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Unemployment and economic growth: a partial survey

Lars Calmfors and Bertil Holmlund *

Summary

■ The article surveys theoretical and empirical knowledge on the determinants of equilibrium unemployment. It is viewed as the outcome of the interaction between wage-setting and price-setting behaviour.

The evidence suggests that generous unemployment insurance, product market regulations, high unionisation and uncoordinated bargaining at the sectoral level contribute to high unemployment. The evidence on active labour-market policy and taxes is less clear. But there is a strong presumption that job broking activities and labour-market training reduce unemployment. The same holds for tax cuts on labour income only. It does not seem as if a high level of employment protection has an effect on the overall unemployment rate, although turnover in the labour market is reduced. Working-time reductions do not appear to raise employment.

Much evidence suggests that also macroeconomic shocks can have long-term effects on unemployment. In an open economy, changes in product demand, which drive a wedge between real product and real consumption wages, can have long-lasting effects. Macroeconomic shocks can also interact with labour-market institutions. The relationship between long-term growth and unemployment is unclear. A higher growth rate can have both positive and negative unemployment effects.

A key problem for labour-market reform is that it may not be in the interest of the political majority of employed insiders with medium and low incomes, as the main benefits may accrue to the unemployed, the high-skilled and shareholders. Status-quo bias and time inconsistency are other obstacles to reform. Political acceptance of reform may require compensating transfers to the majority that would otherwise lose out. ■

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Unemployment and economic growth: a partial survey

Lars Calmfors and Bertil Holmlund*

The past two decades have seen a remarkable increase in economic research on unemployment. This research has mainly been driven by attempts to understand the causes of the rise in European unemployment that took place from the mid-1970s and onwards. The purpose of this paper is to provide an overview of this research and to discuss the policy implications.

Our exposition is based on theoretical perspectives that have become fairly widely accepted within the economics profession.[1] We focus on the determinants of unemployment in the long run, i.e. the *equilibrium unemployment rate* (sometimes also referred to as structural unemployment or the natural rate of unemployment). There are two broad sets of factors that determine equilibrium unemployment: (i) the functioning of price and wage formation; and (ii) search and matching frictions in the labour market.

Unemployment fluctuates around the equilibrium rate in the short run. The conventional hypothesis is that fiscal and monetary policies can influence these cyclical fluctuations, but probably not the equilibrium unemployment rate. But there are also arguments that explain why movements in the actual unemployment rate may affect the equilibrium rate. At least, it is clear that the dynamic adjustment to macroeconomic shocks may take a very long time. An important issue then is how unemployment adjusts to such shocks.

In the popular debate, it is often taken for granted that a higher rate of economic growth also implies lower unemployment. This is certainly true in the *short run*, as higher employment implies higher output. However, this essentially reflects a one-time rise in the *level* of output as resource utilisation increases. A more difficult issue is how

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[1] See for example Pissarides (1990), Layard et al. (1991), Bean (1994), and Nickell and Layard (1999).

unemployment is affected by a change in the *long-term growth rate*. The fact that the rise in European unemployment in the 1970s and 1980s was accompanied by a decline in the rate of economic growth raises the issue of whether the two phenomena are related.

A relatively new area of research is the *political economy* of unemployment and employment policy. The key idea in this strand of research is that persistent unemployment may be explained by political mechanisms that prevent labour-market reforms. A successful strategy to fight unemployment must, according to this view, also recognise the prevailing political restrictions and offer proposals that can overcome them.

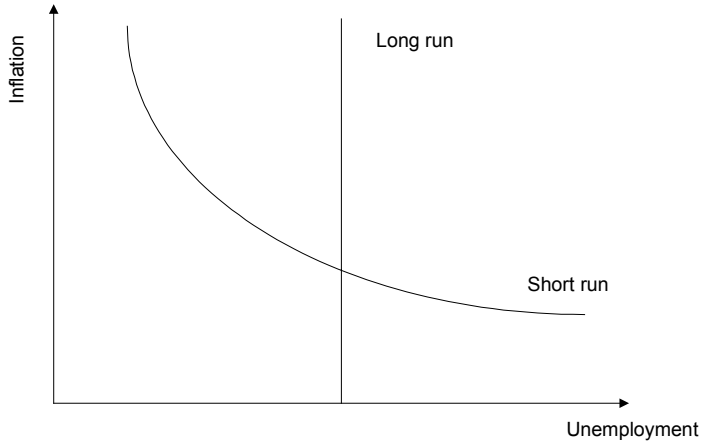
The plan of the article is as follows. In Section 1 we present a simple theoretical framework and proceed in Section 2 to discuss the determinants of equilibrium unemployment. Section 3 is concerned with the dynamic adjustment of unemployment to shocks, and Section 4 discusses the relationship between unemployment and economic growth. The political economy of unemployment is addressed in Section 5. The concluding section summarises and discusses the policy implications.

1. Theoretical framework

The existence of a stable relationship between inflation and unemployment was part of the conventional economics wisdom of the 1960s. This so-called Phillips curve was thought to provide policy makers with a menu for choice: a reduction in unemployment was possible to achieve at the cost of some increase in inflation. This view of inflation and unemployment has been outdated for quite some time; theory and empirical evidence strongly reject the idea of a stable Phillips curve. Inflation and unemployment appear to be *independent* of each other in the long run. In the short run, however, there seems to be a negative relationship between inflation and unemployment. The Phillips curve thus appears to be negatively sloped in the short run, but vertical in the long run, as illustrated in Figure 1.

The vertical Phillips curve cuts the horizontal axis at the equilibrium unemployment rate, sometimes also referred to as the NAIRU (the non-accelerating inflation rate of unemployment). If policy makers attempt to bring unemployment below the NAIRU by fiscal or monetary policies, the result will be rising inflation.

Figure 1. Phillips curves in the short run and the long run



1.1. Price and wage setting

What determines then the equilibrium unemployment rate? It is useful to view equilibrium unemployment as the unemployment rate that brings about consistency between price and wage setting decisions. Figure 2 illustrates the key relationships, i.e. the *price-setting relationship* (*PS*) and the *wage-setting relationship* (*WS*). The labour force (*L*) is taken as fixed and independent of the real wage in this example.

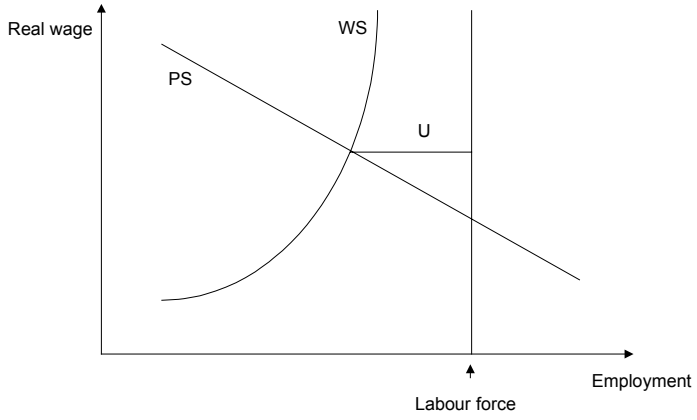
The price-setting relationship is derived from firms' profit maximisation behaviour, given the wages they face and assuming that they determine employment at their own discretion (the so called right-to-manage assumption). Under perfect competition in the product market, the price-setting relationship is simply the standard labour demand curve. Unemployment (*U*) is obtained as the difference between the labour force and the demand for labour.

With monopolistic competition in the product market, the price-setting relationship captures how firms' desired price-wage margins vary with employment. Under this assumption, firms set their prices as a mark-up on the marginal cost (the wage divided by the marginal product of labour). If the marginal product of labour decreases with higher employment, it follows that firms desire a higher price relative to the wage at higher levels of employment. This is equivalent to a negatively sloped price-setting schedule in the real wage-employment plane. The position of the price-setting relationship is affected by the

degree of monopoly power in the product market; the stronger the monopoly power of the individual firms, the higher the desired price-cost margin, and the closer to the origin is the relationship.

Whereas the negative slope of the price setting schedule is reasonable in the *short run*, with a fixed capital stock, it need not hold in the *long run* when the capital stock is variable. If the production technology exhibits constant returns to scale, the marginal product of labour will be independent of the level of employment and the price setting equation turns into a *horizontal* line that determines the "feasible" real wage. An important implication is that the real wage will be completely determined by firms' price setting decision, independent of how wages are set.[2] An increase in the monopoly power of firms translates into a downward shift of the price-setting line, i.e. a decline in the real wage.

Figure 2. Employment and real wages



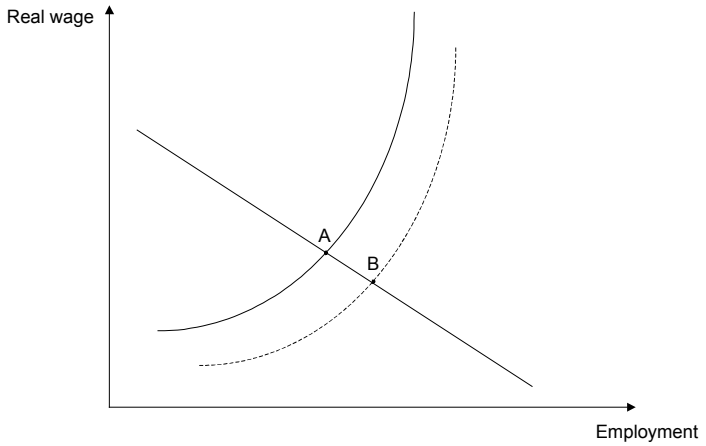
The wage-setting relationship (sometimes referred to as the *wage curve*) captures the idea that workers' real wage aspirations increase with the level of employment. The wage curve can be derived from several models of wage setting. In a model of union-firm bargaining, the mechanism is that a tighter labour market—lower unemployment—reduces the cost to the single union of pushing up the wage as workers who cannot get a job in the firm will easily find jobs elsewhere. If wages are set by firms competing for labour, there will be a tendency for wages to rise as employment increases because workers

[2] At least as long as wage setting does not affect the real interest rate.

are more prone to quit in a tight labour market; the individual firm must then offer higher wages so as to prevent excessive quitting.

Short-run fluctuations in employment may occur as a result of *nominal* wage rigidities. Wage agreements often fix wages for one or several years and are based on *expectations* concerning the general development of wages and prices. If prices turn out to be higher than expected at the time of wage setting, the actual real wage will be lower than intended. In terms of Figure 3, this involves a downward shift of the wage curve and a fall in unemployment. This decline is only temporary, however, and disappears as wages adjust to the higher prices. This explains why the short-run Phillips curve has a negative slope, as illustrated in Figure 1; the fluctuations around the equilibrium unemployment rate are driven by inflationary surprises.

Figure 3. The effect of unexpected inflation



The conventional presumption has been that nominal wage rigidities have only temporary effects on unemployment. There is, however, a possibility that nominal rigidities in conjunction with *very low inflation* may give rise to a long-run relationship between inflation and unemployment, a point stressed by Akerlof et al. (1996). Changes in relative demand and supply for goods and production factors motivate relative wage adjustments, involving perhaps real wage reductions for employees in some firms. At a moderate inflation rate, these wage adjustments can take place without nominal wage cuts, if wages increase at a slower rate than prices (or wages elsewhere). If inflation is zero or close to zero, a given relative or real wage adjustment may

require nominal wage cuts, something that may be difficult to achieve. Nominal wage rigidity together with very low inflation may therefore give rise to real wage rigidities, with higher equilibrium unemployment as a result.[3]

1.2. Equilibrium unemployment in an open economy

Open economy considerations, involving international capital mobility and foreign trade, add new elements to the analysis of equilibrium unemployment. A key point here is that it may be useful to distinguish between equilibrium unemployment in the short run and in the long run. Shifts in the price-setting (labour demand) schedule may induce movements in unemployment even in the absence of inflationary surprises.

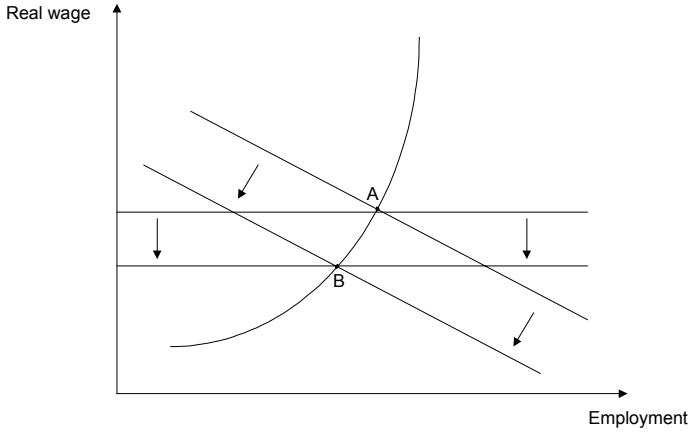
For a small open economy with capital mobility, it is reasonable to take the real interest rate as given by international capital markets. This also implies that the required rate of return on capital is fixed, which in turn—under constant returns to scale—defines a unique feasible real wage (a horizontal line in Figure 4).[4] Suppose that the long-run equilibrium position of the economy is given as *A* in Figure 4, and imagine a rise in the real interest rate. This reduces the feasible real wage (the horizontal line is shifted downwards). The higher real interest rate causes a gradual reduction in the stock of capital. The decline in the capital stock leads to a reduction in the demand for labour, given the real wage; the labour demand curve in Figure 4 shifts to the left. A new equilibrium is obtained at *B*, where the labour demand and wage curves intersect on the horizontal line indicating the new lower feasible real wage.

An analogous argument can be made concerning oil prices or other input prices (see Carruth et al., 1998). The labour demand schedule is shifted to the left to the extent that higher oil prices reduce the marginal product of labour as firms cut down on their usage of oil in production. Employment then declines.

[3] Akerlof et al. (1996) use the term "sustainable rate of unemployment" to characterise the permanent unemployment rate that depends on very low inflation (or deflation) and nominal rigidities. For the Nordic countries, Holden (1998) finds empirical support for the hypothesis that nominal wages are rigid downwards.

[4] Under constant returns, a fixed real interest rate determines firms' desired capital-labour ratio, which in turn determines the marginal product of labour. The marginal product of labour is then declining in the real interest rate, but independent of the level of employment.

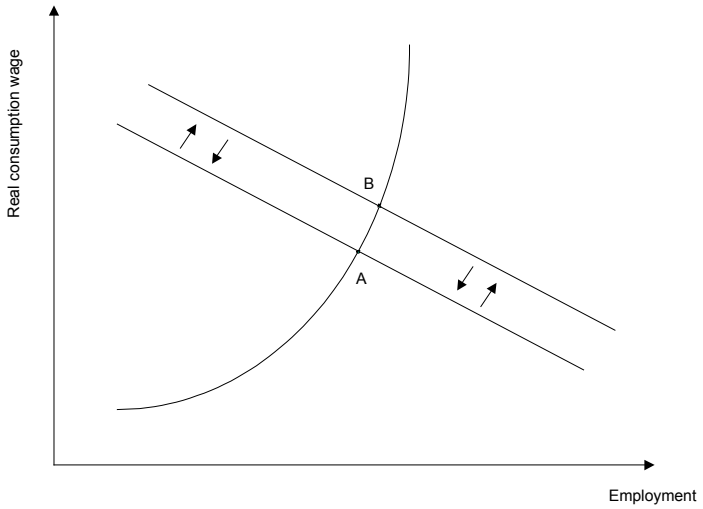
Figure 4. Equilibrium unemployment and capital mobility



Another argument focuses on how changes in aggregate product demand may affect employment in an open economy (Layard et al., 1991; Bean, 1994; and Holden, 1996). The argument revolves around the crucial distinction between the real *consumption wage* and the real *product wage*. The consumption wage is defined as the nominal wage relative to the consumer price level and thus captures the purchasing power of the wage in terms of goods. The product wage is the nominal wage relative to the domestic producer price level and determines firms' demand for labour. Suppose that there is an increase in aggregate demand for domestic goods. This results in an increase in domestic prices relative to consumer prices, the reason being that consumer prices partly depend on the prices of imported goods. The domestic country experiences a real appreciation.

The effect of a real appreciation is illustrated in Figure 5. The labour demand schedule is depicted as a relationship between the real *consumption wage* and employment. An increase in the demand for domestic goods that raises domestic producer prices relative to consumer prices involves a rightward shift of the labour demand curve. The reason is that a given consumption wage is now consistent with a lower product wage. Under the assumption that workers care about consumption wages, the wage curve remains intact and the economy moves from *A* to *B*; both employment and real wages increase.

Figure 5. Equilibrium unemployment and aggregate product demand



It is important to distinguish between short-run and long-run equilibria here. Suppose that the source of the rise in product demand has been an expansionary fiscal policy that involves budget deficits. A situation with budget deficits is not sustainable in the long run. Fiscal policy must sooner or later be restrained to avoid growing public debt. This leads to a decline in aggregate product demand and the labour demand schedule is shifted to the left. An alternative scenario is where the rise in product demand is associated with a current account deficit. Persistent current account deficits are unlikely to be sustainable in the long run, as they involve rising debt to foreigners. The required fiscal restraint will sooner or later bring unemployment back to its original position *A*. These adjustment processes may well be long lasting, as it appears that countries can in practice manage with substantial deficits in government budgets and current accounts for fairly long periods.

1.3. Matching and labour-market flows

The traditional perspective on the demand for labour focuses on the relationship between the real wage cost and the *stock* of labour that the firms are willing to employ. There are, however, huge *flows* in and out of employment and unemployment even with small or no

changes in the stocks. New jobs are created and old ones disappear. This dynamic perspective on labour markets is crucial for the search and matching theories of unemployment (see Pissarides, 1990). Equilibrium obtains when the flows into and out of unemployment balance. The equilibrium (or frictional) rate of unemployment depends in these models, inter alia, on how easy it is to match workers and job vacancies. To find the right worker for a vacant job is often a time consuming process. And analogously for job searchers: it takes time to find a suitable job offer. This frictional unemployment tends to increase if more jobs are destroyed each period and if fewer new jobs are created.

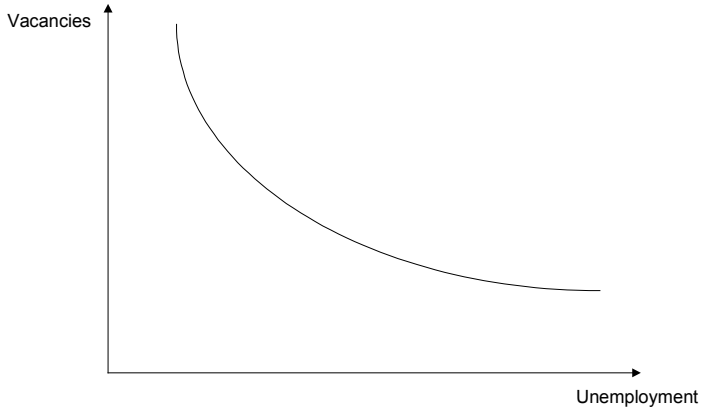
With this view of the labour market, the efficiency with which vacancies and unemployed are matched becomes an important determinant of the wage-setting and labour demand schedules that we have discussed. The longer it takes for a firm to fill a vacancy, the more expensive it is to hire new workers and the lower is labour demand (the labour demand schedule in Figure 2 is shifted to the left). Recruitment problems for firms may also imply difficulties of replacing workers who quit. This in turn may induce firms to offer higher wages so as to prevent quitting. As a result, the wage curve is shifted to the left. More severe matching problems thus translate into higher equilibrium unemployment.

Matching problems in the labour market are often characterised by means of a relationship between unemployment and vacancies known as the *Beveridge curve* (Figure 6). A rise in unemployment accompanied by a decline in vacancies, i.e. movements of unemployment and vacancies *along* the Beveridge curve, is naturally interpreted as being the result of business cycle fluctuations in labour demand. By contrast, it is natural to think of simultaneous increases in both unemployment and vacancies as indicating a deteriorating matching efficiency in the labour market. Outward *shifts* of the curve thus suggest increasing matching problems.

The position of the Beveridge curve is determined by the outflow from unemployment as well as the inflow into unemployment. A rise in the duration of unemployment at a given number of vacancies (a fall in the outflow from unemployment) is associated with an outward shift of the Beveridge curve. A rise in the inflow into unemployment, for example driven by more structural change in the economy, is also associated with an outward shift of the Beveridge curve. Outward

shifts of the Beveridge curve, caused by a fall in outflow or an increase in inflow, raise the equilibrium unemployment rate.

Figure 6. The Beveridge curve



2. Determinants of the equilibrium unemployment rate

The research on unemployment over the past two decades has identified a number of plausible determinants of the equilibrium unemployment rate. These factors include:

- Unemployment insurance
- Active labour-market policy
- Product market competition
- Taxes
- Systems of wage bargaining
- Employment protection regulation
- Working time

We proceed by discussing how these factors may affect equilibrium unemployment, using the theoretical framework outlined above.

2.1. Unemployment insurance

There has been a great deal of theoretical and empirical research on the relationship between unemployment insurance and unemployment. A main issue has been the effect of the *benefit level*, whereas

other studies have examined the effects of the maximum *duration* of benefits and the way benefits are *financed*.

Higher unemployment benefits may affect unemployment through wage determination as well as through effects on the unemployed workers' search effort. A rise in the benefit level can be expected to induce higher "wage pressure", i.e. an upward shift of the wage curve, and thereby higher unemployment. The reason for the rise in wage pressure is that higher benefits reduce the cost of unemployment and thereby the incentives to avoid unemployment through moderate wage demands. The empirical work on wage determination has found some, albeit perhaps not overwhelming, support for this effect.[5]

High unemployment compensation is also likely to reduce search effort among the unemployed and raise their reservation wages, i.e. the lowest acceptable wages. The effects on reservation wages may be particularly important during periods of rapid structural change in the economy, as this may be accompanied by skill obsolescence among the unemployed. The reason is that unemployment compensation is usually tied to the unemployed workers' previous earnings, which is possibly much higher than the wage available in a new job (Ljungqvist and Sargent, 1998). This argument is valid as long as the worker can keep his benefits if he rejects an offer. If job search is subject to detailed monitoring by the benefit administration, and benefit sanctions are imposed when job offers are rejected, the benefit level may be of less importance. The possibilities of enforcing effective control of job search is, however, likely to be smaller during periods of high unemployment (Ljungqvist and Sargent, 1997).

Wage setting and job search behaviour are also affected by the maximum duration of benefit payments: the effects are qualitatively similar to the effects arising from higher benefit levels. However, the incentive effects of short benefit periods are weakened if the long-term unemployed who run the risk of losing benefits are systematically placed in labour-market programmes that qualify for continued benefit receipt after the programme has ended (Carling et al., 1996).

[5] Holmlund (1989) and Forslund (1995) present results for Sweden that support the wage pressure effect. Calmfors and Nymoen (1990), and Nymoen and Rødseth (1999) do not find significant effects. A recent paper by Holden and Nymoen (1999) on wage setting in four Nordic countries (Denmark, Finland, Norway and Sweden) finds that a higher benefit replacement rate increases wage pressure in all countries except Sweden.

The empirical studies of unemployed individuals' behaviour have largely confirmed the hypothesis that higher benefits and longer duration of benefit payments tend to increase the duration of unemployment. Layard et al. (1991) summarise the results by the claim that "the basic result is that the elasticity of the expected duration of unemployment with respect to benefits is generally in the range 0.2-0.9 depending on the state of the labour market and the country concerned" (p 255). Recent work on Swedish data, using information on benefit cuts in Sweden during the 1990s, suggest that the cuts did reduce unemployment duration (Harkman, 1997; and Carling et al., 1999). There is also a number of studies that make use of aggregate data for the OECD countries and try to explain differences across countries in unemployment by institutions and policies; these studies normally find that higher replacement rates and longer duration of benefit payments are associated with higher unemployment.[6]

Unemployment insurance may also affect wage pressure through the way the system is *financed*. We should expect that wage moderation is encouraged if the effects on unemployment of higher wages are "internalised" by those engaged in wage bargaining. The more direct the parties in the wage negotiations perceive a link between their wage decisions, the effects on employment in their own industry, and their unemployment insurance contributions, the stronger the incentives to agree on moderate wage settlements (Holmlund and Lundborg, 1988, 1989 and 1999; Calmfors, 1995). It is difficult, however, to empirically evaluate this hypothesis, since few countries have actually implemented a financing system with these characteristics. [7]

Unemployment insurance may also affect labour force participation, the reason being that benefit recipients should be available for work and engaged in active search for work. More generous benefits raise the returns from labour force participation relative to non-market activities, such as studies or household work. There is some

[6] See for example Layard et al. (1991), Nickell and Layard (1999), and Elmeskov et al. (1998).

[7] The empirical studies by Holmlund (1989) and Forslund (1992) cannot confirm the hypothesis that variations in the rate of "own-financing" of unemployment benefits among members of the Swedish unemployment insurance funds, effectively run by the trade unions, have had any effects on wage setting. It is possible, however, that this could reflect the fact that the periods examined involved mainly centralised wage bargaining, where there is little reason to expect any effects. The reason is that the parties will realise that higher unemployment is associated with higher taxes to finance unemployment benefits when wage bargaining is centralised.

empirical evidence suggesting that higher benefits do raise labour force participation.[8] This also implies that simply looking at the effects on unemployment does not reveal the effect of higher benefits on employment. If there is a sufficiently strong increase in participation, this may offset the increase in unemployment and employment may actually increase despite the higher unemployment rate. The empirical support for this possibility is meagre, but it is noteworthy that Nickell and Layard (1999) find clear evidence (in cross-country panel data) that more generous benefits increase unemployment, but no evidence that employment is affected.

2.2. Active labour-market policy[9]

Active labour-market policy appears in many guises. There is a strong presumption that unemployment can be reduced by public employment agencies and other measures to improve *matching* between job seekers and job vacancies. The Beveridge curve (Figure 6) is shifted towards the origin. In terms of Figure 2, the labour demand curve is shifted outwards because firms' hiring costs are reduced when vacancies are filled at a faster rate. At the same time, the wage curve is shifted downwards, because the bargaining position of firms vis-à-vis their employees is strengthened when they can expect to replace quitting workers more quickly.

It is more difficult to assess the employment implications of *job creation* and *training programmes*. There is a number of mechanisms that work in opposite directions. Wage pressure may be reduced if the programmes enhance the competitiveness of the long-term unemployed in the labour market. This would also happen if training programmes can facilitate the reallocation of workers from sectors with weak to sectors with strong demand for labour. But there are also plausible negative effects on regular employment. There may be direct crowding-out effects of job creation programmes on regular employment as employers have incentives to replace regular with subsidised labour. Such programmes may also increase wage pressure by effectively reducing the costs of unemployment. This is presumably especially relevant if the programmes are used as a means to allow the long-term unemployed to renew their benefit entitlement.

[8] Harkman (1997) is a recent study on Swedish data.
[9] See Calmfors (1994) for a more detailed discussion.

The empirical research has found fairly strong support for the presence of direct crowding-out effects of some labour-market programmes.[10] Many (but not all) studies of wage determination indicate that the programmes raise wage pressure. [11] Studies of unemployment differences across countries give generally more favourable verdicts concerning active labour-market policies. It is often found that such programmes reduce open unemployment, although the effects on total regular employment are less well established.[12] These results are far from robust. A disturbing finding is that the results sometimes depend on whether Sweden is included or excluded from the sample of countries![13]

Our assessment is that labour-market programmes on a moderate scale can have positive effects on employment. This is probably particularly true for education and training.[14] Large-scale programmes that are used to effectively extend the duration of benefit periods in unemployment insurance probably have negative effects on employment.

2.3. Competition in product markets

Our theoretical framework implies that intensified product market competition causes lower equilibrium unemployment. More competitive product markets mean that the single firm faces a more price elastic demand for its product. Mark-ups on labour costs thereby fall, which imply that firms can offer their workers a higher real wage at a given level of employment: the "feasible" real wage thus increases, which in terms of Figure 2 can be illustrated as a rightward shift of

[10] See for example Forslund (1995), Skedinger (1995), Forslund and Krueger (1997), and Dahlberg and Forslund (1999).
[11] See for example Calmfors and Nymoen (1990), Johansson et al. (1999), and Nymoen and Rødseth (1999).
[12] See for example Layard et al. (1991), Nickell and Layard (1999), and Elmeskov et al. (1998).
[13] It seems as if the programmes had a favourable impact during the 1980s if Sweden is included (a country with low unemployment and extensive programmes at that time), whereas the results are reversed during the 1990s (when Sweden had both high unemployment and extensive programmes). See, for example, Calmfors (1991), Forslund and Krueger (1997), and Elmeskov et al. (1998).
[14] The empirical studies often find that training programmes have more favourable effects on employment than job creation measures (see, for example, Calmfors and Skedinger, 1995).

the price-setting relationship. This tends to increase both the real wage and employment.

More price-elastic product demand schedules also imply more wage-elastic labour demand schedules. This in turn means that the perceived costs to unions of higher wages will be higher. Wage moderation is therefore to be expected, i.e. the wage curve in Figure 2 shifts downwards, which also works in the direction of higher employment. The empirical studies of the relationships between product market competition and wage setting have largely confirmed this hypothesis.[15] Haffner et al. (1999) also find a negative association between employment and product market regulations (in the form of government interference and barriers to entrepreneurship) across OECD countries when they control for differences in labour-market institutions.

2.4. Taxes

Changes in taxes can obviously influence aggregate demand and cyclical unemployment fluctuations. Another issue is how taxes affect real labour costs and thereby the equilibrium unemployment rate.

Suppose that unemployment compensation is given by a fixed replacement rate of labour earnings and that earnings and benefits are taxed at the same rate. If unemployment benefits are the only incomes of the unemployed, it can in this case be shown, in a variety of models, that proportional labour taxes are *neutral* with respect to equilibrium unemployment. The reason is that equilibrium real wage costs are not affected: a rise in the income tax rate will have no effect on the real (before-tax) wage received by employees, whereas a rise in the payroll tax rate will be exactly offset by a fall in the real wage received by employees. Taxes affect unemployment only to the extent that they alter the relationship between income while in work and income while unemployed. This can happen if the unemployed have access to other income sources ("the black labour market") or if there are important leisure values associated with unemployment. General income tax cuts on both earnings and benefits will then be more favourable to the employed than to the unemployed because the tax cuts in this case affect only part of the unemployed workers' income. The result will be reduced wage pressure and lower unemployment. Analogously, income tax cuts that are targeted at labour earnings, but ex-

[15] See for example Nickell et al. (1994) and Haffner et al. (1999).

clude benefits, will raise employment. The reason is that such a change will reduce the *after-tax* benefit replacement rate even if the replacement rate *before tax* remains fixed. The discussion in section 2.1 regarding changes in benefits then applies.

There is a fairly strong case for the view that the *long-run* effects of taxes do not hinge upon the statutory incidence, i.e. whether taxes are paid by workers or by employers. This equivalence does not hold in the *short run*, however. A cut in payroll taxes paid by firms will always have some favourable short-run employment effects as it immediately reduces labour costs; since wage agreements usually last for several years, it will take time for wages to adjust.

The *progressivity* of the tax system can also affect unemployment even if the level of total tax pressure is neutral. A higher progressivity means that it is less advantageous to raise wages before tax as a larger part of the wage increase is taxed away. More progressive taxes can therefore be conducive to wage moderation.

It also plausible that lower taxes on certain goods and services, such as services that are close substitutes to services produced at home, can help to reduce unemployment.[16] This would be the case if these services are more price elastic than other goods and services. Lower value added or payroll taxes, specific to such sectors, would then have favourable employment effects.

The empirical studies have shown somewhat conflicting results. There are a number of studies that indicate that higher taxes raise labour costs (see e.g. Tyrväinen, 1995) or unemployment (Elmeskov et al., 1998; and Nickell and Layard, 1999), whereas other studies find no effects (for example Scarpetta, 1996; and Nymoen and Rødseth, 1999). Most of the empirical studies support the presumption that the mix between taxes—income taxes, payroll taxes on employers or consumption taxes—is unimportant for the long-run effects on employment and real wage costs. There is also some support for the contention that higher tax progressivity is conducive to wage moderation (Lockwood and Manning, 1993; Holmlund and Kolm, 1995).

To conclude: our reading of the literature leads us to believe that *some* tax cuts may have favourable employment effects. It is, however, quite possible that the tax cuts that are most effective in promoting employment are not the same as the tax cuts that are most conducive to human capital formation and economic growth. Employment-

[16] See for example Kolm (1998, 1999); Sørensen (1994, 1996), and SOU 1997:17.

promoting tax cuts would probably involve lower taxes on labour earnings for low-income earners, in order to increase the returns to market work relative to unemployment. Tax cuts intended to promote growth would presumably imply lower marginal taxes for high income earners, in order to increase the returns to human capital formation (Bovenberg et al., 1998).

2.5. Bargaining systems

A fairly extensive literature over the past fifteen years has been concerned with how wage bargaining systems affect unemployment.[17] This research has almost exclusively focused on aggregate real wage outcomes, whereas the effects on relative wages have been subject to fairly scant analysis. A main theme in most of the literature is that centralised wage bargaining is conducive to wage moderation and is therefore also beneficial to employment. The reason is that wage setters in centralised negotiations internalise various external effects associated with decentralised wage bargaining.

One externality arises from the relationship between wage increases and consumer prices. A union that organises a small fraction of the labour force has no incentive to consider the effects on consumer prices of its own wage demands (because the effects will be negligible). But a nation-wide, encompassing union must realise that the outcome of the wage negotiations will influence the consumer price level, which is likely to encourage wage moderation.

Another externality works through the financing of unemployment insurance. Higher wages that cause higher unemployment will also require higher taxes to finance the higher expenditure on unemployment benefits. This relationship will be recognised in centralised wage negotiations to a larger extent than in decentralised negotiations.

Wage externalities may also operate through "envy effects"; workers may care about *relative* wages and not only about real wages. A wage increase for one category implies a decline in the relative wage of other categories of workers, which may decrease their welfare. This externality would also be internalised if wages were set in centralised wage negotiations.

The relationship between bargained real wages and the degree of centralisation may under certain conditions be hump-shaped (Calmfors and Driffill, 1988). Wages will then be highest for interme-

[17] See, for example, Calmfors (1993) for a survey.

diary degrees of centralisation (negotiations at the industry level), whereas wages will be lower for either a high degree of centralisation (nation-wide bargaining) or a high degree of decentralisation (firm-level bargaining). The reason that decentralisation may bring about wage moderation is that a wage increase in a single firm will be associated with substantial reductions in profit and employment there. A single firm cannot easily raise prices in response to higher wages as long as competing firms in the same industry are not affected by similar wage increases. These competitive forces will be weaker if all firms in the industry experience the same wage increases. Price increases in the industry will bring about some decline in demand and employment, but the effect is much weaker compared to the case with wage increases in a single firm. The demand curve facing the whole industry is less elastic than the demand curve facing the single firm, a feature that is likely to lead to more wage pressure when bargaining occurs at the industry level.

The empirical work on bargaining systems and macroeconomic performance has exploited cross-country data on unemployment. There is a fair amount of consensus that centralisation is good for employment; co-ordination among employers has been found to be particularly important (Layard et al., 1991; and Nickell and Layard, 1999). But there is also evidence in favour of a hump-shaped relationship (Heylen, 1993; Scarpetta, 1996; and Elmeskov et al., 1998).

Most standard models carry the implication that stronger bargaining power among workers is likely to increase wage pressure and thereby unemployment. There is thus a presumption that legislation that provides unrestricted rights to strike would raise wage pressure. It is also likely that higher union density and higher coverage of union contracts will reinforce wage pressure.[18] The empirical research provides some support for this hypothesis; there is thus evidence that a higher degree of coverage of collective agreements is associated with higher unemployment (Layard et al., 1991; and Nickell and Layard, 1999).

[18] The result that higher union density increases wage pressure is not entirely robust in the theoretical models. Holden and Raaum (1991) show that incentives for co-operation among unions may depend on union coverage. The more employees that are covered by union contracts, the greater the incentives for co-operation because externalities are internalised to a larger extent. This may in turn reduce wage pressure.

2.6. Employment protection legislation

Employment protection legislation is generally more common and stricter in Europe than in the US. These policies appear in many guises and the overall aim is to cushion workers against the adverse consequences of employer-initiated redundancies. The effect is a *de facto* rise in the cost to the firm of reducing its workforce.

A recent ranking made by the OECD (1999) attempts to compare countries with respect to how easy it is for firms to reduce employment. The extremes are the US on the one hand, and countries in southern Europe on the other hand; it is least costly to reduce employment in the US and most costly in southern Europe. Among 26 countries, Sweden is ranked as number 18, followed by Germany and France. Roughly speaking, Sweden appears to have an employment protection legislation that is similar to a European average (but substantially stricter than in Denmark).

What are the effects of employment protection legislation on labour-market outcomes? Predictable effects are reductions in the *cyclical variability* of employment and in *turnover*. The flow from employment into unemployment is likely to decline as the costs of lay-offs increase. However, higher firing costs also imply that firms become more reluctant to hire as the costs of future separations are raised. This implies a smaller outflow from unemployment to employment, i.e. a longer duration of unemployment spells. The empirical studies largely confirm these hypotheses. There is, however, little evidence that suggests that employment protection legislation is an important factor explaining unemployment in the long run, i.e. equilibrium unemployment (Nickell and Layard, 1999; and OECD, 1999). A plausible interpretation is that the effects on inflows to and outflows from unemployment largely cancel each other out, so that there is only a negligible net effect on unemployment.

Employment protection is bound to have some consequences for the distribution of unemployment. The reduced turnover is likely to raise the duration of unemployment spells and long-term unemployment. While unemployment among older workers may be reduced, it is likely that youth unemployment rises (Skedinger, 1995).

2.7. Work sharing

Proposals for work sharing, such as reduction in the length of the workweek or lower retirement age, have been common in the public

debate. To assess the effects of such proposals, we need to consider both the *direct* effects—effects conditional on the hourly wage—and the *indirect* effects that work through wage determination.

Consider a cut in the standard work week. The direct effect on labour demand is theoretically ambiguous as there are fixed costs of labour, i.e. costs that are independent of work hours, such as hiring and training costs. A cut in working time therefore implies higher hourly labour costs, which tend to offset the favourable employment effect when workers are substituted for hours. There is nevertheless a presumption that the number of employed persons, given the hourly wage, will actually increase. Empirical studies lend some support to this claim (see, for example, Holmlund, 1989).

A complete analysis needs to consider the effect on wage formation (Calmfors, 1985). If the hourly wage is given, shorter working time implies lower income. This may induce wage pressure as employees and unions attempt to prevent a decline in income. The resulting increase in hourly wages tends to offset the rise in the number of employed persons. The net effect on employment is theoretically unclear, but may well be negligible (or even negative). The empirical study by Hunt (1999) on the German experiences offers little ground for optimism. She found that the cuts in working time that took place in Germany from the mid-1980s to the mid-1990s induced higher hourly wages and that the employment effects were zero, or possibly even negative.

Early retirement, or a cut in the standard retirement age, reduces the size of the labour force. Most models of equilibrium unemployment have the property that unemployment is independent of the size of the labour force. A cut in the retirement age reduces unemployment as long as the demand for labour, given the hourly wage, remains unchanged. However, the lower unemployment rate will cause an increase in wage pressure that offsets the rise in employment. Under fairly reasonable conditions, the resulting new equilibrium will entail the same unemployment rate as before the change.

3. Unemployment persistence and macroeconomic shocks

The theories outlined in the previous sections are reasonably successful in explaining the differences in unemployment across countries as well as changes in unemployment over time from the mid-1980s and

onwards (see e.g. Layard et al., 1991; Elmeskov et al., 1998; or Nickell and Layard, 1999). The theories are, however, less useful to explain the initial rise in European unemployment from the mid-1970s to the mid-1980s. The most plausible suspects here are macroeconomic shocks.

Two important shocks hit the industrialised economies in the 1970s: the steep oil price increases and the decline in productivity growth. The rise in real interest rates (from negative rates in the 1970s to positive rates in the 1980s and the 1990s) did presumably also have adverse effects on labour demand. In addition, the restrictive fiscal policies pursued in many countries probably reduced aggregate demand. The process of disinflation may also in itself have raised unemployment above the equilibrium level to the extent that wage setters overestimated price increases and real wages therefore turned out higher than expected (see section 1.1 above).[19]

It is also far-fetched to explain the large rises in unemployment in Sweden and Finland in the early 1990s by changes in labour-market institutions. The only plausible explanation is the sharp fall in aggregate demand that took place (see, for example, the country reports by the OECD).

The question then arises why European unemployment has turned out to be so *persistent*.[20] It is implausible that nominal wage rigidities can explain long-term deviations between actual and equilibrium unemployment. It seems more fruitful to invoke the distinction we made in section 1.2 between short-run and long-run equilibrium unemployment. For example, macroeconomic shocks with adverse effects on investment and the capital stock may have long lasting effects: if the capital stock has adjusted downwards because of a rise in the real interest rate, it will take time until a reduction in the real interest rate (or reduced wage pressure due to labour-market reforms as discussed in section 5) restores a higher capital stock. The short-run equilibrium unemployment rate will exceed the long-run rate until the capital

[19] See for example Blanchard (1999), and Blanchard and Wolfers (2000) for a discussion of the macroeconomic shocks.

[20] Unemployment persistence usually refers to the tendency for unemployment to adjust only slowly to equilibrium. Hysteresis is an extreme form of persistence where unemployment follows a random walk without any tendency to return to an equilibrium rate.

stock and thereby the demand for labour has returned to its original level.[21]

Another possibility is that a period of subnormal (product) demand has caused the short-run equilibrium unemployment rate to exceed the long-run rate. The reason is that domestic producer prices have then been reduced relative to import prices. As a consequence, the real product wage (the nominal wage deflated by the producer price level) has then risen relative to the real consumption wage (the nominal wage deflated by consumer price level). The labour demand schedule in Figure 5 has thereby shifted to the left, and does not shift back until product demand increases again.

Unemployment persistence may also be a result of a dependence of equilibrium unemployment on actual unemployment. The empirical studies reveal a close statistical association between equilibrium and actual unemployment (see, for example, Elmeskov, 1994). Some studies on Swedish data also suggest that cyclical changes in unemployment with some time lag affect the equilibrium unemployment rate (Assarsson and Jansson, 1998; Lindblad, 1997).

3.1. Sources of persistence

One route whereby employment may depend on the evolution of employment in previous periods is through insider forces in wage determination.[22] Imagine that the interests of already employed "insiders" determine wages. An unanticipated decline in labour demand will reduce employment. In the case of a subsequent *anticipated* improvement of labour demand, the now smaller insider group has no interest in exercising wage moderation in order to allow a return to the previous employment level. The objective of the insiders, caring exclusively about their own employment and real wages, would be to raise wages to the extent that this is consistent with their own employment.

A key prediction of this theory is that the size of the insider group would affect wage setting: the larger the insider group, the more wage moderation can be expected. The reason is that a large insider group

[21] In terms of Figure 4, a reduction in the real interest would mean that the required return on capital is reduced, so that that horizontal line (the feasible real wage line) is shifted upwards again. The economy will, however, only gradually move back from B to A.

[22] See Lindbeck and Snower (1986, 1988), Blanchard and Summers (1986), and Gottfries and Horn (1987).

implies that the jobs of more workers are at risk. However, there is no unambiguous support for this prediction in empirical studies (Holmlund, 1991).

Persistent unemployment may conceivably also depend on a loss of skill among the long-term unemployed or on declining search effort as unemployment spells get longer. To the extent that such effects lead to recruitment difficulties among firms—longer duration of vacancies—there will be a rise in wage pressure as firms compete for labour in en environment with a smaller effective labour supply.

3.2. Unemployment persistence and labour-market institutions

Labour-market institutions may affect unemployment persistence in a variety of ways. High firing costs will make firms more restrictive in hiring and the duration of unemployment spells will therefore increase. This will reinforce the persistence of unemployment in the wake of an adverse shock (Blanchard, 1999). Similar arguments may be offered concerning unemployment insurance. Ljungkvist and Sargent (1997) show, by means of simulations of a theoretical model, that generous benefits may have substantial adverse effects on the speed at which unemployment returns to its initial level after a macroeconomic shock. The effect works through the workers' search effort and reservation wages.

There is not much empirical research on the *interplay* between persistent unemployment and labour-market institutions. Ball (1997) finds that the disinflation process that took place in most OECD countries during the 1980s appears to have had the largest unemployment-increasing effects in countries with the longest duration of unemployment benefits. Blanchard and Wolfers (2000) find that the macroeconomic shocks of the 1970s and the 1980s have had the largest adverse impact on unemployment where unemployment insurance has been generous, employment protection restrictive, taxes high, active labour-market policy negligible and wage negotiations decentralised.

An intriguing issue is whether an expansion of aggregate demand can reduce unemployment permanently by inducing *positive* macroeconomic shocks that reverse the process through which unemployment increased. Norway may be an example in this regard: a strong growth of aggregate demand in the 1990s seems to have been able to reduce unemployment without much change in labour-market insti-

tutions.[23] It is an open question whether policies that allow such an aggregate demand expansion could have similar favourable effects in other European countries.

To the extent that high unemployment is the result of short-run equilibrium unemployment in excess of the long-run equilibrium level (see section 1.2 above), we would expect that a return to higher aggregate demand—when inflation and public-sector deficits now have been lowered—would lead to a decline in the short-run equilibrium unemployment rate. It is unclear, however, whether the mechanisms of persistence that we have discussed above are symmetrical in cyclical upturns and downturns. If a significant fraction of the labour force has become permanently unemployable, the effective labour supply will adjust only gradually as young workers enter the labour market.

It is also possible that downward nominal wage rigidities are not symmetrically mirrored by upward nominal rigidities (Calmfors, 1998; and Agell and Lundborg, 1999). A rise in aggregate demand has then little potential for bringing about a rise in employment as wages are likely to catch up. A closely related point is that the previous adverse macroeconomic shocks to a large extent were unexpected and therefore without any immediate impact on wage setting. Anticipated expansions of aggregate demand could lead to rapid wage responses that would attenuate the effects on employment.

4. Unemployment and growth

What is the relationship between unemployment and growth? It is a common view that growth and employment go hand in hand. But there is also the notion that higher productivity could mean fewer jobs.

In the public debate, there is often a failure to distinguish between increases in output that are due to higher capacity utilisation and those that are due to long-term growth. Labour-market reforms that lower wage costs (i.e. shift the wage-setting schedule in Figure 2 to the right) and thus increase employment will, of course, also cause output to grow during the adjustment process. The output increase will be reinforced with a lag by increases in the capital stock, because investment will be more profitable when the return to capital increases. This leads to increases in labour productivity and to further

[23] See Holden (1996); and OECD Economic Survey of Norway (1999).

increases in labour demand (the labour demand schedule is shifted gradually to the right). The adjustment process continues until the return to capital has been restored to its original level. The increase in the capital stock means that labour-market reform will reduce real wages much less (or not at all) in the long run than in the short run (Bean, 1998).

The adjustment process that we have described implies a *one-shot* increase in output. The relationship between *long-run growth* and unemployment is much more complex and has not been researched very much. There are several aspects of this relationship.

- Exogenous changes of the rate of growth can affect unemployment.
- Exogenous changes of the type of growth can affect unemployment.
- Changes in labour-market institutions can affect the growth rate indirectly via changes in unemployment.
- Changes in labour-market institutions can affect *both* unemployment *and* growth directly, but through *different* mechanisms.

4.1. Exogenous changes of the growth rate

There is no basis for believing that gradually increasing productivity affects the rate of unemployment; if this were to be the case, there would have been a trend-wise increase or decrease in unemployment over very long periods. This has not occurred. The interpretation in our model framework is that gradual productivity increases have shifted both the labour demand and wage-setting schedules upwards. The explanation of the upward shift of the wage-setting schedule would then be that the *reservation wage* has increased *pari passus* with productivity. Put differently, the long-run wage-setting schedule in Figure 2 is vertical. If so, productivity growth will lead to real-wage growth, but there will be no long-run effect on the unemployment rate.

Our discussion so far has concerned a rise in productivity from one level to another. A more difficult question is how an increase of (the future expected) growth rate affects unemployment. It is plausible that the effect depends on the character of the growth process.

One possibility is to view hiring decisions as investment decisions. A firm incurs hiring costs in exchange for future expected revenues. Suppose that productivity growth occurs throughout the economy,

i.e. in both old and new production units. A higher growth rate will then make new hirings more profitable, because the future expected revenues increase relative to the hiring costs that are incurred today. This *capitalisation effect*—which is analogous to a decrease in the real rate of interest—tends to increase employment (Pissarides, 1990).

A higher growth rate could also affect employment positively because wage setting is affected. Higher growth means higher future real wages. This raises the value of employment relative to unemployment. So employees are likely to moderate their wage demands to reduce the risk of lay-offs (Manning, 1992).[24]

There may, however, be opposite effects if productivity growth is associated with so-called *creative destruction*. The mechanism is that the aggregate wage level across the economy is increased when new and more efficient vintages of capital are introduced. The oldest vintages then become unprofitable and are taken out of production. A higher growth rate means a larger productivity difference between two given vintages and hence that each vintage becomes obsolete much faster. So there will be more *job destruction*, i.e. a larger inflow into unemployment from production units that are scrapped. This direct effect tends to raise unemployment. But there is also an indirect effect: because the operating time of each unit of capital is reduced, the return to investment and new hirings are also reduced. Hence there is also less *job creation*. Unemployment tends therefore to also increase because the inflow into employment decreases (Aghion and Howitt, 1994; Saint-Paul, 1999).

4.2. The type of productivity growth

It is commonly believed that technological change causes relative labour demand to shift from low-skilled to high-skilled labour (*skill-based technological change)*. If wages are flexible, this would lead to gradually increasing wage differentials. These wage differentials strengthen the incentives for higher education and will gradually cause the supply of high-skilled labour to increase, with the result that wage differentials will decrease again. Wage differentials between high-skilled and low-skilled labour can therefore be seen as the result of a race be-

[24] Note that we are discussing anticipated changes in the growth rate. If there is an unanticipated rise in productivity growth, it may take time before there is an adjustment of real-wage growth. The consequence may be a positive employment shock, just as the reduction in productivity growth from the mid-1970s may have caused a negative employment shock (see Section 3).

tween technological change (which raises the demand for high-skilled labour) and an increasing supply of high-skilled labour from the education system.

In recent years, much research has been focused on the effects of technological change on wage structure and unemployment (see e.g. Freeman and Katz, 1995). Higher relative demand for high-skilled labour appears to be an important explanation of the increased wage dispersion in the US and the UK. The computer revolution has often been seen as an important factor in this process. If the wages of the low-skilled are regulated, a reduction in demand relative to supply for this category will not lead to a wage adjustment. Then, technological change could lead to higher unemployment for the low-skilled and thus also higher total unemployment.

However, there is no strong empirical support for the view that changes in relative demand have been an important factor behind the higher unemployment in most European countries.[25] In Sweden, as in most other European countries, unemployment also increased for groups of relatively high-skilled. This suggests that other factors are likely to have been more important. But there is a potential risk that relative demand shifts could become of greater importance in the future if the output of the education system does not keep up with technological change.

The possible adverse demand shifts for the low-skilled have raised important questions for economic policy. There are two possible lines of action: increase education (reduce the supply of low-skilled) and raise demand for low-skilled labour, for example through lower pay-roll taxes (Nickell and Bell, 1994; Phelps 1994). Even if *general* reductions of pay-roll taxes were to have limited employment effects, *selective* reductions could be effective. The reason is that the wages or the low-skilled are likely to be rigid: legislated minimum wages and/or benefit systems that guarantee a minimum standard of living may put a floor behind the lowest wages. If adverse demand shifts have pushed the wages of the low-skilled down to such a floor, lower pay-roll taxes do not have to mean a larger scope for wage increases that offset the reduction of wage costs.

[25] See e.g. Nickell and Bell (1994), and Card et al. (1995).

4.3. The effect of unemployment on growth

Another hypothesis is that unemployment in itself could reduce long-term growth. If so, labour-market reform that reduces unemployment would also lead to higher growth. This may occur in theoretical models of *endogenous growth*.[26]

One argument is the following (Daveri and Tabellini, 2000). Higher employment means higher aggregate income in the economy. With a given savings rate, higher employment therefore means higher saving. Higher employment also means that a given capital stock is combined with more labour. This raises the return to capital and hence the savings rate as well. Higher aggregate income together with a higher savings rate means more capital accumulation and thus higher growth.

Similarly, one can argue that higher employment among low-skilled workers leads to higher growth because it becomes more profitable to invest in human capital when this is combined with more low-skilled workers. Higher employment also implies more human capital accumulation if this occurs mainly through learning-by-doing on the job (Aghion and Howitt, 1994; Daveri and Tabellini, 2000). An effect working in the opposite direction is, however, that higher employment is likely to reduce the average time spent in the education system before students enter the labour force (Storesletten and Zilibotti, 2000).

We view the arguments in this section mainly as interesting hypotheses. A potential objection against the argument that higher employment in an economy causes higher growth via effects on domestic savings is that it neglects open economy aspects: with free capital mobility, capital accumulation does not depend on domestic savings. There is very little empirical research in the area. It is true that Daveri and Tabellini (2000) find empirical support for the hypothesis that unemployment affects growth negatively, but Nickell and Layard (1999) cannot find that labour-market institutions that increase unemployment also reduce growth.

4.4. Labour-market institutions and growth

It is possible that the same institutions that affect unemployment also have direct effects on growth and/or the output level. Olson (1984) argues that democratic societies tend gradually to become more or-

[26] See Storesletten and Zilibotti (2000).

ganised in strong pressure groups that, for income distribution reasons, have an interest in blocking the changes necessary for high growth. To avoid this requires either radical transformations of society crushing the organisational structure (like in Japan and West Germany after World War II, or in Britain under Margaret Thatcher), or that the organisations are comprehensive enough to internalise the social consequences of their behaviour like in Sweden during the 1950s and 1960s. A possible conclusion is that the degree of centralisation of labour-market organisations could affect growth in a similar way as it affects employment (see Section 2.5), i.e. that there could be a U-shaped relationship.

There are also other possible ways of reasoning. The propensity of firms to invest may be smaller if wage bargaining occurs at the level of the firm, because the latter will realise that higher capital costs will weaken its bargaining position vis-à-vis employees by increasing the costs incurred by labour-market conflicts (Moene et al., 1993). If centralised wage setting means lower wage dispersion between new and old vintages of capital, the rate of structural change should be larger (Moene and Wallerstein, 1992). But it is also possible that decentralised wage setting can affect work effort positively, because higher productivity in a firm will then also affect wages there (Moene et al., 1993). Decentralisation is also likely to give individual firms greater possibilities of setting optimal efficiency wages (Ramaswamy and Rowthorn, 1992).

Theory does not give any clear predictions regarding the relationship between, on the one hand, centralisation of wage bargaining and union density, and, on the other hand, output and growth. Nor are the results from empirical research very clear-cut. There is some support for a U-shaped relationship between the degree of centralisation of labour-market organisations and growth,[27] but there are also studies that do not find any such relationship.[28] There is also some support for the hypothesis that the level of productivity or the growth rate of productivity, expenditures on R&D, and investment are negatively correlated with high union density, but the results are not clear-cut (Nickell and Layard, 1999).

Employment protection legislation may also affect productivity. There may be negative effects to the extent that the pace of structural

[27] See e.g. Heitger (1987) and Dowrick (1992).
[28] Nickell and Layard (1999) do not find a relationship, whereas the result of Grier (1997) is that a high degree of decentralisation is associated with high growth.

change is slowed down. High firing costs lead to a longer operating time for each vintage of capital, because they mean that it does not pay to take the costs for ceasing activity until operating costs exceed revenues with a large enough margin (Saint-Paul, 1999). However, employment protection may also have positive productivity effects to the extent that labour turnover is reduced (OECD, 1994). Empirical knowledge is, however, scant.

5. The political economy of unemployment

Section 2 analysed how various labour-market institutions most likely contribute to unemployment. This has led to a great number of proposals on labour-market reform.[29] But in most countries, there is strong political resistance to such changes. As a consequence, the *political economy of unemployment* has become an important area of research. This is probably still a less established field than many others in labour economics although a number of interesting hypotheses have been formulated.

5.1. Income distribution conflicts

There is a large literature on how income distribution conflicts can act as a fundamental constraint on employment policy. The reason is that labour-market reforms that reduce unemployment often also redistribute incomes so that large groups may turn out to be losers.

A first aspect concerns the income distribution between *labour* and *capital owners* (shareholders). It is determined by the relative strength of the two parties in wage bargaining. But as employees make up the political majority, it is natural for them to use the political process to establish labour-market institutions that give them as large a share of output as possible. Such considerations are likely to affect, for example, the design of unemployment insurance (Saint-Paul, 1996), the extent of active labour-market policy (Fredriksson, 1997), as well as legislation on labour-market conflicts and regulations that affect union density. From this perspective, it may be rational for employees to uphold institutions that result in real wage levels that are inconsistent with full employment.

The main focus of recent research has been on the conflict of interests between *employed insiders* and *unemployed outsiders*. One example is

[29] See e.g. OECD (1994), Alogoskoufis et al. (1995), Lindbeck (1996), and Modigliani et al. (1998).

employment protection legislation (Saint-Paul, 1993). Employed insiders are likely to have a larger interest than the unemployed in high firing costs. Such costs reduce both lay-offs and hirings. But the value of a smaller risk of lay-offs is greater for those who have a job today than for those who are unemployed (and can get a job only in the future). At the same time, the disadvantage of fewer hirings is greater for those who are unemployed today than for those who hold a job (and may become unemployed only in the future).

Because it is the employed who make up the political majority, they can block reforms that reduce firing costs and which would benefit the unemployed. However, one way of obtaining political acceptance for such changes could be to let them only apply to new hirings, but to keep earlier employment protection legislation for the already employed. Such a two-tier system was created in Spain in 1984, when a system with temporary employment contracts was introduced. A possible obstacle is, however, that the earlier employed insiders will realise that such a system will gradually change the political majority: the earlier employed with permanent employment contracts will over time become fewer than the sum of employed on temporary contracts and the unemployed. This would make it possible for the two latter groups to abolish the high employment protection of insiders. To get employed insiders to accept lower employment protection for the newly hired, a conversion clause, which after some time converts the temporary contracts to permanent ones with high firing costs, might be required.

Insiders are also likely to have a greater interest than outsiders in labour-market regulation that increases the bargaining strength of unions and thus contributes to higher wages and lower employment. Similarly, insiders may prefer active labour-market policies that are not too efficient: if the long-term unemployed are activated, there will be more competition for the available jobs, and there will be downward wage pressure (Saint-Paul, 1995).

It is possible that the propensity of insiders to accept labour-market reforms depends more on whether unemployment is increasing than on the unemployment level *per se*. The reason is that the unemployment risk of insiders is large in periods when unemployment increases but is not so much affected by a high unemployment level once this has stabilised (Saint-Paul, 1996). This hypothesis receives some support from empirical research that seems to show that political discontent and changes in government (which might lead to re-

forms) is correlated with *increases* in unemployment, but not with high unemployment levels *per se* (Saint-Paul, 1993).

The conflicts of interest between insiders and outsiders are likely to be different in the case of unemployment insurance (Wright, 1986). Both groups gain from income insurance, which evens out incomes between states of employment and unemployment. However, the unemployed, who receive unemployment benefits already today, are likely to prefer higher benefits than the employed, who pay for the insurance today and can benefit from it only in the future. The employed are probably more interested in a high benefit level in periods when employment is falling and the unemployment risk therefore is great. But with stable high unemployment it may be in the interest of the employed to reduce unemployment compensation. The reason is that the contributions to unemployment insurance (taxes) could otherwise become very high. These hypotheses have received some empirical support (Di Tella and MacCulloh, 1996). They are also consistent with the observation that reductions in unemployment benefits in many countries have usually been motivated by budget considerations rather than by arguments about the functioning of the labour market.

There may also be income distribution conflicts between different groups of employed insiders. The wages of the *high-skilled* are probably affected much less by labour-market regulations affecting union strength and by unemployment insurance than the wages for the *low-skilled*. So the high-skilled may actually benefit from labour-market reforms, because they reduce unemployment among the low-skilled and thus the tax costs for unemployment that the high-skilled have to pay.[30] High-skilled insiders could therefore have a similar interest in labour-market reforms as low-skilled unemployed and capital owners (who to a large extent are high-skilled) (Alogoskoufis et al., 1995). It may, however, be very difficult to form a coalition between these groups to deal with unemployment because they will have diverging interests in many other political issues.

[30] The high-skilled benefit even more from labour-market reforms if high-skilled and low-skilled are complements in demand, as is sometimes claimed (Saint-Paul, 1996). If so, lower wages for the low-skilled that increase their employment, will lead to higher demand and higher wages for the high-skilled. The empirical support for this hypothesis is, however, unclear. Hamermesh (1993) surveys a number of studies that seem to indicate that high-skilled and low-skilled are substitutes when output is held constant.

5.2. Compensating transfers

One possible way of achieving a political majority for labour-market reform is to compensate the losers from such reforms through *direct income transfers*. In principle, this can always be done because the higher output that follows from lower unemployment makes it possible to increase the living standard of everyone. According to the above analysis, redistributions from capital owners, high-skilled employed and unemployed who are hired to less-skilled employed could then be required. In other words, voters should on one and the same occasion be faced with a broad policy package that includes both labour-market reform and income transfers.

It might seem most natural to compensate losers through *current* transfer payments within the government tax and transfer systems. However, the possibilities are constrained by the risk of negative incentive effects, which could erode the tax base. This is obvious if a redistribution package would encompass higher marginal tax rates for high-paid and higher taxes on capital. There may also be *credibility problems* associated with current income transfers: the employed may be unwilling to accept fundamental institutional changes of, for example, the regulations for wage bargaining, if they do not trust that simultaneously decided tax and transfer changes will persist (Alogoskoufis et al., 1995).

Both incentive and credibility aspects provide arguments for *one-shot* income transfers. But it is not obvious how this should be done. One possible way of achieving such a one-shot transfer to earlier employed low-income and medium-income earners would be to provide a rebate on earlier tax payments for labour income up to a certain level. Another method would be to give tax subsidies to firms who allow employees who have been with the firm for a period of time to have profit shares or the possibility to buy shares on favourable terms (stock ownership plans). Such a programme, too, could be designed so as to favour low-income and medium-income earners. Broadening ownership in this way could also have the advantage that the incentives for wage moderation would be strengthened if wage earners would obtain a larger share of profits.

5.3. Economic and political complementarity

A recently much discussed issue is the possibility of *complementarity* between different measures to increase employment, i.e. whether the

effect of one measure is reinforced if other measures are taken at the same time. The hypothesis is that the total effect is larger than the sum of the partial effects, because each single measure becomes more effective when it interacts with others. If this is true, there is even more to speak for the conclusion that a broad policy package may be necessary to gain political acceptance for unemployment-reducing measures: the measures do not need to be as pervasive if they are more effective.

Coe and Snower (1997) as well as Orszag and Snower (1998) argue that there are important complementarities between, for example, taxes and unemployment benefits. Lower unemployment compensation increases the propensity of the unemployed to search actively for work, and this incentive can be strengthened by tax cuts that increase the propensity of employers to hire. Similarly, the incentives of employers to hire in the case of tax cuts can be reinforced if lower unemployment compensation makes the unemployed search more actively for work.

There is yet almost no empirical research on the importance of complementarities of this type, and it is unclear how specific the assumptions are in the theoretical models that stress this possibility (Holmlund, 1998). But at the same time, one can find examples of probable complementarities. If unemployment compensation is so high that it does not pay the unemployed to take certain jobs, active labour-market policies to give the unemployed the skills necessary for these jobs are not likely to be effective. And if the unemployed cannot acquire the skills for certain jobs, there is not much point in strengthening the incentives to take these jobs through lower unemployment compensation.

The relationship between employment protection and the regulations for wage bargaining may be an example of *political complementarity*, i.e. that the degree of political acceptance for a certain reform may depend on whether other reforms are also being made. Employees gain more from employment protection if wages are high (Saint-Paul, 1999). Reforms that reduce the relative bargaining power of employees could therefore also reduce the political support for employment protection.

It seems reasonable to expect demand policy and labour-market reforms to be complements. Although labour-market reforms may lower equilibrium unemployment, it may take a long time before actual unemployment is reduced significantly. Nominal wage rigidity

could be an important reason. Wage earners may be willing to accept lower *real* wages, but they may not be prepared to do this through *nominal* wage cuts. If monetary and fiscal policies allow inflation to fall very close to zero or even deflation, it may be impossible in the short run to achieve the real wage cuts necessary for unemployment to fall significantly. If unemployment falls only slowly, the benefits of reform may be perceived as too far-off for a government to be willing to incur the political costs for it (Bean, 1998; Calmfors, 1998).

5.4. Status-quo bias

Status-quo bias could be another obstacle for labour-market reform. There may be a natural interest among those administering existing labour-market regulations to maintain these regulations in traditional forms. Hence proposals for radical change risk meeting strong opposition. A government may not be willing to take on this resistance unless it is very strongly convinced about the merits of reform. Another reason for a status-quo bias could be that the median voter (an employed in the middle of the income distribution) is affected only to a limited extent by labour-market reforms, even though some groups could make very large gains (shareholders, unemployed and high-skilled employed) or very large losses (low-skilled employed).[31]

Status-quo bias may also be due to *uncertainty* among individuals on whether or not they will gain or lose from reforms (Fernandez and Rodrik, 1991). Suppose that there are three groups in the economy: A (high-skilled employed), B (low-skilled employed) and C (unemployed). They are to decide on future labour-market reform. A is assumed to gain 3, B to lose 5 and C to gain 4. The total social gain is then 2. If the groups are of equal size and everyone knows with certainty to which group he/she will belong, there is a political majority for reform. But this may not be the case under uncertainty. Assume that it is known with certainty who will be in group A when the reform has been carried through, but that there is a 50 per cent probability for the others to belong to either group B or group C. For the latter two groups there will be an *expected loss* of the reform because 0,5 x (-5) + 0,5 x 4 = - 0,5. It follows that there will be a majority against reform under uncertainty.

[31] See Alogoskoufis et al. (1995), and Saint-Paul (1996).

5.5. Time inconsistency

Another possible problem is *time inconsistency*, i.e. that policy makers may have incentives to pursue inappropriate policies when they can make discretionary decisions after other agents in the economy have made theirs. This reasoning has been used to explain why monetary policy may turn out too inflationary if it is under the direct control of the government. A similar argument could, for example, be made with respect to active labour-market policy (Calmfors, 1995; Johansson, 1998).

Assume that a large volume of job creation programmes increases wage pressure. It could then be in the interest of society to reduce the size of job creation programmes in order to reduce wages and create more regular jobs. Suppose that such a reduction is decided and that it results in lower wages in new wage contracts. But once this has occurred, it will be very tempting for a government to renege on its decision to cut the size of programmes: by reneging, open unemployment is restrained without any effect on wages. But wage setters will realise that the government has such an incentive. Hence a decision to reduce the size of job creation programmes will not be credible and wage setting will not be affected. The economy will be locked into a bad equilibrium with large job creation programmes and low regular employment.

This analysis could explain the large labour-market programmes in Sweden. The analysis could also explain why the government has been unwilling to institute a maximum period for how long an unemployed can be cared for either by unemployment insurance or by labour-market programmes (a "final parenthesis" according to the terminology of the Swedish policy debate). Participation in labour-market programmes has been used on a large scale to renew the eligibility for unemployment benefits (unemployed have usually been put in labour-market programmes to qualify for a new benefit period when they have approached the time limit for losing their eligibility). It appears likely that a "final parenthesis" would contribute to a greater number of regular jobs for the reasons discussed in Section 2.1. Nevertheless, there is a strong incentive for a government not to stick to a decision to institute a "final parenthesis" once such a decision has affected behaviour, because welfare for those who remain long-term unemployed will be higher if they keep their benefits. Both trade unions and individuals will realise this, and their behaviour is therefore likely not to be much affected by a decision on a "final pa-

renthesis". Hence, such a change may be hard to accomplish, as has been proven to be the case in Sweden, where two governments in the 1990s took such decisions but later backed down on them.

6. Policy conclusions

We have tried to summarise what we think we know about the causes of unemployment. Our knowledge is very incomplete. We do not know the extent to which unemployment is cyclical and how long the adjustment processes are in the case of macroeconomic shocks. Our knowledge of how equilibrium unemployment is affected by various labour-market institutions, and possibly also by aggregate demand, is also very inexact. But some important conclusions can still be drawn.

- There is considerable support for the hypotheses that lower benefit levels and shorter benefit periods in unemployment insurance reduce unemployment.
- A more direct relationship between the level of unemployment and the contributions to unemployment insurance in each bargaining area will most likely promote wage moderation and thus also employment.
- A smaller volume of job creation schemes is likely to contribute to more of regular jobs. This applies especially to the extent that placement in such schemes has been used to renew the eligibility of participants for new unemployment benefit periods.
- Both regular education and labour-market education have an important role to play in order to match supply and demand for different categories of labour.
- Labour-market legislation that restricts the scope of labour-market conflicts, such as restrictions on secondary action or requirements on proportionality between industrial actions and the damage inflicted on the other party, as well as changes in those regulations that in many countries promote union membership and collective agreements, will most likely reduce wage pressure and thus contribute to higher employment.
- At least some types of tax reductions could affect employment positively. This applies, for example, to tax reductions on income from employment that increase the income difference between having and not having a job. Lower payroll taxes for low-paid employees could also be expected to have positive employment

effects. The same is likely to be true for lower VAT and payroll taxes on services that are close substitutes for home production.

- Co-ordinated wage bargaining seems to have contributed to wage moderation in some countries—such as the Netherlands, Norway and Ireland—but it is also likely that wage moderation can be achieved through far-reaching decentralisation.

There is much less support for the view that employment protection legislation has an effect on equilibrium unemployment. But lower employment protection seems to lead to more turnover in the labour market. This means shorter unemployment spells and lower long-term unemployment, which are important welfare gains in themselves. Finally, there is very little to speak for working time reductions as a means of reducing unemployment.

Reasoning that is similar to ours has led many economists to recommend labour-market reforms of the types we have discussed. It is true that uncertainty about the quantitative magnitudes of different policy reforms is very large. Nevertheless it is highly probable that a broad programme of reforms, encompassing many measures, would indeed prove effective to reduce unemployment permanently. But it is also obvious that many measures could mean large income redistributions from already employed low-income and medium-income earners to those previously unemployed who would find jobs, to shareholders and to high-income earners.

To obtain political support for broad labour-market reforms in countries with high unemployment, income distribution aspects must be taken seriously. There may be a need to compensate those who would otherwise lose out from the reforms. Income transfers via the government tax and transfer systems should therefore form an integrated part of any policy against unemployment. In this perspective, it becomes important not to do away with the possibility to compensate the losers from labour-market reforms by lowering taxes without co-ordination with reforms. Another method might be to combine labour-market reforms with measures designed to broaden ownership, focusing on low-income and medium-income earners, and with product market deregulations.

However, aggregate demand policy is also important. Monetary and fiscal policies that prevent too low inflation (and deflation) might contribute to lower permanent unemployment. If part of unemployment is demand-determined or if there is a link between demand-

determined unemployment and equilibrium unemployment, an increase in aggregate demand could also cause lower unemployment in the long run. But it appears unlikely that the current high unemployment in most Western European economies could be eliminated only by an increase in aggregate demand. There is a risk that a demand-determined increase in employment is only temporary, because wage and price pressures will soon arise. So there are good reasons to co-ordinate aggregate demand policy with labour-market reforms. The latter increase the chance that higher demand will increase employment without creating inflationary pressures. At the same time, high aggregate demand can speed up the effects of labour-market reforms and thus make it easier to gain political acceptance for them. The possibilities for this increase if central banks can credibly commit to an easier monetary policy in the case of labour-market reforms.

A last point concerns the relationship between unemployment and growth. In the short run, a reduction in unemployment will mean higher output. But the long-run relationship is not so clear. There are mechanisms through which a higher long-term growth rate could increase employment, but if higher growth means more rapid structural change there will also be forces tending to increase frictional unemployment. It is also possible that higher employment will mean stronger incentives for capital accumulation, but it has so far not been possible to find robust empirical relationships between unemployment and long-term growth. So one should not take it for granted that policies to raise the growth rate will automatically reduce unemployment or that policies to reduce unemployment will automatically lead to higher growth.

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