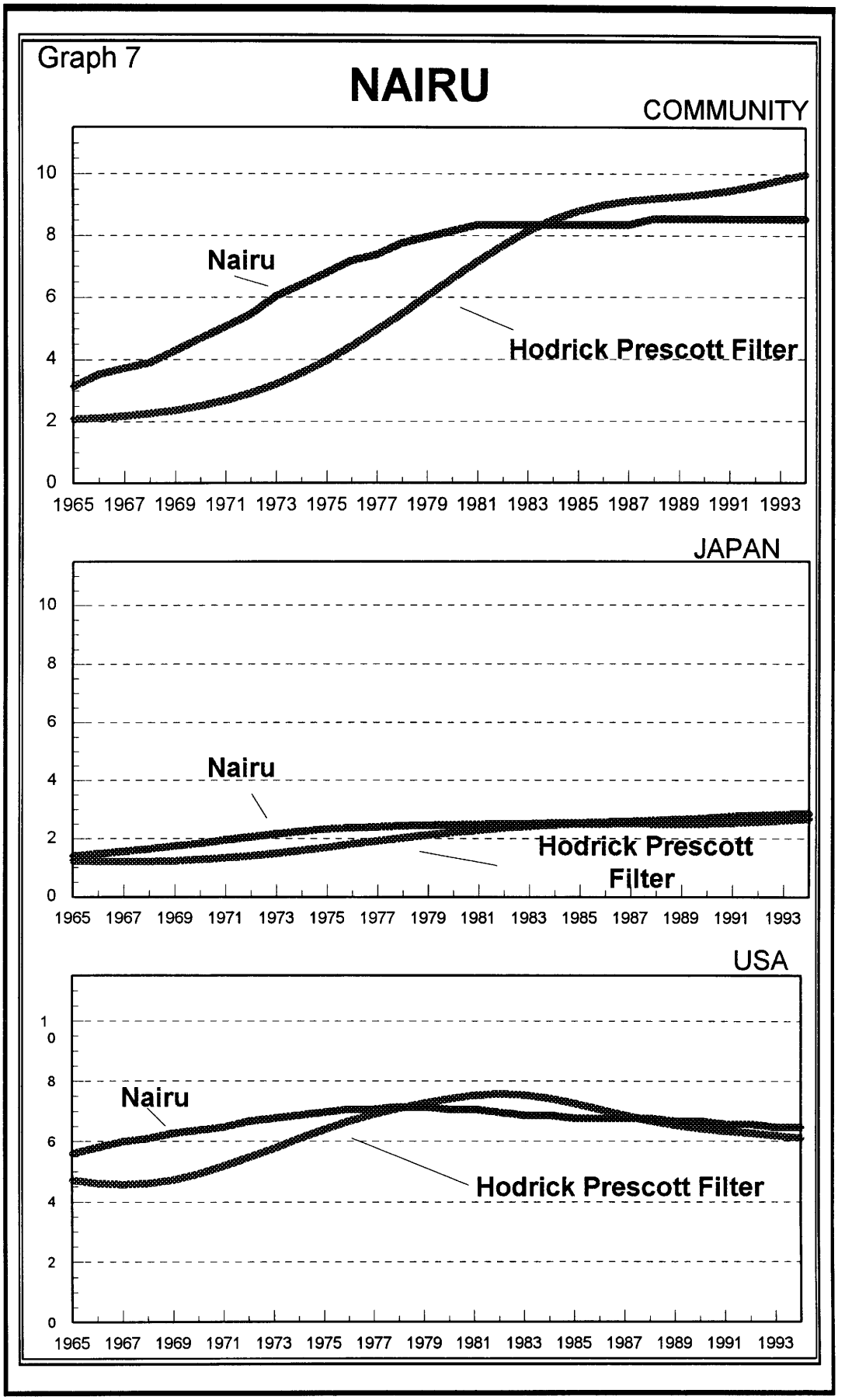
C. OKUN CURVE ANALYSIS.

TREND UNEMPLOYMENT - CALCULATED BY THE HODRICK-PRESCOTT FILTER

The ***Hodrick-Prescott (H-P) filter approach is a trend estimation method*** which basically uses a long-run moving average to detrend a particular series, in this case unemployment. Using the H-P filter is justified for calculating the natural component of unemployment since the latter concept assumes that factors affecting the natural rate are infrequent and are slow to change.

The most interesting point to be taken from graphs 7 and 8 which compare the NAIRU calculations and the trend unemployment figures is that ***slow adjustment mechanisms as opposed to equilibrium factors would appear to be responsible for the trend increase in Community unemployment from the early 1980s onwards.*** This is not a surprising result giving that the relative restrictiveness of the policy stance pertaining on average in the Community over the period as a whole led to increases in unemployment which were demand related and not structural. Interestingly, this general conclusion for the Community can be directly applied to the cases of Germany, France and Italy where a substantial divergence has emerged between the NAIRU and trend unemployment measures over roughly the same period. Finally, it is noteworthy to draw attention to the fact that in the cases of the US and Japan, that the NAIRU and trend unemployment measures have broadly converged.

(6)


Graph 7
NAIRU
COMMUNITY
10
8
6
4
2
0
Nairu
Hodrick Prescott Filter
1965 1967 1969 1971 1973 1975 1977 1979 1981 1983 1985 1987 1989 1991 1993
JAPAN
10
8
6
4
2
0
Nairu
Hodrick Prescott Filter
1965 1967 1969 1971 1973 1975 1977 1979 1981 1983 1985 1987 1989 1991 1993
USA
10
8
6
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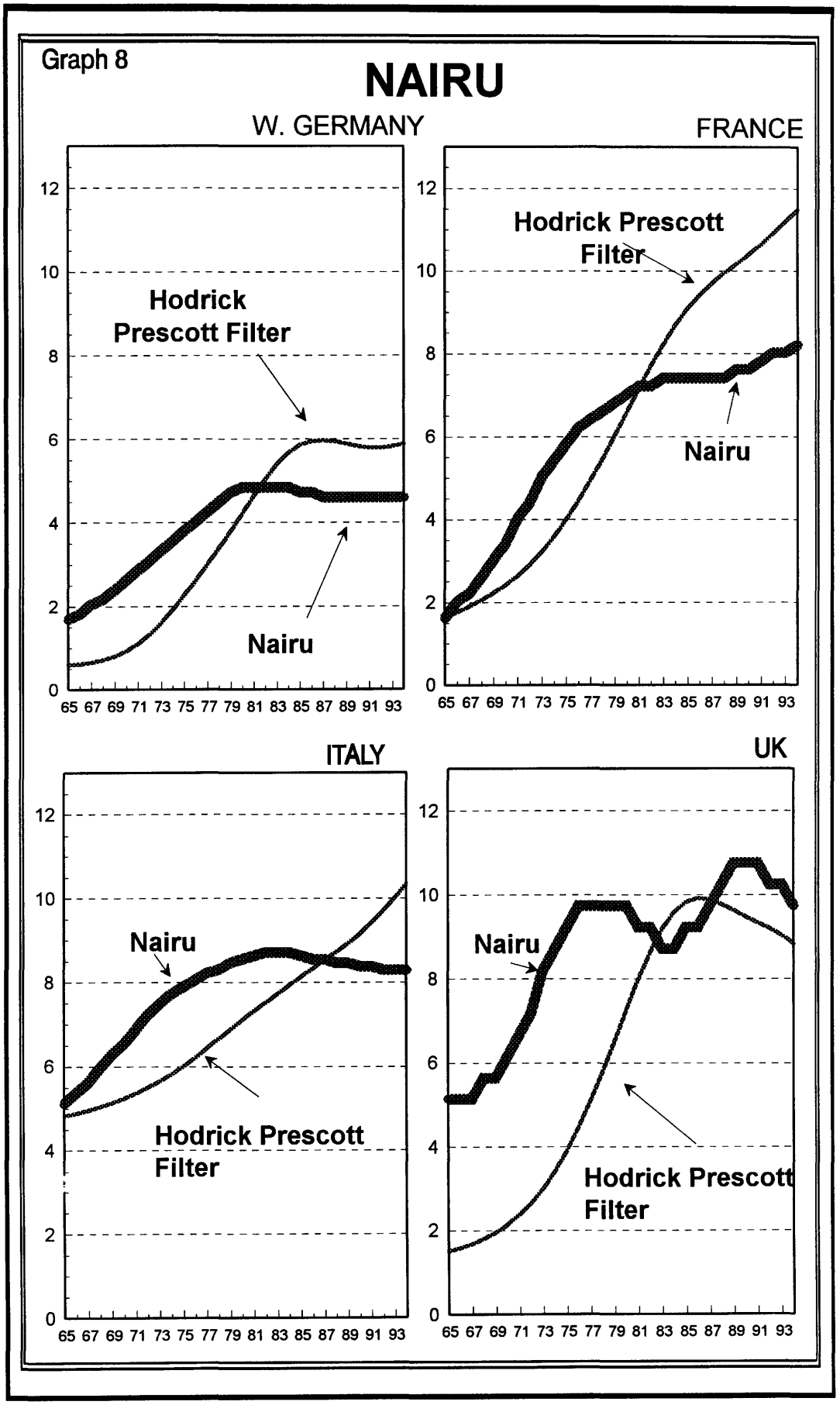
Nairu
Hodrick Prescott Filter
1965 1967 1969 1971 1973 1975 1977 1979 1981 1983 1985 1987 1989 1991 1993


Graph 8
NAIRU
W. GERMANY
Hodrick
Prescott Filter
Nairu
FRANCE
Hodrick Prescott
Filter
Nairu
ITALY
Nairu
Hodrick Prescott
Filter
UK
Nairu
Hodrick Prescott
Filter
0
2
4
6
8
10
12
65 67 69 71 73 75 77 79 81 83 85 87 89 91 93

4.2 BEVERIDGE CURVE ANALYSIS

The Beveridge curves shown in Graph 9 plot out the relationship between the vacancy rate, defined as the number of vacancies as a proportion of total employment, and the rate of unemployment. The Beveridge curve is essentially an indicator of mismatch unemployment i.e. a mismatch between labour supply and demand due to regional and/or skill differences. Consequently, if rising unemployment is not accompanied by a falling vacancy rate then this would be an indication of growing mismatch problems in an economy.

The Beveridge curves for the UK and Germany have in overall terms shifted outwards over the last number of decades at a time when the rate of unemployment increased substantially in both countries. This outward movement could reflect a number of factors including:

- ***changes in labour mobility***;
- the effect of ***changes in the degree of social protection*** - (e.g. unemployment and social welfare benefits) - on the incentive to work and consequently on the intensity of job search;
- ***human capital wastage*** because of both increasing difficulties in gaining relevant work experience and due to the increasing average duration of spells of unemployment.

The above conclusions in relation to the Beveridge curve are backed-up by Tables 6 and 7 which show long-term unemployment rates and outflow rates from unemployment for the US, Japan and the Community. The high proportion of long-term unemployed in the overall unemployment total for the Community and the low outflow rates are also suggestive, as are the Beveridge curves, of growing mismatch problems, reduced intensity of job search and the decay of human capital.

TABLE 6 **INDICATORS OF LABOUR MARKET RIGIDITY: LONG-TERM UNEMPLOYMENT**

SHARE OF LONG-TERM UNEMPLOYED IN TOTAL UNEMPLOYMENT (in per cent)			
	1983	**1990**	**1993**
EUR 12	**46.6 ***	**48.6**	**44.0**
USA	**13.3**	**5.6**	**8.4**
JAPAN	**13.1**	**19.1**	**15.4**

* EUR 10
Source: Labour Force Survey and OECD

Graph 9

Beveridge Curves

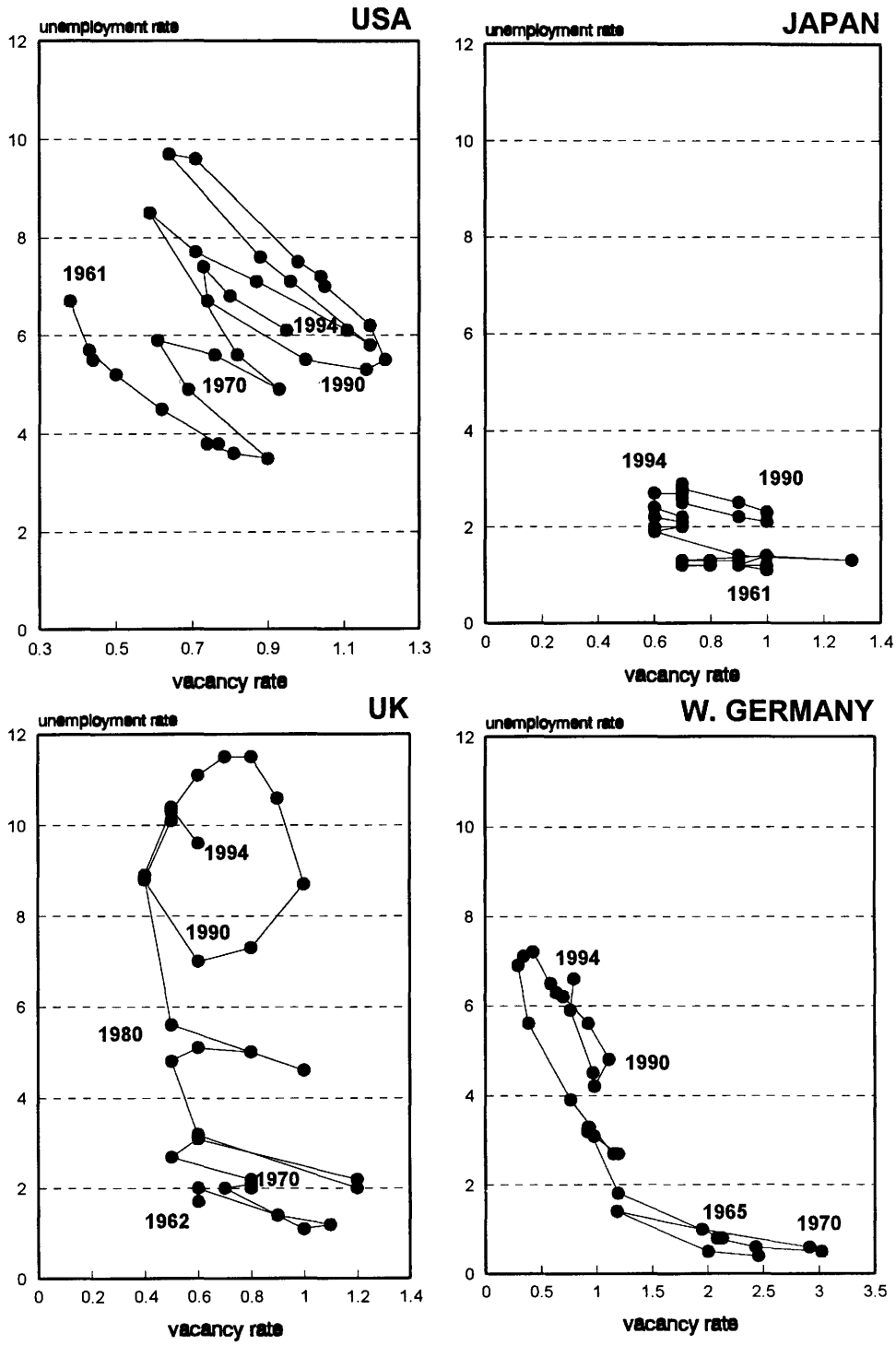


TABLE 7

INDICATORS OF LABOUR MARKET RIGIDITY: MONTHLY FLOWS OUT OF UNEMPLOYMENT
(as per cent of unemployment)

	1983	1990	1993
W.GERMANY	6.2	6.3	9.0
FRANCE	3.5	3.7	3.4
ITALY	1.7	2.3	9.5
UNITED KINGDOM	7.4	9.5	9.3
EUR 4*	4.7	5.5	7.8
USA	37.8	45.7	37.4
JAPAN	14.8	17.2	17.1

Source: OECD
*** EUR 4, D,F,I,UK**

4.3 OKUN CURVE ANALYSIS

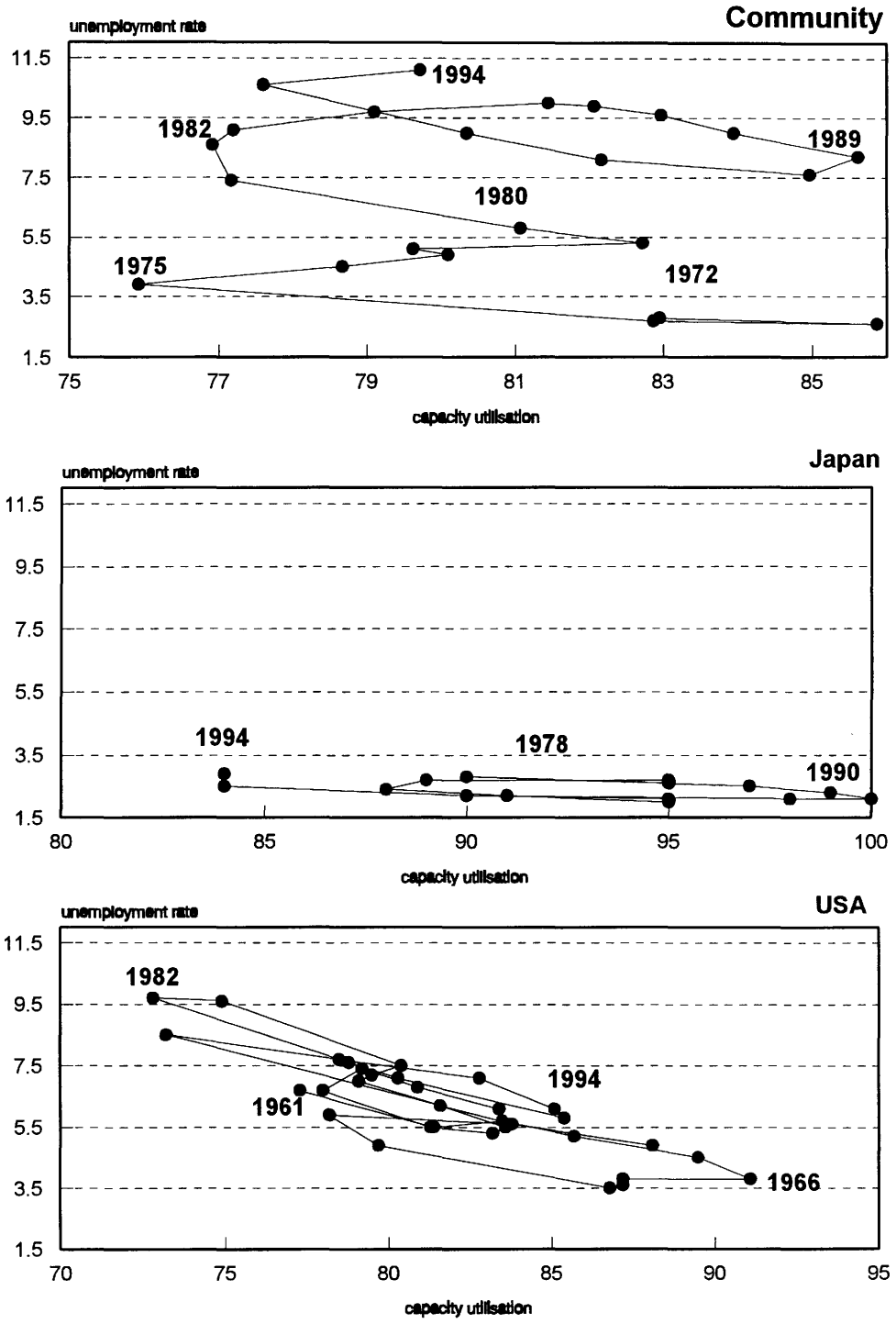
The Okun curves shown in Graph 10 chart capacity utilisation, which is an indicator of the intensity of capital use, against the unemployment rate which is an indicator of the intensity of labour use. It is evident from these charts that the trend traced by the OKUN curve for the Community is more clearly upwards compared with that for either the US or Japan. Consequently, in the Community, a given rate of capacity utilisation has been associated over time with higher and higher rates of unemployment. The upward shift of the Okun curve is generally perceived to be a sign of insufficient labour market flexibility, implying an increase therefore in the NAIRU (see OECD -1989: Economies in Transition).[14]

This upward movement of the OKUN curve would appear not to be due to inadequate investment nor to depressed demand but to differences in the type of investment undertaken. To illustrate this contentious conclusion, Graph 11 compares the US and the Community with regard to ***developments in real GDP, capital stock and the capital-labour ratio***. This graph suggests that neither a lack of demand growth (real GDP has

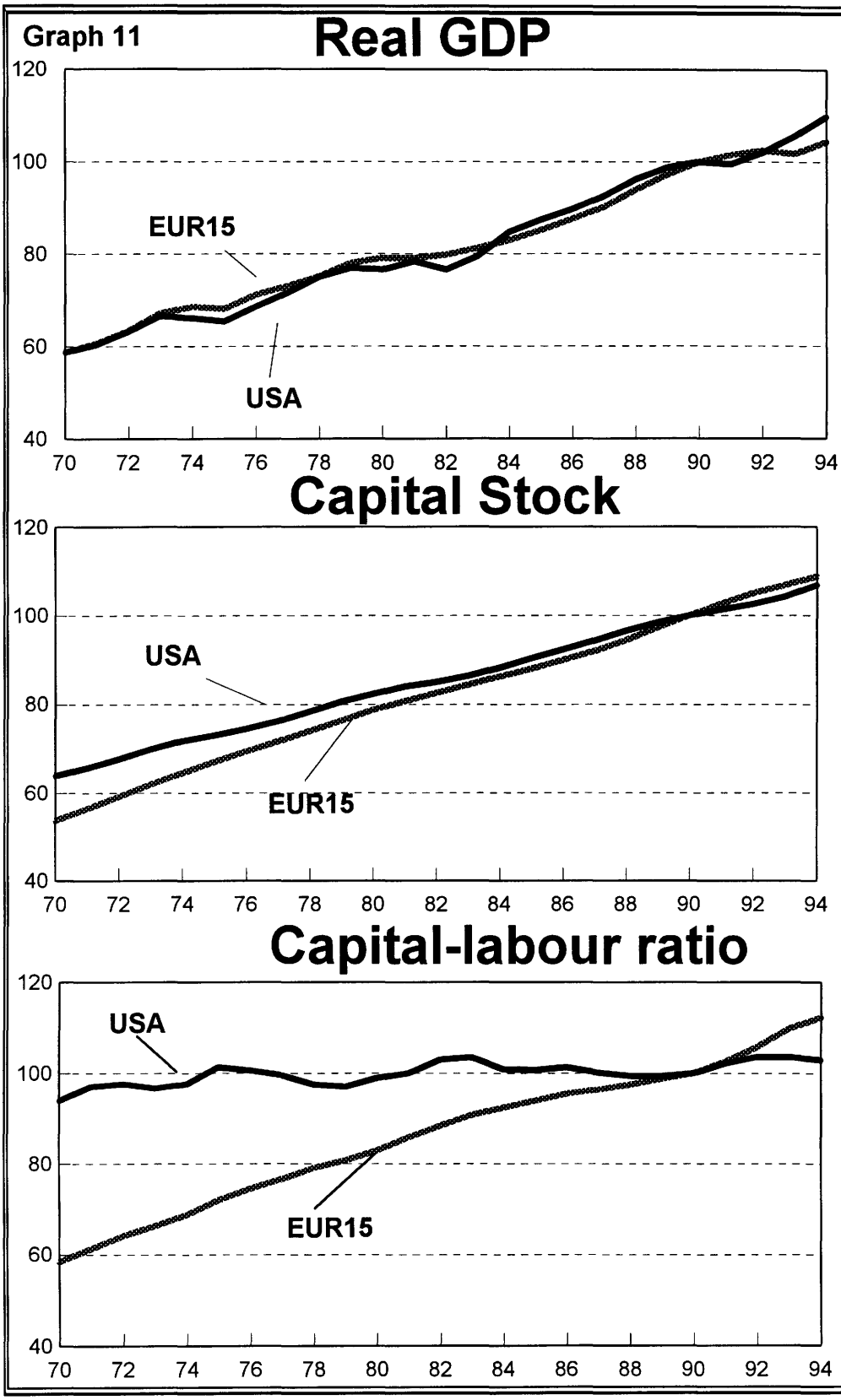
[14] Wage formation rigidities appear to have been a major factor in the worsening relationship between employment and production capacity utilisation rates and consequently the growth in unemployment. With widespread de facto index linking, allied to the rigidity of real wages, adjustment to the oil shocks of the 1970s had to be borne by businesses by the erosion of profit margins. Reaction to reduced profitability and the appearance of real wage gaps in some cases led to company failures and to a general effort to enhance productivity through capital/labour substitution.

Graph 10

Okun Curves



Graph 11


Real GDP
120
100
80
60
40
EUR15
USA
70 72 74 76 78 80 82 84 86 88 90 92 94
Capital Stock
120
100
80
60
40
USA
EUR15
70 72 74 76 78 80 82 84 86 88 90 92 94
Capital-labour ratio
120
100
80
60
40
USA
EUR15
70 72 74 76 78 80 82 84 86 88 90 92 94

grown by roughly equivalent amounts in both areas) nor insufficient investment, reflected in the growth of the capital stock, can be postulated as credible explanations for the higher trend increase in unemployment and lower employment growth in the Community over the period.

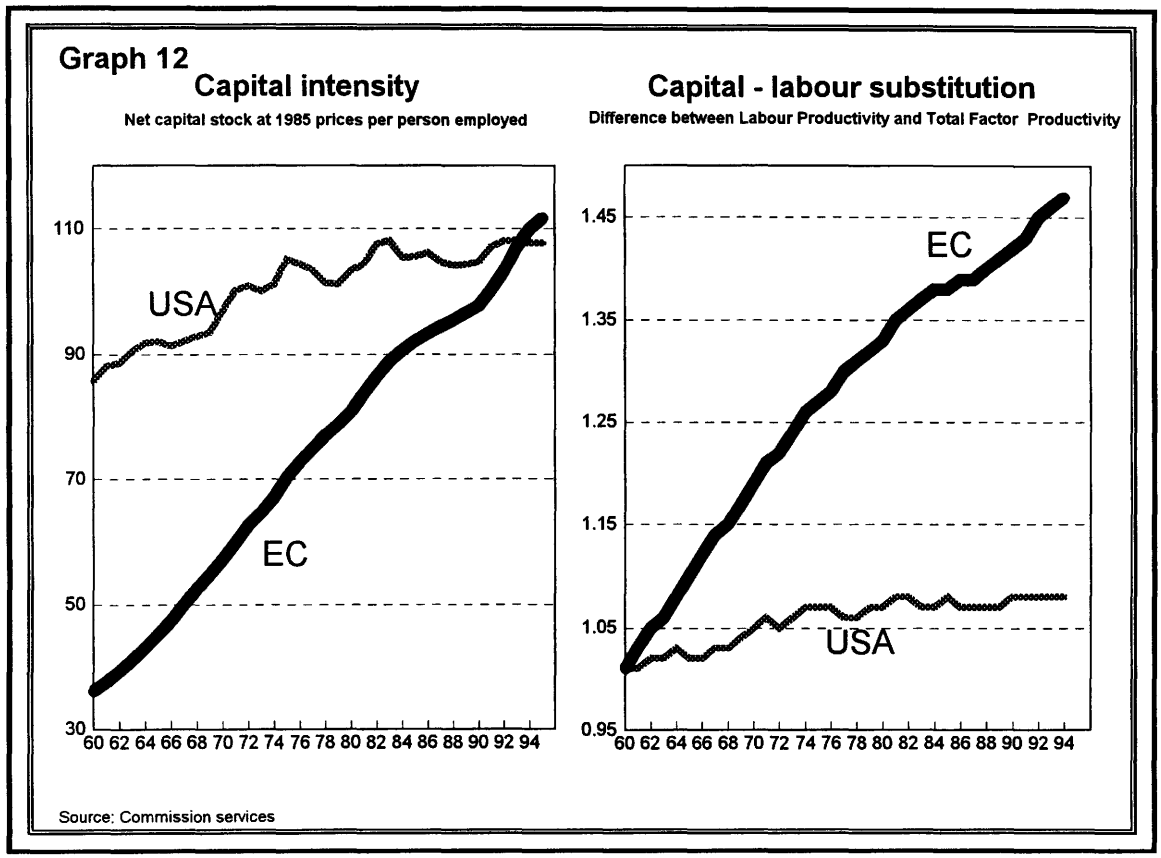
The graph suggests that a more plausible explanation lies in an analysis of the ***type of investment which took place***. The third section of the graph indicates that Community investment patterns have been showing an increasing preference for the labour-saving and capital deepening variety (i.e. increasing the capital-intensity of production) with the amount of capital employed per employee increasing sharply over the period. Higher levels of capital per employee in the Community explain the fact that labour productivity rather than employment growth was the major driving force behind the Community's output performance over the period. The slower rate of increase in the US' capital-output ratio suggests, on the other hand, that the investment trend in the US was more towards capacity-expanding investment, i.e. capital widening, rather than capital deepening.

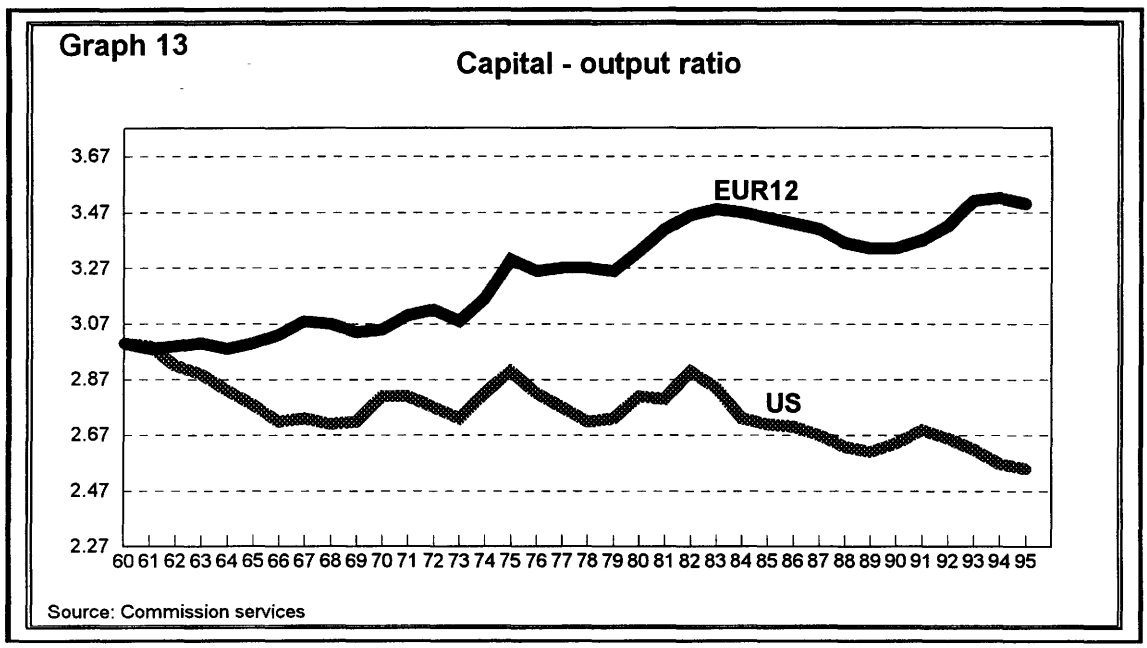
This latter point in relation to differences in the type of investment undertaken in the two areas is of fundamental importance to the whole issue of labour market flexibility. Because of this importance, it is crucial to look in more detail at this phenomenon of capital-deepening investment in the Community which, in effect, results in the substitution of capital for labour. Is this capital/labour substitution process more the result of real wage developments or inflexible labour markets in the Community? The next section will look at these questions.

4.4 CAPITAL/LABOUR SUBSTITUTION: TREND TOWARDS CAPITAL-DEEPENING INVESTMENT IN THE COMMUNITY

If the increase in national output can be produced with a relatively larger input of labour and a relatively smaller input of capital then clearly growth becomes more employment creating. The substitution of labour for capital curbs the rise in the average productivity of labour in the economy as a whole since the capital intensity of production declines. The ***slower rise in capital intensity*** relative to the Community between the 1960s and the period 1970-93 (Graph 12) was obviously a key factor in explaining the slowdown in US productivity growth over the same period. This decreased capital intensity is also confirmed by a comparison of developments in the capital-output ratio in the US (Graph 13) and the Community over the period in question.

(7)



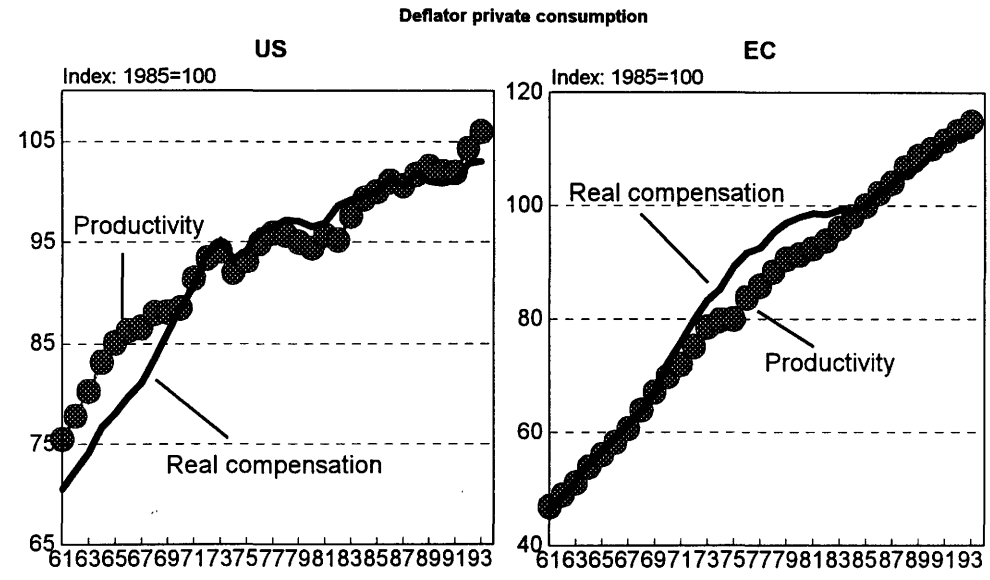


Why has US production become less capital intensive while the opposite trend has emerged in the Community? Graphs 14 and 15 show developments in real compensation, productivity and labour shares in the U.S. and the Community over the period in question which throw some light on this issue of capital intensity.

Profit maximising firms reallocate resources in response both to changes in relative factor prices and to changes in the productivity of those factors. Productivity, in turn, depends

Graph 14

Real compensation per employee and productivity

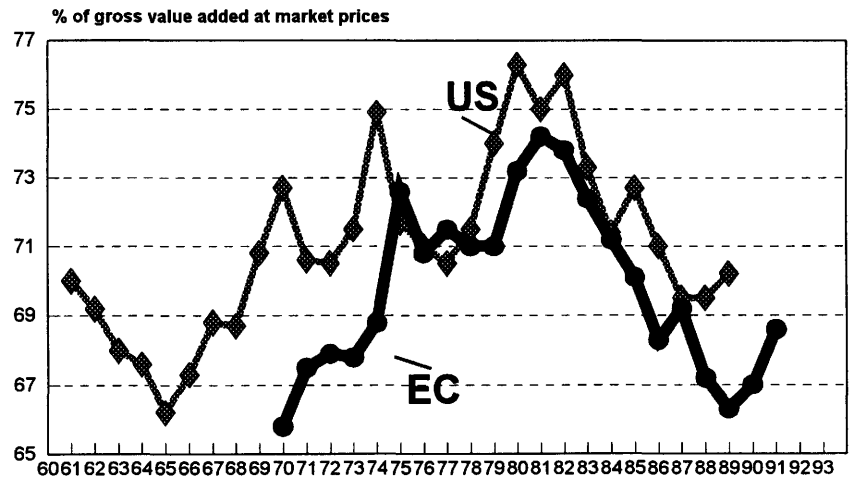


Source: Commission services, Annual macro economic data base DG II

on technical progress in relation to physical capital and training and education in relation to human capital. While governments may have some influence on the choice between the factors of production capital and labour, both in terms of relative factor prices and human capital improvements, it would appear from the literature (see, for example, Baumol-1986) that no such influence is possible in relation to technical progress. According to this literature a ***secular convergence trend*** exists amongst the major industrialised countries with regard to technology and productivity levels. Technological diffusion

Graph 15

Wage share in value added in the US and in the EC*



*EC includes the countries B DK WD F I L NL and from 1977 onwards also P
Source: Commission services, Annual macro economic data base DG II

would appear to be a random process with the result that individual countries or groups of countries cannot choose between high productivity versus low productivity growth paths or between high employment/low employment growth outcomes.

However, even though ***technological diffusion*** may be a random process, the speed with which this process occurs can be affected by government policy decisions since the speed of diffusion depends to a large extent on the relative cost or attractiveness of the factors of production capital and labour. Therefore, anything which has the effect of reducing the relative attractiveness of labour, be it a slowdown in the overall rate of increase in the supply of labour, a shortage of particular types of labour, a lack of investment in training and education, a relatively immobile labour force or a wage formation process which fails to generate flexible and differentiated wage settlements, then the greater will be the incentive to increase the capital intensity of the production process in question.

Some of the latter factors, which essentially reflect the underlying degree of labour market flexibility in an economy, may have been responsible for capital being increasingly substituted for labour in the Community over the period analysed (i.e. increased capital intensity).

OVERALL CONCLUSION

The various proxy measures of structural unemployment (NAIRU, Beveridge and Okun Curves) constructed in this section show clearly that there has been a ***strong upward trend for the Community*** since the early 1970s. In contrast there has been no trend increase in US unemployment over the same period despite both experiencing substantial economic shocks (as in the case of the Community) and witnessing increases in both its labour force and employment of close to 50 percent over the period as a whole (compared with 18 % and 5 % respectively in the case of the Community). In addition, other indications of labour market rigidity such as long-term unemployment and outflow rates paint a similarly negative overall picture for the Community. As regards Japan, the increase in trend unemployment has been small and has occurred from a low base.

SECTION 5: POLICY ISSUES AND CONCLUDING REMARKS

The previous sections have pointed to significant inefficiencies in the functioning of the Community's labour market. Section 3 highlighted the inflexible nature of wage and employment adjustment. Section 4 showed clearly that overall labour market flexibility in the Community is inferior to that existing in either the US or Japan as reflected in various measures of structural unemployment which have been increasing steadily from cycle to cycle. This concluding section has two main objectives:

A. **TO EXAMINE THE POLICY ISSUE OF WHETHER THE TREND RISE IN COMMUNITY UNEMPLOYMENT IS A HYSTERESIS OR SLOW ADJUSTMENT PROBLEM; AND**

B. **TO DISCUSS THE IMPORTANT POLICY IMPLICATIONS HIGHLIGHTED BY THE ANALYSIS, IN PARTICULAR THE APPROPRIATE BALANCE OF MACRO / MICRO POLICIES IN ANY SOLUTION TO THE COMMUNITY'S UNEMPLOYMENT PROBLEM.**

INTRODUCTORY REMARKS

The previous sections have tentatively concluded that in the longer run it is those economies with less flexible labour markets and greater wage rigidities which appear to experience greater persistence in, or higher equilibrium levels of, unemployment. A high degree of labour market flexibility is essential in ensuring the smooth adjustment process which is needed to attenuate the size and duration of adverse movements in unemployment associated with exogenous shocks. Trend increases in Community unemployment over the last number of decades point to problems in the Member States labour market adjustment mechanisms which need to be addressed if unemployment is to be set on a firm downward trajectory.

Structural, natural or equilibrium unemployment in the Community has been steadily rising from cycle to cycle. The structural rate of unemployment is a long-run equilibrium concept which is determined by the underlying factors affecting the supply and demand for labour. There are no direct measures of structural unemployment since it is a theoretical construct but estimates were derived in the previous section by using the ***three concepts of the NAIRU, Beveridge curve and Okun curve.***

Estimates using these three measures show that since the late 1960s structural unemployment has increased substantially in the Community, stayed roughly stable in the US and in the case of Japan the rate increased by only about one percentage point. This evidence suggests that the EC's labour market is becoming increasingly inflexible (i.e. adjusts very slowly to shocks and policy changes).

A ***broad range of factors appear to be inhibiting greater flexibility*** in the Community's labour market and must bear a lot of the responsibility for the increase in Community structural unemployment over the period in question. The detailed reasons behind this malfunctioning of the Community's labour markets is not gone into in the main text but is discussed in some detail in Annex 5 (see also Matthes/Todd 1994).

5.1 POLICY DEBATE: IS THE TREND RISE IN COMMUNITY UNEMPLOYMENT A HYSTERESIS (I.E. EQUILIBRIUM) OR SLOW ADJUSTMENT (I.E. DISEQUILIBRIUM) PROBLEM?[15]

A large number of commentators have found it hard to accept that the substantial deterioration in structural unemployment in the Community which has occurred, as measured by the NAIRU etc., could be due totally to changes in the determinants of the equilibrium rate of unemployment. Their suspicions have led to an alternative thesis being put forward which suggests that the past level of actual unemployment may strongly influence the current rate of equilibrium unemployment - the idea of hysteresis. Hysteresis, it is postulated, can occur for a large variety of reasons including the ***erosion of human skills***, as a result of long periods without employment, and ***insider-outsider phenomena***[16] and the ***"screening device" phenomenon*** i.e. "unemployed seen as unemployable".

It is important from an analytical and policy point of view to distinguish clearly between "pure" hysteresis and "partial" hysteresis.

- ***Pure hysteresis*** effectively means "no adjustment" and calls into question the idea that a unique level of equilibrium unemployment exists since a rise in actual unemployment would provoke a rise in equilibrium unemployment. In circumstances of "pure" hysteresis, the NAIRU concept becomes useless for policy purposes.

- ***"Partial" hysteresis*** on the other hand is a "disequilibrium" phenomenon and is a more appealing explanation for the trend rise in unemployment because it retains the theoretically sound principle of an equilibrium rate of unemployment.

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15 Blanchard and Summers "Beyond the natural Rate Hypothesis", (1988). "On the "classical" view, considered by Sargent, disinflation, if credible, is achievable at little cost in unemployment. On the alternative "Keynesian" view, even credible disinflation is likely to increase unemployment for some time because of the momentum caused by overlapping price and wage decisions. European experience of the 1980s poses a profound challenge to standard Keynesian and Classical theories of macroeconomic fluctuations - the natural rate hypothesis underlies much of both Keynesian and Classical macroeconomics. What is required is a theory of unemployment in which unemployment, far from returning to a stable equilibrium - or "natural rate" - over time, is instead strongly dependent on history. We refer to such an equilibrium as a "fragile equilibrium", to highlight the sensitive dependence of unemployment on current and past events. Developing a theory of fragile equilibrium involves questioning and perhaps discarding traditional presumptions about the slopes of labour demand and supply curves".

16 The wage bargaining process involves parties which primarily reflect the interests of the insiders (the employed), the process does not allow the outsiders (the unemployed) to influence the wage negotiations. Consequently, the greater the prevalence of such a system of wage bargaining the weaker the effect of unemployment on wage growth with high unemployment persisting since it has only a weak tendency to correct itself by means of wage restraint. Therefore any measures, such as greater recourse to centralised bargaining or more generous levels of social protection, which increase the wage bargaining power of insiders will probably result in an additional delay in the adjustment of wages to adverse labour market conditions. It should be noted that highly centralised wage bargaining helps insiders by preventing outsiders from exerting a major influence on wage growth in particular segments of the labour market. If most wages in an economy are required to move together, this means that wage adjustment in particular segments of the market namely regions, sectors or skill groups which are suffering from above average rates of unemployment is prevented from making the necessary correction to bring unemployment down. In other words centrally negotiated settlements increase wage rigidity by weakening the effect of particular segments of unemployment on wage growth. While such agreements have been used with some success by a number of countries to limit inflationary pressures, this positive aspect has to be balanced against the rigidities that centrally determined pay increases introduce into the labour market through reducing the responsiveness of wages to shifts in the relative demand for labour. Enhanced social protection works in the same way by reducing the intensity of job search of the unemployed and in this way discouraging outsiders from exerting a major downward influence on wages, thereby slowing the adjustment of unemployment and increasing persistence.

"Partial" hysteresis refers essentially to "slow adjustment" processes where unemployment persistence mechanisms result in unemployment remaining above its long-run equilibrium level for a long period following a disturbance. Persistent unemployment, under this definition, will be gradually removed over time through a slow process of real wage and employment adjustment which will eventually result in equilibrium being restored to the labour market.

"Partial" hysteresis essentially means therefore that the adjustment process in the Community has become more drawn out than in the past because the ***adjustment process has been increasingly clogged up by "persistence" mechanisms*** (Elmeskov and MacFarlan 1993). Therefore, since the duration (and the costs) of the adjustment process is longer than in the past, this has led commentators to misinterpret this slow adjustment of the labour market as being an equilibrium as opposed to a disequilibrium phenomenon. If one accepts this view then the rise in the NAIRU is not simply an equilibrium phenomenon but also reflects a large element of disequilibrium unemployment which because of hysteresis effects has slowed down the adjustment process thereby leading to a trend increase in non-cyclical unemployment.

Finally, it is important to stress that, while under this scenario the trend rise is not simply a structural problem, the slower adjustment problem also represents a serious deterioration in labour market flexibility and a slower and higher cost transition back to equilibrium unemployment. Consequently, although the question of whether the trend increase in Community unemployment is either an equilibrium or slow adjustment problem may not be that important analytically (since both problems indicate serious labour market malfunctioning) it does have serious implications in policy terms.

EVIDENCE OF SLOW ADJUSTMENT / PERSISTENCE MECHANISMS: There is a substantial amount of empirical evidence to back up the view that slow adjustment may be an important factor explaining the trend increase in unemployment. Among the latter is the evidence provided by ***wage-share developments*** which have declined steadily over the 1980s in a large number of Community countries. This large shift in income distribution induced by unemployment being above its equilibrium level has not as yet led to a corresponding increase in the demand for labour as the latter factor of production has become cheaper. Consequently, the impact of the downward adjustment of real wages on unemployment has not yet been felt since the employment response is occurring with a lag.

In addition to the wage share trend, there is evidence of slower adjustment in the ***negative real wage gaps opening up*** in some Member States between real wage and productivity developments. Consequently, since the demand for labour by firms depends on its marginal productivity, with firms recruiting up to the point where the marginal productivity is equal to the real wage, one would expect therefore that with a negative real wage gap that the enhanced attractiveness of labour will soon be reflected in reduced capital/labour substitution and reduced unemployment.

Finally, the evidence provided in Section 2 in relation to the ***influence of changes in unemployment on wages***, also suggests that the upward trend in unemployment is not totally an equilibrium phenomenon. If the upward movement was totally due to equilibrium factors, then wages should only be responsive to deviations of unemployment from the trend. As the equations in Section 2 show, even though changes in unemployment have an influence on wages in some countries, (most notably for the Community as a whole and for Italy) the coefficient on the overall level of unemployment

was significant in all countries, with the exception of the UK, which indicates that overall unemployment continues to put downward pressure on wage developments in those countries.

PERSISTENCE MECHANISMS PLACE "SPEED LIMITS" ON UNEMPLOYMENT REDUCTION: Once unemployment has risen, persistence mechanisms (erosion of human skills/human capital investment, insider/outsider mechanisms) will ensure that it cannot immediately be brought back to the NAIRU without a permanent rise in inflation. To prevent the latter it is necessary to gradually reduce unemployment, thus introducing the idea of "speed limits" on growth.

"Speed limits" on growth or hysteresis is shown up in the wage equations in the coefficient on the change in unemployment variable. As regards the estimation results, it is clear as mentioned above that the level of unemployment continues to have a restraining effect on wage growth but that changes in unemployment have an independent influence on wages in some countries. This means that if above equilibrium unemployment is reduced too quickly to its equilibrium level, an acceleration of wage growth may be the result.

These speed limits on unemployment reduction could well reflect the relatively weak ***impact on wage formation processes of the long-term unemployed.***[17] It is highly significant in this regard that for the Community as a whole that the size of the coefficient on the change in unemployment variable is virtually identical to that of the coefficient for the level of unemployment. This is also the situation pertaining in Italy where the change in unemployment is substantially more important than the level of unemployment as an explanatory variable in wage developments (see Holmlund 1991). These developments would suggest that the change in the unemployment variable has an ***independent and significant influence*** on wage developments and that therefore "speed limits" on growth could be a problem in some Community countries.

5.2 IMPORTANT POLICY IMPLICATIONS HIGHLIGHTED BY THE ANALYSIS: BALANCE OF MACRO/MICRO POLICIES IN ANY SOLUTION TO THE UNEMPLOYMENT PROBLEM

As mentioned earlier in this section the evidence is overwhelming that the ECs labour market has become increasingly inflexible (i.e. labour markets are characterised by sluggish adjustment mechanisms in the face of shocks and policy changes) with the result that a gap has opened up between the speed of global technical change and the Community's capacity and eagerness to respond and adapt to this new environment.

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[17] **PROPORTION OF LONG-TERM UNEMPLOYED:** One factor which appears to play a large role in the whole phenomenon of hysteresis is the average length of the unemployment period experienced. As the period of removal from the labour market lengthens, the greater the risk of the main hysteresis/persistence mechanisms coming into play. As high unemployment persists, therefore, it is conceivable that its wage moderating impact is diminished (i.e. partial hysteresis) or may even disappear (i.e. full hysteresis). In fact all the main explanations for the existence of persistence mechanisms draw a clear distinction between the long and short-term unemployed in terms of their effectiveness as inflation-reducing agents with the former affecting aggregate wage growth less than the latter. Consequently, the greater the share of long-term unemployment in the overall total, the less the downward pressure on wages for any given level of unemployment. As regards policy it is clear that any solution to the problem of long-term unemployment must be multi-faceted with action needed on both welfare benefits/employment taxes and active labour market policies in order to increase the pressure on, the incentives for, and the ability of this group of workers to obtain employment

It is also clear that the trend rise in EC unemployment witnessed over the last two decades emanates from no one single factor. It is partially the result of a number of adverse shocks e.g. the two oil price crises in the seventies, counter inflationary demand policies in the 1980s etc. which had a particularly pronounced effect on EC countries because real wage rigidity there was relatively high. However, these adverse shocks alone were not large enough to explain the observed trend increase in actual unemployment during the 1980s. Consequently, other factors such as hysteresis effects, would appear to have been at play.

Hysteresis prevents the necessary degree of real wage adjustment from occurring with the result that ***temporary shocks have permanent or persistent effects on unemployment***.

While it can be argued whether the above factors fully explain the trend rise in unemployment over the last twenty years it appears reasonable to conclude that the explanation for the bulk of the increase in trend unemployment lies in some combination of hysteresis and slow adjustment effects.

If the above analytical conclusion is accepted it has important implications for the balance of ***macro / micro policies*** in any solution to the unemployment problem.

i) ***Firstly,*** it is clear that macroeconomic policy has an important role to play in preventing unemployment from rising in the first place thereby reducing the impact of hysteresis effects which have the effect of making it more difficult to get unemployment down once it has been allowed to rise.

ii) ***Secondly***, such an analytical distinction also supports the widely held contention that supply-side measures, both in terms of enhancing labour market flexibility and active labour market policies, must be the most important part of any policy programme aimed at both reducing the already high level of unemployment and of avoiding any further trend increases in the total. ***Flexibility enhancing measures*** are needed to reduce equilibrium unemployment and to speed up the adjustment process, whereas ***active labour market policies***, in combination with human capital policies, are in particular needed to act on persistent unemployment.

If, for example, the trend rise is due to hysteresis effects (i.e. an equilibrium phenomenon) then macroeconomic policies have little or no role to play in remedying the situation and solutions must therefore be found in structural reforms.

Even if, on the other hand, the trend rise in unemployment is due in part to slow adjustment or ***"stickiness" of unemployment following negative disturbances*** to the economy, then while macroeconomic policy interventions have a role to play in attenuating these disturbances, structural policies have the key role in acting on those factors which speed up the duration of the real wage and employment adjustment process between the occurrence of a shock and the return of the system to a state of equilibrium (e.g. acting on the slow adjustment of the reservation wage, minimum wage legislation, hiring/firing rules etc.).

Policies aimed at enhancing labour market flexibility will improve the functioning of the labour market in a medium-term perspective whereas active labour market policies etc. are needed to work on reducing the impact of important persistence mechanisms in the labour market which in particular have resulted in an ever-rising proportion of long-term unemployed in the overall jobless totals.

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ANNEXES

ANNEX 1: INFLATION-UNEMPLOYMENT RELATIONSHIP: EXPECTATIONS AUGMENTED PHILLIPS CURVE - A THEORETICAL FRAMEWORK

ANNEX 1

INFLATION-UNEMPLOYMENT RELATIONSHIP: EXPECTATIONS AUGMENTED PHILLIPS CURVE - A THEORETICAL FRAMEWORK

ORIGINAL PHILLIPS CURVE: According to the paper ("The Relation Between Unemployment and the Rate of Change of Money Wages in the United Kingdom, 1861-1957") published in 1958 by Bill Phillips, a New Zealand economist, there appeared to be a stable trade-off between inflation and unemployment, with periods of low unemployment tending to coincide with periods of rising wage rates. The diagrammatic depiction of this inverse relationship has since been described as the "Phillips Curve" which can be written mathematically as follows:

$$P^* = f(u)$$

P^* = the inflation rate and U = the unemployment rate.

This apparent stable trade-off,[1] led policy makers in the 1960s to believe that a "policy-menu" existed whereby a choice could be made between high inflation - low unemployment or low inflation-high unemployment.

However, just as policy-makers began their attempts to exploit this trade-off, the historically very stable relationship between these two evils appeared to break down. In other words, policies which aimed at moving a particular economy along the Phillips curve led in fact to an outward shift of the curve itself i.e. the rate of inflation associated with a given rate of unemployment was in fact rising leading in the 1970s to instances of stagflation, where stagnant output and rising unemployment went hand-in-hand with rising inflation.

The spectacular breakdown of the Phillips curve in the 1970s posed the question as to why the curve had been so stable over the previous decades. The most likely answer to this question is that the relationship was an accident which resulted from the fact that inflation was both low and relatively stable over that period and consequently inflationary expectations were also low and stable. However, the apparently stable inverse relationship broke down in the 1970s as inflation became higher and more volatile and inflationary expectations were subject to frequent shocks.

EXPECTATIONS-AUGMENTED PHILLIPS CURVE: The empirical breakdown of the Phillips curve relationship in the 1970s had been impressively predicted in 1968 in papers published separately by Milton Friedman and Edmund Phelps. They attacked the theoretical underpinnings of the Phillips curve and argued that what was important to both workers and employers was what happened to real wages not money wages. They argued that the long-run Phillips curve was in fact vertical with no trade-off between inflation and unemployment

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[1] With regard to this trade-off, it is important to stress the non-linearity of the curve, with the cost, in terms of increased inflation, of further reductions in unemployment when the latter is already at a low level being much greater than a similar reduction at a higher level of unemployment.

thereby implying that the long-run effectiveness of macroeconomic policy was severely restricted.

Friedman and Phelps introduced two key concepts into the traditional Phillips curve analysis:

- Inflation Expectations.
- Natural Rate of Unemployment.

INFLATION EXPECTATIONS: Friedman and Phelps postulated that the Phillips curve relationship could not hold since the demand and supply of labour depends on changes in real wages and not money wages. If one accepts this view, then there is no reason to believe that the level of employment (and consequently unemployment) will change when only nominal, and not real, wages have changed.

In the context of wage bargaining negotiations, therefore, since workers are only interested in real wage developments they will try to anticipate future inflation in order to protect their real wage for the duration of the contract.

Consequently, expected price inflation is crucial to the outcome of any negotiations since changes in inflationary expectations will be reflected in changes in workers pay demands. In such a situation, equilibrium can only be restored when the inflationary expectations of workers turn out to be correct. In equilibrium, therefore, nominal variables may well be changing but all real variables, such as real wages and employment levels, are constant. Consequently, in a situation of equilibrium the Phillips curve is vertical since real variables such as employment are not changing and as a result unemployment is the same regardless of the rate of inflation.

UNANTICIPATED INFLATION: However, Friedman and Phelps did accept that a short-run trade-off could exist when an economy was moving from one equilibrium to another such as for example in the case of an unexpected rise in inflation.[2] In these circumstances the inflationary expectations of workers are slow to adapt because of short-term "money illusion" and the cut in real wages implied by the higher inflation is not reflected in a reduced supply of labour. As a result of the lower real wages the demand for labour will increase and employment will be expanded, with workers being paid less in real terms. However, the cut in unemployment, as a result of the unanticipated rise in inflation, will only persist for as long as workers suffer from "money illusion". Once the economy is back in equilibrium, real wages and employment are as before but unfortunately the rate of inflation is permanently higher reflecting the change in workers price expectations.

ACCELERATING INFLATION: Consequently, the only way governments can maintain a short-run trade-off between inflation and unemployment is through engineering additional, and unexpected, increases in inflation. In this way the inflationary expectations of workers would continue to lag behind reality and the economy would be kept in a state of disequilibrium. But,

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[2] However they stressed that to the extent that price behaviour is correctly anticipated there can be no significant unanticipated inflation and hence not even a short-run trade-off exists between inflation and unemployment.

of course, such a situation could not go on for long since attempting to buy lower unemployment at the price of perpetually accelerating inflation is doomed to ultimate failure as workers expectations will adapt in time to the new policy direction. In the end all that governments would be left with would be an ever-accelerating inflation rate with no change in the underlying or equilibrium rate of unemployment.

NATURAL RATE OF UNEMPLOYMENT: The second major strand in the Phelps and Friedman analysis concerns the concept of the natural rate of unemployment. At the natural rate of unemployment, all workers who are prepared to take jobs at the prevailing real wage are employed. Other broadly similar terms used to describe the natural rate of unemployment are the NAIRU (i.e. "the non-accelerating-inflation rate of unemployment"), "equilibrium unemployment" and "structural unemployment".

According to Friedman and Phelps inflation rate developments depend on the unemployment rate relative to the natural rate and not only on the headline rate of unemployment. When unemployment is at the natural rate, i.e. in equilibrium, there is no pressure on wage rates or inflation. However, when unemployment is above or below the natural rate, downward or upward wage pressure occurs with inflation consequently falling or rising.

It is important to note, however, that the natural rate of unemployment is not an unalterable constant as evidenced by substantial upward shifts in this economic variable in the Community over the past two decades. Movements in the opposite direction, however, will only occur through an increased government emphasis on microeconomic policy actions aimed essentially at improving the overall flexibility of the labour market. The instability in the Phillips curve relationship which emerged in the 1970s, reflected in substantial outward shifts of the short-run Phillips curve, is consistent with the belief that the natural rate of unemployment has increased markedly over time.

REVISED PHILLIPS CURVE: The original Phillips curve relationship $P^*=f(u)$ needs therefore to be amended to take on board the concepts of the natural rate of unemployment and inflation expectations. Consequently, the inflation rate is now generally accepted to depend both on inflationary expectations and on the deviation of unemployment from the natural rate of unemployment i.e. $P^* = P^{*e} - \alpha (u - u_n)$ where P^{*e} is inflationary expectations and α is a coefficient which measures the responsiveness of inflation to changes in the gap between the actual and natural rates of unemployment. In effect, the position of the Phillips curve is determined by price expectations with an upward shift of the curve reflecting an increase in price expectations and with a downward shift of the curve reflecting the opposite. Consequently, there is not just one stable Phillips curve, as conditions up to the 1970s had suggested, but in fact there are an infinite number of curves, one for each possible expected level of inflation.

Under this framework, as explained earlier, the long-run Phillips curve is vertical[3] (i.e. unemployment and inflation are independent in the long-term) with the price of any expansionary policy to reduce unemployment being an ever-rising or accelerating rate of

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[3] The inflation/unemployment trade-off is a short-term phenomenon since the Phillips curve tends to become vertical if very low rates of unemployment are maintained for long.

inflation. Consequently, there is no long-run trade-off between inflation and unemployment. A short-run trade-off can only exist if expectations are stable. Once expectations adjust to the changing rates of inflation and money illusion is removed, the economy reverts to its natural or equilibrium rate of unemployment.

If one accepts this thesis then one accepts, in effect, that in the long-run unemployment cannot be reduced by accepting a higher rate of inflation since the Phillips curve is vertical at the natural rate of unemployment.

Finally, it is important to stress that if the Phillips curve is vertical then attempts to hold the rate of unemployment below the natural rate will result in not only higher, but accelerating, rates of inflation. In this view of the world the only way that governments can reduce unemployment is by a long-term commitment, at the microeconomic level, to improving the workings of the labour market and consequently reducing the "natural" rate.

ANNEX 2: WAGE EQUATIONS: SPECIFICATION ISSUES

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With regard to the selection of the individual explanatory variables, the most important considerations were to include an activity variable, represented by the unemployment rate, and an inflation variable and to ensure that the overall equation replicated to the greatest extent possible the remaining key determinants of nominal wage growth in the countries concerned.

THE ACTIVITY VARIABLE - UNEMPLOYMENT RATE: It is generally accepted that it is appropriate to use the unemployment rate as a proxy for excess demand in the labour/output market.

As regards including the change in the unemployment rate as an explanatory variable, the rationale would be to reflect the notion of hysteresis as a determinant of wage adjustments. The expected sign on the coefficient would be negative implying that a decline in the unemployment rate would result in an overshoot of wages and consequently could represent a potentially serious obstacle to a rapid reduction in the unemployment rate, with a slower pace of decline necessary to avoid a derailing of the policy course due to an acceleration in inflation. This variable when introduced in the basic equation was often found to be statistically insignificant and incorrectly signed. However significant and correctly signed coefficients were found in the case of the Community as a whole and for Italy.

INFLATION VARIABLE: Nominal wages respond to past and, potentially, to expected inflation with the full extent of any changes in consumer price inflation being rapidly reflected (i.e. within a year) in wage growth in all the countries concerned with the exception of the US. Outside the US changes in consumer price inflation rapidly affect wage developments via price/wage links and, if accommodated, can initiate either an upward or downward wage - price spiral. In the US, on the other hand, the slow response of nominal wages to changes in inflation means that wages have normally had a tendency to follow (i.e. lag) rather than lead price inflation developments.

With regard to the inflation variable two issues need to be addressed, namely whether to impose price homogeneity (i.e. indexation of wages to inflation) or not and how inflation expectations should be specified. It was decided that since the form which indexation (formal or informal) takes varies widely among countries, due to the large variations in the institutional characteristics of the wage determination process, that it would not be appropriate to impose a unitary coefficient on the inflation term. However, homogeneity is regarded as an a priori guide to the expected size of the estimated coefficient since a value significantly lower than 1 would indicate money illusion and above 1 would unrealistically suggest sustained changes in income distribution.

The more difficult question in relation to the inflation variable concerns how best to specify inflation expectations. This is a crucial question since the less quickly expectations are revised upwards, the greater the likelihood that they are going to lag behind reality. This would mean that it would take a long time for indexation to occur and for equilibrium to be restored and that perhaps the short-run trade-off between inflation and unemployment may, in these circumstances, be of interest to policy makers. However, if you believe the rational expectations school, then all rational policy actions by governments are correctly anticipated by

economic agents so that price expectations no longer lag behind inflation and not even a short-run trade-off exists.

In this present analysis adaptive expectations are assumed for the following reasons:

- According to work done by Coe (see references) a specification using several different forms of forward-looking expectations formation did not improve on results using current and past inflation.

- A backward-looking specification appears to be more in keeping with the existence of indexation which means that changes in nominal wages essentially reflect an ex-post adjustment to inflation with the length of the lag on past inflation reflecting the speed of indexation and the normal length of contracts.

LABOUR PRODUCTIVITY: A productivity variable (actual and lagged versions) was tested for all countries and in most cases was found to be significant. Cyclical movements in productivity were found to be particularly significant in Germany which is consistent with wage bargaining behaviour in that country which takes explicit account of recent productivity developments. It should be noted, however, that trend, as opposed to cyclical, productivity growth is relatively stable and is incorporated in the "equilibrium" component of the equation i.e. the constant term.

TERMS OF TRADE: It was felt important to include a variable in the equation to reflect the bargaining power of firms. This variable can be seen as a counterpart to the Phillips curve effect in the equation which is in effect a proxy for the bargaining power of trade unions e.g. if unemployment is high, the bargaining power of trade unions is low and vice versa. The idea of the terms of trade variable is therefore to show the distinction between the wage concept as seen from the viewpoint of employers from that as seen by employees. While employees, in terms of labour supply, are interested in wage rates relative to consumer prices i.e. real wage developments, employers in terms of labour demand, are more interested in wage rates deflated by output prices. One way of modelling this difference in perspective is to include a terms of trade variable which is constructed as the difference between the growth of the private consumption deflator and the growth of the GDP deflator. The inclusion of this variable was found to be statistically significant in all cases.

ANNEX 3: DETAILED WAGE EQUATION RESULTS FOR THE US, JAPAN, EC 15, W.GERMANY, FRANCE, ITALY & THE UK

Annex 3: Detailed Wage Equation Results-2SLS Estimator

EUROPEAN COMMUNITY

Dependent Variable is **EURWAGE**
Sample: 1963 1994
Instrument list: EURPCE(-1) C EURTOT EURUNEMP(-1) EURUNEMPC

Variable	*Coefficient*	*Std. Error*	*T-Statistic*	*Prob.*
EURPCE	0.914279	0.082891	11.02985	0.0000
EURTOT	-1.071154	0.235287	-4.552536	0.0001
EURPROD	0.032594	0.154240	0.211324	0.8343
EURUNEMP(-1)	-0.502447	0.075875	-6.622016	0.0000
EURUNEMPC	-0.446924	0.282433	-1.582408	0.1261
C	6.027421	1.218220	4.947729	0.0000
AR(1)	0.270406	0.201479	1.342105	0.1916

R-squared	0.970818	*Mean dependent var*	9.309375
Adjusted R-squared	0.963814	*S.D. dependent var*	3.571785
S.E. of regression	0.679449	*Akaike info criterion*	-0.582307
Sum squared resid	11.54127	*Schwartz criterion*	-0.261677
F-statistic	127.9440	*Durbin-Watson stat*	1.997629
Prob(F-statistic)	0.000000		

UNITED STATES

Dependent Variable is ***USWAGE***
Sample: 1962 1994
Instrument list: USWAGE(-1) USPROD USTOT(-1) USUNEMP(-1) USUNEMPC C

Variable	*Coefficient*	*Std. Error*	*T-Statistic*	*Prob.*
USPCE(-1)	0.976236	0.108718	8.979558	0.0000
USPROD	0.292190	0.135848	2.150860	0.0406
USTOT(-1)	-0.749411	0.221358	-3.385525	0.0022
USUNEMP(-1)	-0.726931	0.143309	-5.072475	0.0000
USUNEMPC	-0.580921	0.239479	-2.425774	0.0222
C	5.484158	0.678354	8.084510	0.0000

R-squared	0.855115	*Mean dependent var*	6.009091
Adjusted R-squared	0.828284	*S.D. dependent var*	2.040123
S.E. of regression	0.845398	*Akaike info criterion*	-0.172929
Sum squared resid	19.29686	*Schwartz criterion*	0.099164
F-statistic	28.53550	*Durbin-Watson stat*	2.180389
Prob(F-statistic)	0.000000		

ANNEX 3

JAPAN

Dependent Variable is ***JAWAGE***
Sample: 1963 1994
Instrument list: JAPROD JAPCE(-1) JATOT JAUNEMP(-1) C

Variable	*Coefficient*	*Std. Error*	*T-Statistic*	*Prob.*
JAPCE	0.614692	0.297670	2.065012	0.0490
JAPROD	0.196974	0.166733	1.181375	0.2481
JATOT	-0.553390	0.213351	-2.593801	0.0154
JAUNEMP(-1)	-4.276438	2.043748	-2.092449	0.0463
C	13.15043	5.721575	2.298394	0.0298
AR(1)	0.734719	0.163367	4.497341	0.0001

R-squared	0.951486	*Mean dependent var*	9.015625
Adjusted R-squared	0.942157	*S.D. dependent var*	6.240611
S.E. of regression	1.500905	*Akaike info criterion*	0.979498
Sum squared resid	58.57064	*Schwartz criterion*	1.254323
F-statistic	90.26345	*Durbin-Watson stat*	1.422422
Prob(F-statistic)	0.000000		

W.GERMANY

Dependent Variable is ***DEWAGE***
Sample: 1963 1994
Instrument list: DEPROD(-1) DEUNEMP(-1) DETOT DEPCE(-1) C

Variable	*Coefficient*	*Std. Error*	*T-Statistic*	*Prob.*
DEPCE	0.885658	0.266218	3.326814	0.0026
DEPROD(-1)	0.425296	0.199500	2.131808	0.0426
DEUNEMP(-1)	-0.492681	0.170667	-2.886795	0.0077
DETOT	-1.269267	0.256085	-4.956420	0.0000
C	3.305669	1.772432	1.865047	0.0735
AR(1)	0.002500	0.255585	0.009781	0.9923

R-squared	0.882334	*Mean dependent var*	6.393750
Adjusted R-squared	0.859705	*S.D. dependent var*	3.237576
S.E. of regression	1.212663	*Akaike info criterion*	0.552999
Sum squared resid	38.23436	*Schwartz criterion*	0.827824
F-statistic	33.35296	*Durbin-Watson stat*	2.218243
Prob(F-statistic)	0.000000		

ANNEX 3

FRANCE

Dependent Variable is ***FRWAGE***
Sample: 1962 1994
Instrument list: FRPCE(-1) FRUNEMP FRTOT C

Variable	*Coefficient*	*Std. Error*	*T-Statistic*	*Prob.*
FRPCE	1.025059	0.088165	11.62656	0.0000
FRUNEMP	-0.434415	0.098502	-4.410219	0.0001
FRTOT	-0.535678	0.207656	-2.579644	0.0157
FRPROD	0.131341	0.205664	0.638617	0.5285
C	4.960244	1.526901	3.248571	0.0031
AR(1)	0.242065	0.180525	1.340891	0.1911

R-squared	0.954948	*Mean dependent var*	9.342424
Adjusted R-squared	0.946604	*S.D. dependent var*	4.486231
S.E. of regression	1.036655	*Akaike info criterion*	0.234964
Sum squared resid	29.01563	*Schwartz criterion*	0.507056
F-statistic	106.7983	*Durbin-Watson stat*	2.103532
Prob(F-statistic)	0.000000		

ITALY

Dependent Variable is ***ITWAGE***
Sample: 1963 1994
Instrument list: ITPROD ITTOT ITUNEMP(-1) ITUNEMPC(-1) ITPCE(-1) C

Variable	*Coefficient*	*Std. Error*	*T-Statistic*	*Prob.*
ITPCE	0.947455	0.070915	13.36044	0.0000
ITPROD	0.457086	0.199864	2.286979	0.0306
ITTOT	-1.531033	0.357277	-4.285286	0.0002
ITUNEMP(-1)	-0.647785	0.244704	-2.647217	0.0136
ITUNEMPC(-1)	-1.120617	0.675322	-1.659382	0.1091
C	6.569068	2.477920	2.651041	0.0135

R-squared	0.933292	*Mean dependent var*	12.90938
Adjusted R-squared	0.920464	*S.D. dependent var*	5.935914
S.E. of regression	1.674056	*Akaike info criterion*	1.197860
Sum squared resid	72.86408	*Schwartz criterion*	1.472685
F-statistic	55.08293	*Durbin-Watson stat*	2.213379
Prob(F-statistic)	0.000000		

ANNEX 3

UNITED KINGDOM

Dependent Variable is ***UKWAGE***
Sample: 1962 1994
Instrument list: UKPCE(-1) UKTOT UKPROD UKUNEMP UKUNEMPC C

Variable	*Coefficient*	*Std. Error*	*T-Statistic*	*Prob.*
UKPCE	0.792619	0.196962	4.024227	0.0004
UKPROD	0.303506	0.206216	1.471784	0.1531
UKTOT	-1.502427	0.236702	-6.347339	0.0000
UKUNEMP	-0.176156	0.190812	-0.923191	0.3644
UKUNEMPC	-0.181395	0.237055	-0.765199	0.4510
C	4.088884	2.500652	1.635128	0.1141
AR(1)	0.507776	0.195696	2.594720	0.0154

R-squared	0.913124	*Mean dependent var*	10.13636
Adjusted R-squared	0.893076	*S.D. dependent var*	5.541988
S.E. of regression	1.812186	*Akaike info criterion*	1.374899
Sum squared resid	85.38444	*Schwartz criterion*	1.692340
F-statistic	36.75618	*Durbin-Watson stat*	1.842169
Prob(F-statistic)	0.000000		

ANNEX 4: AN INTRODUCTION TO THE CONCEPTS OF EQUILIBRIUM AND DISEQUILIBRIUM UNEMPLOYMENT

AN INTRODUCTION TO THE CONCEPTS OF EQUILIBRIUM AND DISEQUILIBRIUM UNEMPLOYMENT

EQUILIBRIUM UNEMPLOYMENT: It is now widely accepted that it is neither a feasible nor a desirable option to completely eliminate unemployment since even when the economy and the labour market are in equilibrium there still exists some "normal" level of unemployment. This "normal" level of unemployment was termed the "natural rate of unemployment" by Friedman in 1968 in order to conceptualise the notion that unemployment persists even at "full employment". In other words natural or equilibrium unemployment refers to the long-run steady state to which the system returns to after a disturbance. It has nothing therefore to do with the concept of market clearing. Deviations from the natural rate could only be maintained at the cost of continuously accelerating or decelerating wage increases with the former leading to the well-known phenomenon of wage-price spirals.

A closely related concept, the non-accelerating inflation rate of unemployment (NAIRU), was introduced by Tobin in an attempt also to define the level of unemployment which persisted due to frictions and imperfect information even when the labour market is in equilibrium. Consequently, in the absence of a perfectly competitive labour market which would, of course, lead to market clearing, the NAIRU or natural rate corresponds to the amount of frictional and structural unemployment which continues to exist in an economy even when the supply and demand for labour are in balance i.e. the level of unemployment persisting even when the labour market is in equilibrium.

As the discussion in Section 4 of the main text highlights, the NAIRU is one of the two key concepts introduced to show that policy makers cannot buy permanent reductions in unemployment by tolerating a higher rate of inflation. Once expectations have fully adapted to any new expansionary policy regime, unemployment will ultimately return to that level of unemployment required to hold inflation steady i.e. the NAIRU.

The extent of "equilibrium", "voluntary" or "structural" unemployment varies, of course, both over time and from country to country depending on changes in the complex microeconomics of national labour markets. The main underlying explanatory factors for these shifts over time and for differences internationally are:

- differences in the flexibility and adaptability of national labour markets;
- insider/outsider phenomena;
- obstacles to geographical/occupational mobility;
- rigidities due to the organisation and duration of work;
- fiscal disincentives and the level of social welfare benefits;
- inadequate education and training - inappropriate qualifications (mismatch problems);
- employment policies too oriented towards passive, as opposed to active, support.

Given the extensive array of rigidities and inefficiencies described above it is clear that vigorous policy action will be needed over many years to substantially reduce equilibrium

unemployment. Fundamental economic and social changes and a general reform of the system of incentives are urgently required if the labour market is to work efficiently and be adapted to the needs of the economy

DISEQUILIBRIUM UNEMPLOYMENT: Whereas "equilibrium" unemployment is linked to the microeconomics of labour markets, disequilibrium unemployment results essentially from a malfunctioning of the macro economy. All industrialised economies have experienced severe, and often persistent, disequilibrium unemployment. This type of unemployment has its origins in a wide array of causes but for simplicity, this section will confine itself to the distinction between the "classical" and "Keynesian" explanations of disequilibrium unemployment.

CLASSICAL UNEMPLOYMENT: This type of unemployment occurs as a result of the failure of the labour market to establish the market-clearing real wage i.e. the real wage is too high, leading to an excess supply of labour. Unemployed people whose reservation wage is already at or below the market wage are said to be involuntarily unemployed since there is nothing they can do to ensure that they will receive acceptable employment. Despite their willingness to accept jobs paying less than the market wage, the labour markets' failure to establish the market-clearing real wage leaves them jobless.

Why does the market real wage remain stuck at this inappropriately high level in a situation of an excess supply of labour? In other words, why are real wages not downwardly flexible? Explanations for this market failure lie in the nature of labour markets and in their inherent differences from goods markets. Real wage inflexibility, with wages being set above market-clearing levels, arise because of a range of influences such as:

a) ***Trade Unions.***

b) ***Insider/Outsider Phenomena.***

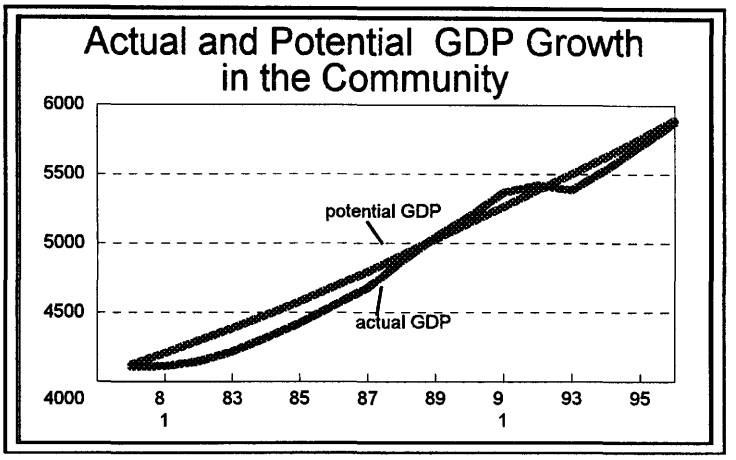
c) ***Imperfect Information (Efficiency wages).***

The operation of trade unions tends to ensure that real wages are rigid by curbing the natural forces of supply and demand in the labour market. Insider/outsider phenomena and imperfect information also acts to prevent real wages from being undercut. Moreover, employers often prefer to enter into long-run contractual arrangements with employees offering real wage and employment security in return for loyalty and productivity benefits. While such mutually beneficial arrangements can often be justified on efficiency grounds at company level, it is generally accepted that enhanced real wage responsiveness to labour market conditions such as for example through naturally occurring real wage moderation (i.e. moderating the level or at least the rate of increase of real wages) can make an important contribution to solving the problem of involuntary unemployment.

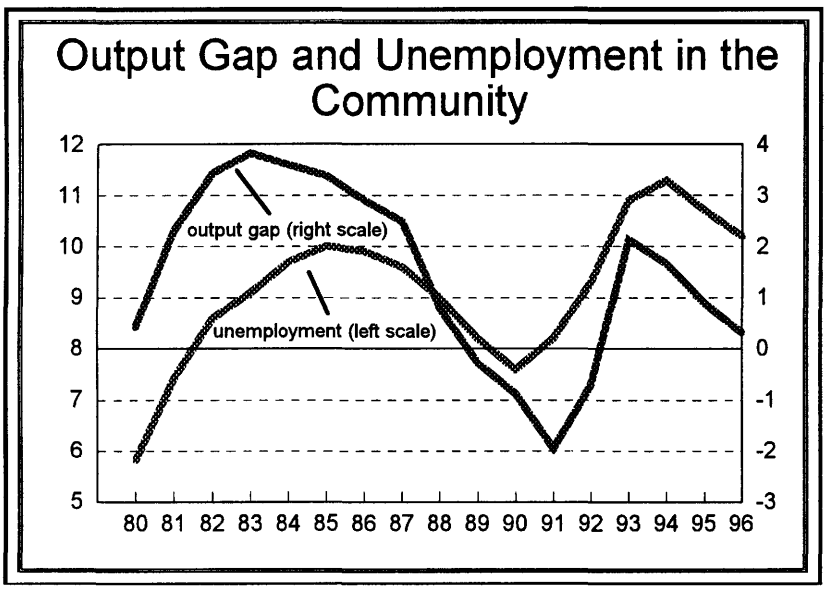
KEYNESIAN UNEMPLOYMENT: This type of unemployment has its origins in cyclical downturns in economic activity. Adverse demand shocks, such as a collapse in private sector investment or consumption spending, or supply shocks, caused by cost increases (e.g. the oil price increases of the 1970s), can trigger a slump in economic activity and a consequent fall in the demand for labour and a rise in unemployment.

ANNEX 4

The close link between unemployment and fluctuations of activity around a long-term trend was measured empirically by the US economist, Arthur Okun. He showed that in the US in the 1950s and 1960s that for every 3 percent fall in the ratio of actual output to potential output, the rate of unemployment increased by 1 percentage point. This relationship became known as Okun's Law.



This concept of potential output is crucial to understanding the impact of a recession on the labour market. Potential output is determined by the growth of the labour force,[4] the rate of capital accumulation and technical progress and provides an estimate of what output would have been if it had remained on a smooth growth path, free of the normal cyclical fluctuations. When an adverse demand or supply shock occurs, the actual level of output falls below potential output and an "output gap" appears which leads to unemployment increases.



It is crucially important therefore to attempt to maintain the economy near its trend growth path in order to avoid this type of "output gap" or Keynesian unemployment which reflects essentially a deficiency of aggregate demand. This type of unemployment, however, responds favourably to demand increases through production and employment growth in conditions of stable prices and unchanged real wages. This favourable response to an increase in aggregate demand differs crucially, however, from the situation with classical unemployment with firms not responding to a boost in demand unless there is a fall in real wages.

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4 It is interesting to note that there is a substantial body of evidence that the labour force responds negatively to unemployment with the result that discouraged workers, particularly the long-term unemployed, leave the labour force. This is important when assessing potential output not only to look at the unemployment rate but also to take into account the loss of the productive potential of discouraged workers. Therefore, measured unemployment does not represent anything like the total welfare costs since it fails to take account of "discouraged worker" effects on future potential output developments.

ANNEX 5: COMPARISON OF US AND COMMUNITY EMPLOYMENT PERFORMANCES 1970-1993: OVERVIEW OF MAIN TRENDS AND DETAILED ANALYSIS OF LABOUR MARKET FLEXIBILITY.

ANNEX 5

COMPARISON OF US AND COMMUNITY EMPLOYMENT PERFORMANCES 1970-1993: OVERVIEW OF MAIN TRENDS AND DETAILED ANALYSIS OF LABOUR MARKET FLEXIBILITY

INTRODUCTION

The purpose of this annex is the following:

1. ***To give an overview of the main labour market developments in the US and the Community over the period 1970-1993.***
2. ***To look at the role of labour market flexibility as an explanatory factor in terms of labour market trends in the US and the Community.***
3. ***To present evidence as to why the US labour market is so much more flexible than those of the Member States of the Community.***
4. ***To assess the extent to which the US can retain flexibility while effectively addressing the inequality issue?***

SECTION 1 OVERVIEW OF MAIN LABOUR MARKET DEVELOPMENTS AND THEIR UNDERLYING CAUSES IN THE US AND THE COMMUNITY 1970-1993

Spectacular US Labour Market Performance: There has been no trend increase in the US unemployment rate over the last two decades compared with a sharp rise of between 7-8 percentage points in the equivalent rate for the Community. This structural unemployment performance in the U.S. is remarkable when account is taken of the fact that both employment and the labour force grew by nearly 50 per cent, in both cases, over the period in question. By comparison the Community's labour force and employment grew by only 18 and 5 percent respectively.

The US labour market has therefore shown a remarkable ability to absorb huge numbers of new entrants into its labour force without any sustained increase in its rate of unemployment. This annex attempts to shed some light on this phenomenon by looking at labour force and employment developments in the US and by highlighting the main explanatory factors behind this performance.

The main points to retain from this annex are as follows:

1. ***Main labour market trends***
   - ***Labour Force***: The annual average rate of increase in the US active population over the period 1970-1993 was close to 2 percent compared with 0.7 percent for the Community.
   - ***Employment***: While GDP growth rates have been similar in the US and the Community, the US employment performance has been manifestly superior. The numbers employed in the US increased by 37 ½ million since 1970, an annual average increase of 1.6 percent, compared with just 7 million (0.3 per cent) in the Community.
   - ***Unemployment***: The US unemployment rate, as a percentage of the civilian labour force, increased only marginally, from 6 percent in the early 1970s to

6.7 per cent in 1993. Community unemployment, however, grew from 2 ½ percent to close to 11 percent over the same period.

2. ***Explanations for employment growth***: The main influences on the US and Community employment performances were:

a) GDP growth.

b) Employment threshold developments:

- reductions in average working time;
- increase in the share of part-time work;
- sectoral output shifts;
- capital/labour substitution.

3. ***Comparison of US and Community employment performances***: Because of the close association of the explanatory variables (i.e. economic growth and productivity developments), it is impossible to draw firm conclusions ***at a disaggregated level*** in relation to the respective performances of the US and Community labour markets in terms of job creation. However, one can make the following broad statements in relation to the possible sources of the large differences in job-creating performances.

I. GDP growth

The superior US employment performance does not emanate from faster growth since GDP growth outturns in the two regions have been virtually identical over the period analysed.

II. Employment threshold developments.

While the output performances may have been similar, the US has produced this additional output by using a greater amount of the factor input labour than was the case in the Community. What are the factors underlying this trend? A number of possible explanations exist:

A. ***Reductions in average working time***: The decline in the weekly hours of work for total private sector employees in the US over the period 1970-1993 was of the order of 7 %. If one makes the heroic assumption that this reduction in hours worked was neutral in terms of productivity then such a decline should lead to a proportional increase in the level of employment. Therefore, 5-5 ½ million of the 37 ½ million jobs created could, under this highly restrictive assumption, have come from this factor. Comparable data are not available for the EC. However, an analysis of broadly similar data for the period 1983-90 shows that the total decline in the hours worked in the EC was roughly double that which occurred in the US over the same period. The latter data would therefore appear to point to a greater role for changes in working time in explaining employment trends in the Community rather than in the US.

B. ***Increase in the share of part-time work***: In the US, a little over 8 million additional part-time jobs were created over the period 1970-93 compared with over 29 million new full-time posts. If one looks at data for the EC4 (WD, F, I, UK) for the period 1973-1992, one finds that the number of part-time jobs grew by 6 ¼ million over the period, with the number of full-time positions growing

by 9 ¼ million. Therefore, as with working time, the share of part-time work in overall employment creation in the Community over the period in question was much greater than that in the US.

C. ***Sectoral output shifts***: Could the expansion of service sector activities explain the difference in job performances between the US and the Community? Again as with points A. and B. above, it would not appear to provide an adequate explanation. Over the period 1970-90 the share of service sector employment in overall employment grew by 10 percentage points in the US while the relative share of the services sector in overall employment in the Community (although starting from a much lower base) grew in fact by an even greater amount i.e. 16 ½ percentage points.

D. ***Capital/labour substitution***: Unlike points A. B. and C. above the slower rise in US capital intensity compared with the Community over the period 1970-93 was, in fact, a major factor explaining the relatively stronger US job creation performance over the period in question. But why did US producers use relatively more of the factor input labour in generating a broadly similar output performance to that of the Community? It is contended in this annex that any factor which has the effect of reducing the relative attractiveness of labour, be it a slowdown in the overall rate of increase in the supply of labour, a shortage of particular types of labour, a lack of investment in training and education, a relatively immobile labour force or a wage formation process which fails to generate flexible and differentiated wage settlements, the greater will be the incentive for firms to increase the capital intensity of their production processes. Some of the above factors may have been responsible in the Community for capital being increasingly substituted for labour with the opposite trend in the US of less capital intensity reflecting the greater overall flexibility/efficiency of the US labour market.

4. ***Labour market flexibility: Wage flexibility and labour mobility***: Flexibility with regard to both aggregate and relative wages has been a major factor explaining the limited deterioration in the US labour market performance over the period. A high degree of regional and occupational mobility has complemented this flexible wage formation process and has helped to facilitate the real wage adjustment necessary to absorb regional or sectoral shocks. Less generous social welfare provisions, a lower overall tax burden, wider income differentials, low unionisation rates, decentralised wage bargaining and easier hiring/firing rules have all contributed to this inherent US flexibility.

5. ***US policy challenge: Retain flexibility and address the inequality problem***: For the Clinton administration, the key labour market preoccupation at the present time is the growing skills-based disparities in earnings and employment as a result of the mismatch between the jobs that are being created and the job-seekers; i.e. excess demand for skilled labour and excess supply of unskilled labour. This appears largely responsible for the increased wage inequality (and the related problem of the working poor, with the real wages of the unskilled falling sharply in the 1980s in both absolute and relative terms) and the high level of male unemployment in the age group 25 to 45.

The Clinton administration appears to feel that the answer to this problem will not come from the introduction of labour market regulations to excessively limit these market generated wage differentials. The present US approach centers around the need to retain the flexibility inherent in the present system whilst addressing the mismatch problem through increased expenditure on active labour market policies and educational/training programmes.

SECTION 2 LABOUR MARKET FLEXIBILITY

OVERVIEW

Key role for flexibility: Labour market flexibility refers to both ***wage flexibility and labour mobility. Adjusting to economic shocks*** is made easier if absolute and relative real labour costs adjust relatively flexibly. Such ***price flexibility*** is necessary to restore competitiveness, at the national or regional level, and to bring output and employment back to equilibrium. ***Regional and occupational mobility*** also contributes to overall labour market flexibility by substituting for, or complementing, the real wage adjustment necessary to absorb regional or sectoral shocks.

Role played in the US: With regard to the U.S., ***labour market flexibility is generally accepted to be high***. Real wage flexibility, combined with a high degree of labour mobility have combined to limit the deterioration in the performance of the U.S. labour market over recent decades. There has been ***no trend increase in U.S. unemployment since 1970*** despite both experiencing substantial economic shocks during the period and witnessing increases in both its labour force and employment of close to ***50 percent*** over the period as a whole. Various proxy measures of U.S. structural unemployment (NAIRU, Beveridge and Okun curves) suggest that the latter has remained at between 6-7 percent over the period, a performance which is in stark contrast with the experience of the Community over the same period. In addition, ***long-term unemployment*** is of the order of 5-10 per cent of the overall total in the U.S. compared with around 50 percent in the EU. Finally, a high degree of geographic mobility in the U.S. has increased overall labour market flexibility by ensuring that the effects of sectoral and regional shocks were absorbed to a far greater extent than in regions such as Western Europe where for cultural and linguistic reasons labour mobility is relatively restricted.

AGGREGATE AND RELATIVE WAGE FLEXIBILITY IN THE US: SOME EMPIRICAL EVIDENCE

Real wage flexibility has been cited above as a major factor explaining the strong US employment performance. It has been purported that flexibility with regard to both aggregate and relative wages substantially explains the limited deterioration in the US labour market performance over the last two decades. Because of the key role which such flexibility has played, it is important therefore to look at this area in more detail* .

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* Most of the tables and graphs in this section are taken directly from the background documentation prepared for the OECD's "Jobs Study".

ANNEX 5

The analysis which follows looks at two broad areas:

A. RELATIONSHIP BETWEEN LABOUR DEMAND AND LABOUR COSTS.
1. Aggregate level.
2. Relative wages and demand for different groups of workers.

B. RESPONSIVENESS OF WAGES TO UNEMPLOYMENT.
1. Aggregate wage flexibility.
2. Flexibility of relative wages by education, age and gender.
3. Flexibility of relative wages by regions.

A. RELATIONSHIP BETWEEN LABOUR DEMAND AND LABOUR COSTS.

Substantial evidence exists of a negative relationship between the demand for labour and the cost of labour in the longer run.

A.1: Labour demand and labour costs at the aggregate level: Table 1 below gives estimates for the relationship between real wage developments and labour demand in the private sector. The table shows that while the long run responsiveness of private sector employment to changes in labour costs may be similar among industrialised countries substantial differences exist as regards the speed with which labour demand responds.

TABLE 1

REAL WAGES AND LABOUR DEMAND IN THE PRIVATE SECTOR

	Long-term Employment Elasticity	Mean Lag (Years)
United States	-1.0	1.0
European Community		
- Germany	-1.0	2.0
- France	-1.0	2.0
- Italy	-0.5	5.0
- UK	-1.0	4.0

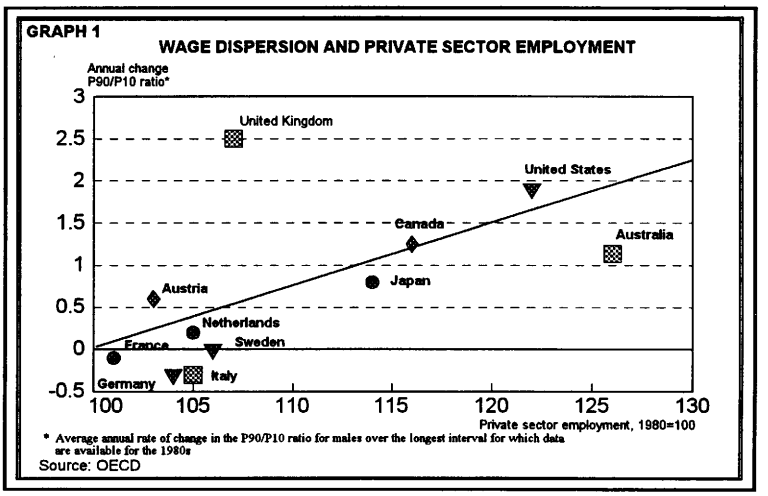
Source: T. Tyrvainen: Paper Prepared for Jobs Study 1993

For instance a one percent reduction in labour costs would, according to the estimates in Table 1, typically increase labour demand in the private sector by 1 percent in the long run. While the long-run response, because of technology convergence, is similar across countries, the short-term adjustment speeds differ substantially. For example, labour demand in the US adjusts to changes in labour costs by far the fastest of the countries mentioned with half of the adjustment completed in one year. For the countries of the European Community, a similar degree of adjustment would appear to require between two and five years.

Given the substantial real wage adjustment which has occurred in many countries in the Community in the 1980s part of the gap between actual and equilibrium unemployment in the

Community may therefore be due to employment adjustment occurring with a lag. Flexibility enhancing policies (including active labour market policies) are therefore needed in a large number of Member States to speed up the adjustment of unemployment towards equilibrium following a shock and to reduce equilibrium unemployment.

A.2 ***Relative wages and demand for different groups of workers***: Overall labour demand depends not only on the average wage level but also on the distribution of wages because of the need to accommodate different ability levels. It is not normally possible to observe individuals' abilities or productivity levels. However, since profit maximising employers should not pay wages in excess of productivity levels then you would expect that the wage distribution in a country could be envisaged to closely shadow the distribution of abilities or personal productivity levels.



However, because of social justice concerns about an unequal income distribution in an economy, institutional constraints are often introduced at the low end of the ability range to prevent wages from being aligned with productivity levels, e.g. minimum wage rates. Unfortunately, however, measures such as minimum wages normally have a negative impact on the demand for low-skilled workers. As Graph 1 shows there is a strong positive correlation between a widening of earnings differentials and private sector employment growth. Greater earnings differentials tend to create job opportunities for low-skilled workers such as the young and the lower-educated. In fact, in the 1980s in those countries where the relative wages of low-skilled workers have fallen the most (e.g. the US) private sector employment growth has been the most impressive. Relative wage inflexibility, on the other hand, reflected in a compressed wage distribution, is likely to have strongly contributed to the concentration of unemployment among certain age and skill groups in the Community.

B. *WAGE ADJUSTMENTS AND UNEMPLOYMENT*:

For equilibrium to be restored to the labour market following a shock two conditions appear to be necessary:

a) A negative relationship must exist between labour demand and labour costs.

b) Wages must respond to changes in market conditions.

For example, if the above conditions are met, an increase in unemployment, following an adverse shock, would lead to a moderation in real wage demands which in turn would

stimulate the demand for labour up to the point where unemployment settles down at its natural level thereby restoring labour market equilibrium.*

Sections B.1, B.2 and B.3 below attempt to assess the extent and speed with which labour market slack puts downward pressure on real wages and vice versa. Section B1 looks at aggregate wage flexibility with sections B2 and B3 looking at the flexibility of relative wages by education, age, gender and region.

B.1 ***Aggregate wage flexibility***: (Defined as "Uniform changes in the wages of all employees in response to an increase in aggregate unemployment"). Real wages respond to the state of the labour market in the long run, with the rate of growth of real wages linked to the level of the unemployment rate. However, while the long-run responsiveness of wages to unemployment is not in doubt, the problem relates to the very gradual nature of the adjustment process. The longer the adjustment period the slower the speed at which unemployment can be returned to equilibrium following an adverse shock.** Table 2 below shows that while the adjustment process is relatively quick in the US and the UK, it is particularly slow in the case of Germany and Italy.

TABLE 2.

REAL WAGES AND UNEMPLOYMENT (ESTIMATION RESULTS)

	Long-term Real Wage Response	Mean Lag (years)
United States	-1.0	1.0
Germany	-3.0	4.0
France	-3.5	1.5
Italy	-2.5	2.0
UK	-1.0	1.0

Sources T. Tyrvainen: Report prepared for Jobs Study 1993.

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* OECD Jobs Study: "This equilibrium or natural level (of unemployment) is unlikely to be market clearing, because it is also determined by industrial relations arrangements, product-market competition, social welfare provisions and possibly taxes. Changes in any of these variables will shift the equilibrium unemployment rate. However, if wages are not responsive to the level of unemployment or the wage impact is only transitory, there will be no unique equilibrium rate and unemployment can settle down at whatever rate it is driven to by history ("hysteresis")".

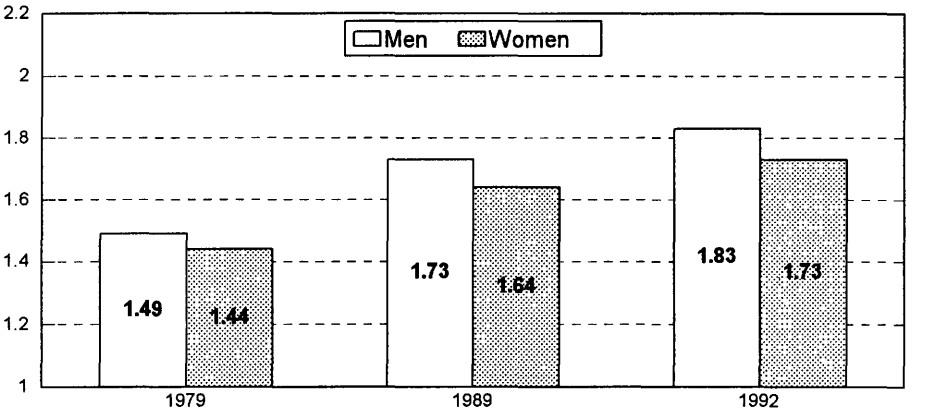
** IMF: "Policies that increase the flexibility of labour markets will reduce the strength of forces that tend to make cyclical unemployment persist, thereby speeding the reduction in cyclical unemployment. By reducing structural unemployment at the same time that cyclical unemployment is falling, labour market reforms can reduce the risk of a build-up of inflationary pressures that would cut short or restrain the next expansion".

B.2 Flexibility of relative wages by education, age and gender:

When the structure of the relative demand for, and the relative supply of, different groups of workers is changing, relative wage flexibility is crucial for employment creation.

GRAPH 2

US RATIO OF AVERAGE ANNUAL EARNINGS OF COLLEGE GRADUATES TO HIGH SCHOOL GRADUATES



Source: US Current Population Survey

Education and Skills: Graph 2 shows that the relative wages of college graduates in the US compared to high school graduates have increased substantially throughout the 1980s. This is in stark contrast with Community countries such as France where education differentials have become more compressed and with Germany and Italy where the wage structure by education/skills has been stable since the late 1970s. Table 3 also confirms the above thesis.

TABLE 3

EARNINGS OF UNIVERSITY EDUCATED MEN RELATIVE TO MEN WITH LOWER SECONDARY EDUCATION OR LESS (LATE 1970S=100)

	Germany	Italy	UK	USA
Late 1970s	100	100	100	100
Late 1980s	97	103	111	120
Late 1990s	-	101	121	127

Age: Table 4 shows that while there has been a decline in the relative wages of young people in the 1980s in the US, the wage structure by age has remained broadly stable in the UK and Italy.

ANNEX 5

TABLE 4

EARNINGS OF MEN AGED 15-24 RELATIVE TO MEN AGED 25-54

	1980	1990
Italy	100	101
UK	100	99
US	100	89

Gender: The fact that the tightening of the female labour market in the US relative to that of men led to an increase in the relative wages of women suggests that the gender wage differential in the US also seems to have responded to relative unemployment rates.

B.3 Flexibility of relative wages by regions: No significant regional differentiation of wages should exist in a national market characterised by a high degree of geographical labour mobility. However, with the decline in regional migration in recent decades, regional wage flexibility has become ever more important. Regional wages must adjust flexibly to persistent differences in regional unemployment rates. This appears to be the case with the regional wage structure in the US (Table 5), with higher relative regional unemployment inducing relative wage cuts in the region concerned. This is in contrast with the position in Germany and Italy for example where no changes in wage relativities occurred in the high unemployment regions in the 1980s despite having an average unemployment rate of more than twice that in the low-unemployment areas.

TABLE 5

HIGH AND LOW UNEMPLOYMENT REGIONS: WAGES AND JOBLESSNESS OVER TIME

	1975	1980	1987
United States			
Unemployment Ratio*	0.95	1.23	2.15
Wage Ratio	0.95	1.00	-0.88
Germany			
Unemployment Ratio	1.39	1.98	2.27
Wage Ratio	1.04	1.00	0.98
France			
Unemployment Ratio	1.08	1.43	1.47
Wage Ratio	0.96	1.00	0.98
Italy			
Unemployment Ratio	2.70	2.60	2.97
Wage Ratio	0.96	1.00	1.02

Source: OECD

* Ratio of the rate of unemployment in the high unemployment regions to the rate of unemployment in the low unemployment regions.

SECTION 3 *WHY IS THE US LABOUR MARKET SO MUCH MORE FLEXIBLE THAN THOSE OF THE MEMBER STATES OF THE COMMUNITY ?*

The answer to the above question boils down to a number of factors including strong growth in the labour supply in the US, a high degree of geographical and occupational mobility and to the fact that US government intervention in the workings of its labour market has, in general, been much more limited that in most of the EC's Member States. Since the labour supply and mobility factors have been looked at in earlier sections of this analysis it is appropriate that the following tables and graphs concentrate on illustrating the major differences in terms of government intervention.

i. Less generous social welfare provisions: less coverage and stricter eligibility requirements for benefits, lower replacement ratios, shorter duration of benefit payout (Table 6).

TABLE 6

BENEFIT DURATION AND REPLACEMENT RATIO

	Incidence of long-term unemployment (1)	Maximum duration of unemployment benefits (weeks)(2)	Replacement Ratio (3)
United States	7.7	26	50
Germany	42.2	52	58
Netherlands	47.8	156	70
Belgium	70.6	*	60
Denmark	32.5	130	64
France	40.5	130	59
Italy	63.0	26	15
UK	41.6	52	26
Ireland	57.7	65	43
Spain	50.6	104	80

(1) Long-term unemployment as a percentage of total unemployment (1979-1989 average). Generous benefit levels and duration tend to be associated with a higher proportion of long-term unemployed in the overall unemployment total.

(2) 1989

(3) Ratio of maximum benefits to previous earnings (married person)

* Unemployment insurance is provided indefinitely.

Source: OECD

ii. Low overall taxation burden: Graph 3 and Table 7 show the overall marginal tax wedge in the US and the Community and give figures for total tax revenue as a percentage of GDP.

TABLE 7

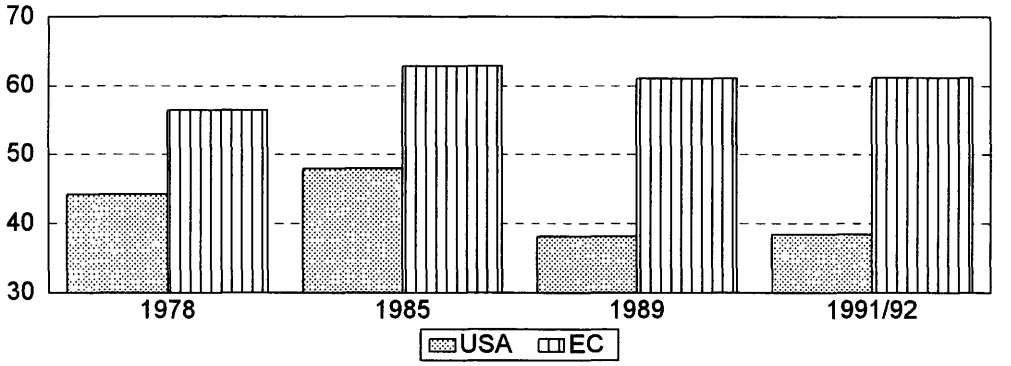
TOTAL TAX REVENUE AS A PERCENTAGE OF GDP

	1978	1985	1991
US	28.9	28.7	29.8
Belgium	45.0	47.9	44.9
France	38.6	44.5	44.2
Germany	37.9	38.1	39.2
Italy	27.4	34.5	39.7
Netherlands	43.6	43.8	47.0
Spain	22.8	28.8	34.7
U.K	33.0	37.8	36.0

Source: OECD

GRAPH 3

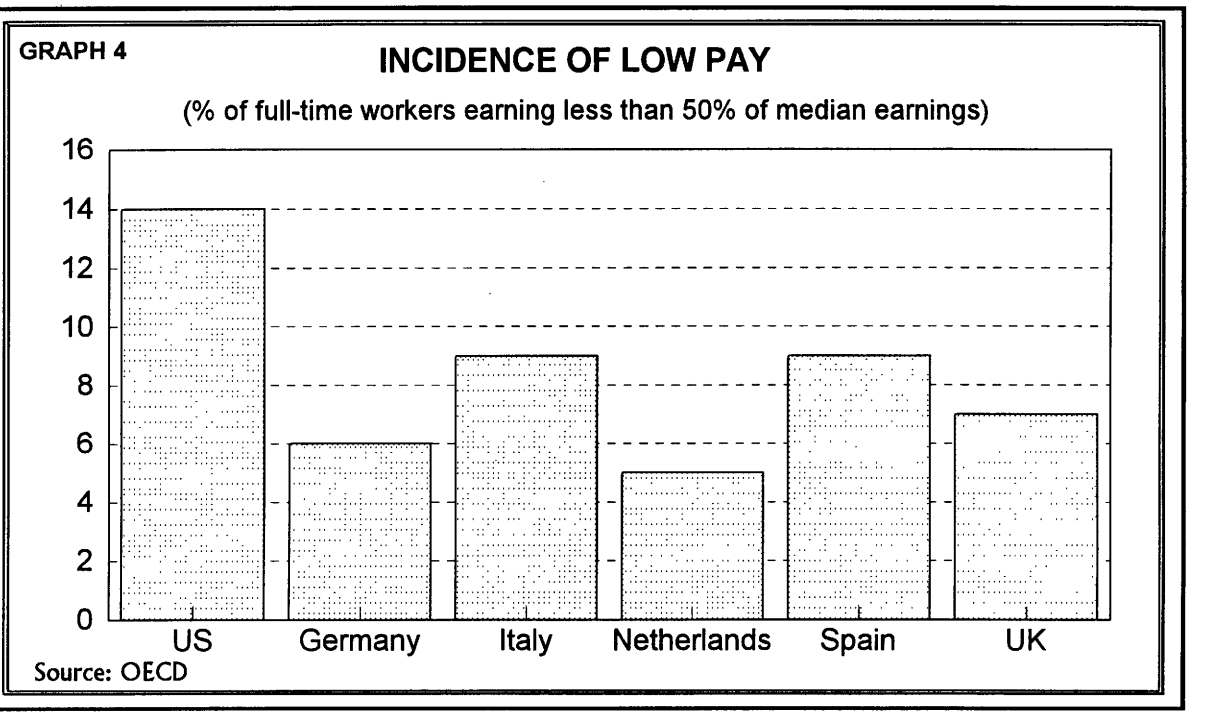
OVERALL MARGINAL TAX WEDGE* IN THE US AND IN THE COMMUNITY



* The overall tax wedge includes employees' and employers' social security contributions, personal income taxes and consumption taxes. Social security contributions and income taxes are calculated by applying tax rules to the level of earnings of an average production worker. Consumption tax rates are calculated from aggregate tax and national income data. Source:OECD

iii. ***Wider earnings dispersions: (Graph 4)*** Note: While a minimum wage rate does exist in the US the latter is at such a low rate (i.e. less than 40 percent of the average wage) that it is generally accepted as not significantly affecting wage trends and therefore has little negative influence on employment, except perhaps for some groups of unskilled young workers.

GRAPH 4



iv. ***Low and declining rate of union membership.***

TABLE 8

UNION DENSITY IN US AND COMMUNITY (1975-1988)

	1975	1985	1988
US	22.8	18.0	16.4
Belgium	55.3	54.3	53.0
Denmark	67.4	78.3	73.2
France	22.8	16.3	12.0
Germany	36.6	37.4	33.8
Ireland	55.2	56.0	52.4
Italy	47.2	42.0	39.6
Netherlands	38.4	28.7	25.0
UK	48.3	45.5	41.5

Source: OECD

v. Less centralised wage bargaining and less government involvement in the wage bargaining process.

Table 9

The level of bargaining in the 1970s and 1980s

		Predominant bargaining level in the 1980s		
		CENTRAL	**SECTORAL**	**ENTERPRISE/ PLANT**
Predominant bargaining level in the 1970s	**CENTRAL**	Finland	Austria	
			Norway	
			Sweden	
	SECTORAL	Australia	Belgium	United Kingdom
			France	
			Germany	
			Netherlands	
			Portugal	
			Spain	
	ENTERPRISE PLANT			United States Canada Japan

Source: F. Traxler, "The level and coverage of collective bargaining: A cross-national study of patterns and trends," OECD, 1993

Table 10

Bargaining levels, bargaining co-ordination and labour-market performance (1)

	Unemployment rate		Total employment	Private employment	Public employment
	1973	**1989**	**1973=100**		
Bargaining levels (2)					
Centralised	1.9	2.9	112	101	151
Sectoral	2.9	9.4	109	105	137
Company/plant	3.4	4.6	129	130	127
Bargaining co-ordination(3)					
High	1.2	3.9	115	114	128
Low	1.6	1.0	113	105	150
Limited	2.8	10.4	106	100	143
Lacking	4.3	5.5	133	135	128

Notes: 1. Classification based on bargaining arrangements in the 1970s.
2. ***Centralised***: Austria, Finland, Norway, Sweden, ***Sectoral***: Belgium, France, Germany, Netherlands, Portugal, Spain, Switzerland, Italy, Australia, New Zealand, ***Company***: United States, Canada, Japan, United Kingdom.
3. ***High***: Japan Australia, Austria, Germany: ***Low***; Sweden, Switzerland; ***Limited***: Belgium, Finland, France, Netherlands, Norway, Portugal, Spain: ***Lacking***: United States, Canada, United Kingdom, New Zealand

Source: OECD

vi. ***Less restrictive legislation on the hiring/firing of employees e.g. less oppressive job security legislation, measured in terms of months of severance pay or notice period required.***

TABLE 11

JOB SECURITY LEGISLATION

	Job security legislation(1)
United States	0.0
Germany	3.0
Netherlands	5.9
Belgium	2.0
Denmark	0.0
France	3.5
Italy	13.7
UK	8.4
Ireland	14.0
Spain	13.7

(1). Months of severance pay or notice period required.

Source: OECD

CONCLUSION: The above list of features, combined with the greater geographical mobility and strong growth of the US workforce, have been the cornerstone of the US economy's ability to adjust comparatively quickly to adverse disturbances.

SECTION 4: CAN THE US RETAIN FLEXIBILITY WHILE EFFECTIVELY ADDRESSING THE INEQUALITY ISSUE ?

Inequality issue: While the overall impact of the comparatively strong US labour market flexibility is overwhelmingly positive, particularly in relation to employment creation, the concern generated by the social implications of the above flexibility, most notably increased ***income inequality and the phenomenon of the "working poor"*** needs to be assessed in any overall evaluation of this "reduced-interference" approach to the labour market.

Reduced demand for low-skilled workers: The greater flexibility of the US labour market has indeed led to declining real wages for low skilled workers and an overall widening of the wage distribution. However, to blame this development on inappropriate US labour market policies would be to ignore a large part of the story. While inadequate training and education has been partially responsible for the phenomenon of the "working poor", a major factor has been the ***world-wide trend towards reduced demand for low-skilled workers as a result of accelerated structural changes, due to the speed of technical innovation, and increased competition from low-cost producers.***

Distributional v efficiency objectives: It should be stressed that attempting to halt this process of structural change is futile and that correcting for inequality which is a direct result of these global changes through regulations that distort the functioning of labour markets is

inappropriate. ***Such distributional objectives can in fact be more efficiently achieved through changes in the taxation and social welfare systems@ and through improved education and training programmes.***

Why is regulation inappropriate as a cure for inequality?

1. Using labour market regulation such as minimum wage legislation or wage bargaining systems that excessively limit wage differentials between individuals, sectors or regions, despite productivity differentials, ***may not in fact reduce income inequalities*** since such policies often protect those already employed to the detriment of "outsiders" who tend to be drawn from the most vulnerable and least-skilled cohorts of society.

2. Furthermore, to the extent that wage differentials reflect differences in the marginal products of various types of workers, wider ***differentials provide a greater incentive for a more efficient allocation of the workforce across sectors and hence result in greater labour demand.***

Overall, therefore, not only can such polices fail to achieve equity objectives, they can generate enormous economic and social costs by contributing to high rates of structural unemployment.

What is the best solution? Since earnings differentials must to a significant extent reflect productivity and skill differentials, the only workable solution to the problem of low-skilled workers is to permit such differentials to exist while at the same time implementing ***active labour market policies*** to increase the productivity of such workers (i.e. work experience, better education and training) and ***targeted programmes to ease the short-term hardship.***

This appears to be the broad approach being adopted by the Clinton administration. The latter wishes to retain the flexibility inherent in the present US system while at the same time taking practical measures aimed at addressing the inequality issue. This has led to a vibrant public debate in the US on the following key labour market policy areas which will form the main plank of US attempts to remedy the inequality problem.

i. Key role for active labour market polices and changes to unemployment benefit systems.
ii. Human capital policies: Training and education.

1. ***Active labour market policies and changes to unemployment benefit systems.***

The US devotes a relatively small proportion of its GDP to public expenditure on labour market policies (unemployment benefit, early retirement and active labour market policies). Within this low overall spending total (Tables 12 and 13), they allocate a relatively small proportion to active policies. It should be underlined,

---

@ Appropriately designed and well-targeted taxation (e.g. negative income taxes) and social transfer programmes (e.g. supplemental income support) are more effective in offsetting the socially unacceptable distributional consequences of bold steps to implement broadly based labour market reforms aimed at fostering job creation and the incentives to seek employment. Increasing the flexibility and efficient functioning of labour markets demands imaginative initiatives to ensure that the smooth operation of market forces does not result in an unacceptable degree of social unrest within countries.

however, that the extent of the problem to be addressed in the US (see Graph 5 on long-term unemployment) is on a completely different scale to that confronting the Community.

TABLE 12

ACTIVE AND PASSIVE LABOUR MARKET MEASURES (1990)

	US	Germany	France	UK	Italy
Total spending on labour market measures (active and passive, per cent of GDP)	0.7	1.9	2.0	2.2	1.1
Active policies as per cent of total spending	29.0	41.0	35.0	38.0	65.0
Unemployment (per cent)	7.2	7.1	10.2	11.6	10.2

Source: OECD

TABLE 13

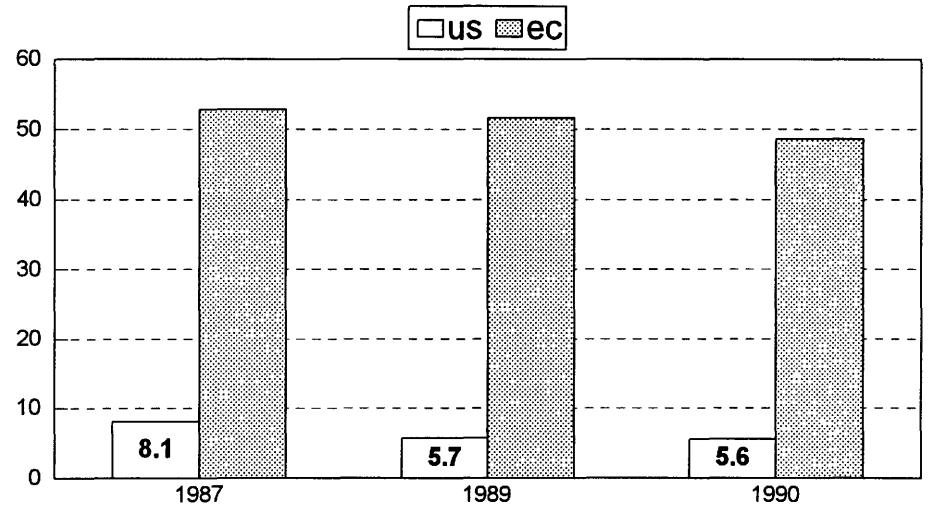
PUBLIC EXPENDITURE ON LABOUR MARKET PROGRAMMES: US V GERMANY

	US	Germany
Programme Categories	**Public expenditures as per cent of GDP (1992)**	
1. Public Employment Services	0.08	0.24
2. Labour Training	0.08	0.59
3. Youth Measures	0.04	0.06
4. Subsidised Employment	0.01	0.52
5. Measures for the Disabled	0.05	0.24
6. Unemployment Compensation	0.58	1.32
7. Early Retirement Schemes	-	0.49
Total	0.84	3.46
(Active Measures 1-5)	(0.25)	(1.64)
(Passive Measures 6-7)	(0.58)	(1.81)

Source: OECD

GRAPH 5 **LONG-TERM UNEMPLOYMENT**

(Continuously unemployed for one year or more - % of total unemployment)



Source: Eurostat and OECD

11. Human capital policies: training and education

Training and education are essential policies for boosting the quality of human capital in economies. Such policies are needed to create "high-skill" workforces which will secure a continuous increase in productivity and living standards.

As mentioned earlier rapid structural changes in world-wide labour markets have widened the income disparity between skilled and unskilled workers. In the US, this is seen as a key area where action is needed to promote employment and competitiveness.

(i) Though per capita education spending is similar to that in other OECD countries, average educational attainment has been less satisfactory, and drop-out rates for minorities (Black and Hispanic) have been high (up to 33 per cent).

(ii) Unemployment for those with low educational achievements is high, both relative to total unemployment, and in particular relative to other countries.

(iii) Wage dispersion across educational standards, as mentioned earlier, is substantially greater in the US than in most other countries.

(iv) The level of spending on training, public and private, is low by OECD standards and private sector training focuses mainly on managers, rather than on the less skilled.

TABLE 14

PROPORTION OF WORKERS WHO NEEDED QUALIFICATIONS TO OBTAIN THEIR CURRENT JOB

GERMANY AND THE UNITED STATES (1990/91)

TYPE OF QUALIFICATION REQUIRED

	Needed any qualifications	Formal company training	Informal on-the-job training
Germany			
All employees	94.2	51.9	23.5
0-1 year tenure	91.0	45.8	27.6
6-9 years tenure	91.1	54.4	25.3
15+ years tenure	96.5	53.5	18.8
United States			
All employees	55.8	12.1	27.1
0-1 year tenure	49.0	9.1	25.1
6-9 years tenure	61.7	15.0	30.2
15+ years tenure	60.7	15.7	27.5

Note: Formal company training refers to needing an occupational certificate, and informal training refers to requiring short on-the-job training or longer training in the firm.

Source: OECD

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