

Seminar Paper No. 690

**WAGES AND WAGE-BARGAINING
INSTITUTIONS IN THE EMU – A SURVEY OF THE
ISSUES**

by

Lars Calmfors



**INSTITUTE FOR INTERNATIONAL ECONOMIC STUDIES
Stockholm University**

Seminar Paper No. 690

WAGES AND WAGE-BARGAINING INSTITUTIONS IN THE EMU
– A SURVEY OF THE ISSUES

by

Lars Calmfors

Papers in the seminar series are also published on internet
in Adobe Acrobat (PDF) format.

Download from <http://www.iies.su.se/>

Seminar Papers are preliminary material circulated to
stimulate discussion and critical comment.

May 2001

Institute for International Economic Studies

S-106 91 Stockholm

Sweden

Wages and wage-bargaining institutions in the EMU

– a survey of the issues

by

Lars Calmfors

Institute for International Economic Studies, Stockholm University

Abstract

The paper distinguishes between the impact of the EMU on nominal wage flexibility and on equilibrium real wage and unemployment levels. A perceived need to increase nominal wage flexibility as a substitute for domestic monetary policy and a tendency to less real wage moderation in the EMU are likely to promote informal bargaining co-ordination and social pacts in the medium run. But such co-ordination is not likely to be sustainable in the long run, as it conflicts with other forces working in the direction of decentralization and deunionisation. This could lead to more government intervention in wage setting during a transitional period. Although monetary unification will strengthen the incentives for higher-level transnational co-ordination of wage bargaining, such a development is improbable in view of the co-ordination costs involved. If transnational co-ordination develops, it is most likely to occur within multinational firms.

This paper was first presented at the *Österreichische Nationalbank* workshop on “Wage bargaining within EMU”, October 9, 2000 in Vienna. I am grateful for comments by Peter Mooslechner as well as from the other participants in the workshop, and for comments at seminars at *Sveriges Riksbank* and the ECB. Helpful comments have also been given by Jonas Agell, Charlotta Groth, Steinar Holden, Gisela Waisman and Elisabeth Wisén. The paper draws heavily on joint work with Alison Booth, Michael Burda, Daniele Checchi, Robin Naylor, and Jelle Visser (Calmfors et al., 2001).

1. Introduction

Monetary unification in Europe is an example of a fundamental regime change, which according to the Lucas critique could change established behavioural relationships. A key candidate to examine is wage setting. This paper surveys the arguments on how the EMU is likely to affect wage bargaining.

I distinguish between two dimensions: (i) the effect on the flexibility of nominal wages in the case of macroeconomic shocks, and thus on the cyclical sensitivity of employment and output; and (ii) the effect on equilibrium real wages, and thus on equilibrium unemployment, or more loosely on the average levels of real wages and unemployment over the business cycle.

Monetary unification can affect wage outcomes either directly, because it changes the incentives of wage setters given existing labour-market institutions, or indirectly, because it leads to changes in these institutions. I treat both aspects, but the main focus is on the effects on *wage-bargaining institutions*, as this issue has not been discussed very much. I shall leave aside how the EMU may affect the incentives for governments to reform other labour-market institutions, such as unemployment insurance, active labour-market programmes or employment protection legislation, which also influence the outcomes of wage bargaining.¹

The outline is as follows. Section 2 discusses how the EMU is likely to affect money-wage flexibility with given bargaining institutions. Section 3 analyses how bargaining institutions themselves may change in response to a perceived greater need for money-wage flexibility. More precisely, the focus is on the degree of bargaining co-ordination within nations. Sections 4 and 5 turn to the issue of how equilibrium real wage and unemployment levels may be influenced by the EMU. Section 4 discusses the consequences of both deeper product market integration and the change in the interaction between wage bargaining and monetary policy implied by monetary unification. Section 5 analyses how the bargaining structure is likely to respond to the effects of the EMU on equilibrium unemployment. Section 6 discusses other influences on the degree of bargaining co-ordination. Section 7 asks the question of whether product market integration and centralized monetary policy in the EMU

¹ I have treated these issues elsewhere. See e.g. Calmfors (1998a,b; 2000; 2001). Other references are Sibert and Sutherland (2000), Grüner and Hefeker (1998), and Saint-Paul and Bentolila (2000).

could lead to *transnational* co-ordination of wage bargaining at the European level. Section 8 summarises the analysis.

2. The EMU and nominal wage flexibility

My starting point here is that the EMU will probably increase the demand for nominal wage flexibility, because there is a need for alternative adjustment mechanisms when there is no longer a domestic monetary policy. The argument rests on either the risk of asymmetric demand shocks (Calmfors et al., 1997; Obstfeld, 1998) or the risk that a common monetary policy could affect the various economies differently (Dornbusch et al., 1998). Conditional on the assumption that there is such an increased demand for nominal wage flexibility, I shall ask the question of whether it is likely to be forthcoming.

There are at least three relevant ways of analysing nominal wage flexibility in this context. According to the first approach, nominal wage rigidity is the result of *long contract periods*. The length of contract periods can be seen as the outcome of a trade-off. On the one hand, there is an incentive for long contract periods to hold down negotiation costs, including the risk of labour-market conflicts. On the other hand, there is an incentive to set wages for so short contract periods that it will be possible to react to unforeseen events. If EMU membership means larger demand disturbances, it follows therefore that there is an incentive for shorter contract periods. But at least some assessments indicate that a shorter duration of wage contracts will probably counteract the tendency to larger output and employment variations to a rather small extent (Ball et al., 1988; Calmfors, 1998a). Comparing with the past, one should also remember that lower inflation, which is likely to be associated with lower variability of the inflation rate, works in the direction of longer contract periods. The reason is that there is then less need for frequent revisions of nominal wage levels and the real wage consequences of given nominal wage changes are easier to forecast (Ball et al., 1988; Gottfries, 1992; Calmfors et al., 1997).

According to another view, nominal wage rigidity in downswings have more to do with existing *social norms* about *fairness*: firms do not want to cut money wages because this would have a negative impact on workforce morale and reduce productivity (Solow, 1979; Akerlof and Yellen, 1990). Although we are not able to give rational explanations for such downward rigidity, we know from many survey

studies that nominal wage cuts are usually not regarded as acceptable (Bewley, 1998). More severe consequences of asymmetric shocks in the EMU could change these attitudes, but experience indicates that nominal wage cuts are accepted only in very extreme situations, such as when the survival of a firm is at stake. So, it is quite possible that EMU membership is too small a regime change to change the social norms regarding wage cuts. An interesting perspective is given by two recent studies by Agell and Lundborg (1995, 1999). The two studies asked similar questions to Swedish personnel managers in 1991 and 1998 about their judgements on the acceptability of wage cuts. Despite the fact that Sweden between these years moved from stable low unemployment to high unemployment (much higher than any time before in the post-war period) and from high inflation to a credible low-inflation regime, there was no change in attitudes between the two studies. This suggests that even very large macroeconomic regime shifts may be insufficient to change the attitudes to wage cuts in unionised labour markets.

A third approach focuses explicitly on the *bargaining game* between employers and employees (Holden, 1994). The starting point is the observation that open labour-market conflict is not the only alternative to agreement on a new wage contract. Indeed, the common practice is almost everywhere that production continues with the same money wage as in the old contract until a new one is concluded. The consequence may be nominal wage rigidity: if there is only a moderate change in nominal demand, it will pay for neither employers nor unions to initiate a labour-market conflict to change the wage. The upshot is again that, even if the EMU implies larger demand fluctuations, these may not be sufficiently large to change wage-setting behaviour.

Theoretical reasoning would thus seem to warn against expecting that nominal wages will automatically become so much more flexible in the EMU that they can offset a tendency towards more cyclical variability. Looking at the actual experiences in the 1980s and 1990s of Austria, Belgium, France and the Netherlands, the countries with the most binding hard-currency policies in the ERM, one does not find any examples of aggregate nominal wage reductions even in years with very high unemployment (although the Netherlands provide an example of nominal wage cuts in the public sector after the Wassenaar agreement in 1982) (Calmfors, 1998a; Calmfors et al., 2001, Ch. 4). There are a few studies that point to larger nominal wage flexibility in some countries after joining the ERM than earlier, but there are

also studies that do not find such an effect (Eichengreen, 1998). In general, it has not been possible to show that a larger amount of nominal demand shocks lead to more nominal wage and price flexibility (Ball et al., 1988; Layard et al., 1991).

3. EMU, nominal wage flexibility and bargaining institutions

So far I have implicitly assumed that wage bargaining institutions are not affected by the EMU. This is, however, a strong assumption. Indeed, monetary unification might have profound effects on bargaining structure. Below, I argue that the EMU is likely to promote national co-ordination of wage bargaining, because the social actors will see the need for more nominal wage flexibility as a substitute for a domestic monetary policy, and because such co-ordination is likely to be perceived as a means for achieving this.

3.1. Nominal wage flexibility and bargaining co-ordination

There are several arguments for why co-ordinated wage bargaining at the national level would promote nominal wage flexibility.

(i) One argument goes back to Keynes (1936). He argued that the concerns of employees over *relative wages* would make them oppose money-wage cuts, unless all wages could be cut simultaneously, so as to preserve existing wage differentials. Although Keynes' conjecture has been questioned for the US on the ground that employees seem to have "little systematic knowledge of pay rates at other firms" (Bewley, 1998), evidence for a highly unionised economy such as Sweden indicates that inter-firm comparisons do play an important role (Agell and Lundborg, 1995, 1999).

(ii) A modern version of Keynes' argument has been advanced by Ball and Romer (1991) in a framework of *multiple equilibria*. They stressed how the benefit of changing the wage (and thus the price) in an individual firm depends, via product demand interrelationships, on whether or not other firms do the same. With small demand shocks, adjustment costs make it unprofitable for each firm to change the wage even if others do. With very large shocks, it will always pay to adjust the wage independently of what others do. But for shocks of intermediate size, the individual wage setter may gain from adjusting the wage only if others do the same. Which

equilibrium that materialises depends on the expectations of what other wage setters will do. Co-ordination of wage bargaining is a way of removing this indeterminacy and securing that the economy ends up in a good equilibrium in which wages adjust to shocks.

(iii) One obvious explanation of the difficulty of adjusting money wages in a decentralized system is that pay deals are then usually unsynchronised. In contrast, there is automatic *synchronisation* of pay changes across the economy when different firms or sectors delegate bargaining to peak-level organisations. Also when the formal contracts are concluded at a lower level, synchronisation can be achieved either because the peak-level organisations can affect the timing of negotiations (as in Austria) or because of more informal mechanisms of co-ordination (as in Japan and Sweden) (Calmfors et al., 2001, Ch. 4).

(iv) In systems with decentralized wage setting, contract length may be chosen in a socially inefficient way (Ball, 1987). Most notably, there exists an *aggregate-demand externality*: wage setters in an individual bargaining area do not take into account that a long-term wage contract on their part will contribute to aggregate demand fluctuations in the economy. The reason is that money-wage stickiness in a part of the economy means lower flexibility of the aggregate price level in the case of nominal shocks. If bargaining is co-ordinated, wage setters can internalise this externality.² This effect tends to make wage contracts shorter under co-ordinated than under uncoordinated bargaining.

(v) Finally, there is the possibility that the interests of *outsiders* with a weak affiliation to the labour market are taken into account to a larger extent when bargaining is co-ordinated across the economy, because unions then make more economy-wide considerations. Gottfries (1992) has emphasised how the majority of employed insiders, with a small lay-off risk, are likely to prefer contracts that fix money wages for a long period of time when inflation is low and stable, because real wage developments then become easy to predict, at the same time as employment variations will mainly affect outsiders.

Somewhat surprisingly, there does not exist much systematic empirical research on the relationship between bargaining co-ordination and nominal wage

² Ball (1987) also points to another externality when the choice of contract length is decentralized and contracts are unsynchronised. It arises because each wage setter will then not take into account that an

flexibility. However, two recent studies find some support for the view that more co-ordination could promote nominal wage flexibility. According to Thomas (2001), the responsiveness of nominal wage changes to unemployment has decreased in countries that have moved from high to intermediate bargaining co-ordination (Finland, Spain and Sweden), whereas it has increased in countries that have moved in the direction of more co-ordination (Norway and Italy). Groth and Johansson (2001) found that a move to higher bargaining co-ordination reduces the length of wage contracts at low levels of co-ordination, but that it increases it at high levels of co-ordination.³

3.2. *The incentives for national bargaining co-ordination in the EMU*

If co-ordinated wage bargaining is perceived to increase nominal wage flexibility, monetary unification may create incentives for such bargaining arrangements. The strength of these incentives will depend on actual macroeconomic developments. If cyclical developments turn out to diverge strongly among the countries in the euro area, then there will be strong incentives in the countries experiencing the most serious recessionary shocks. But the incentives are likely to be there also in the absence of actual macroeconomic imbalances. One reason could be a desire to avoid that occasional wage hikes occur “by accident”, the output and employment consequences of which would be more difficult to handle in the EMU than earlier. Another reason is that the mere uncertainty of the macroeconomic consequences of the EMU – and the risk of very large imbalances at specific occasions – may imply a *precautionary motive* for co-ordination of wage bargaining.⁴ It will be much easier to achieve co-ordinated wage restraint in times of crisis, if there is some co-ordination also under more normal conditions. This may create an incentive for co-ordination efforts as a *stand-by measure* for the future.

One example of how a particular form of bargaining co-ordination can be used as a “stand-by facility” is provided by the so-called *buffer funds*, which were set up in

increase in contract length will lead to lower real wage variability in other bargaining areas, which will increase welfare there. This effect works in the opposite direction to the aggregate-demand externality.

³ The above results should be compared with earlier results in Alogoskoufis and Manning (1988) and Layard et al. (1991), according to which wages tended to respond less to consumer price changes the more “corporatist” the economy. However, these earlier results may have been driven largely by the increase in inflation associated with the supply shocks of the 1970s and reflect that higher bargaining co-ordination leads to more *real* wage restraint in such a situation.

⁴ Visser (1998a,b). The argument has similarities with the precautionary motive for government labour-market reform advanced by Calmfors (1998a,b; 2001).

Finland in 1997 through an agreement between the central labour market organisations.⁵ The background is a system where unemployment insurance and pensions to a large extent are financed by employer contributions that have been negotiated between unions and employer organisations. The idea of the buffer funds is to raise these negotiated employer contributions above the disbursements for unemployment benefits and pensions in cyclical upswings. The additional proceeds are put in funds, which are to be spent in recessions in order to prevent contributions from then having to be raised when employment falls.

The Finnish system has been devised to avoid countercyclical variations in employer contributions, and thus in wage costs, which tend to exacerbate the fluctuations in output and employment. A more ambitious system could instead aim at actually *lowering* wage costs in deep recessions. This would amount to establishing an *ex ante* machinery for cuts in money wage costs without having to cut money wages. This idea is now being discussed in Sweden as a preparation for future EMU membership (Calmfors, 1998a; 2000) and is presently examined by a government commission.

4. EMU and the equilibrium real wage and employment levels with given bargaining institutions

The next issue is how the EMU might affect the equilibrium levels of real wages and employment. Here, two basic mechanisms have been emphasised in the literature. The first is that monetary unification is likely to promote *product market integration*. The second mechanism is that *the interaction between monetary policy and wage bargaining* is changed. Both mechanisms are treated below.

4.1. Product market integration

It is a common argument that monetary unification will increase product market integration, and therefore also competition. One reason is that a common currency reduces both transaction costs and exchange-rate risks with international payments, and therefore leads to both more trade and foreign direct investment (FDI). Another reason is that international price comparisons are facilitated. As a consequence,

⁵ The system is described in Boldt (1998), Calmfors (1998a), Holm et al. (1999), and Pochet (1999a).

product demand should become more price-elastic. This will affect labour markets in two ways (Layard et al., 1991; Nickell et al., 1994). First, more price-elastic product demand means that labour demand becomes more wage-elastic, which puts downward pressure on real wages. Second, more price-elastic product demand means that firms will lower their price mark-ups on marginal costs, which raises output and employment at given real wages. Theoretically, the effect on the equilibrium real wage level is ambiguous, but clearly equilibrium employment increases.

How shall one judge the effects I have described? One needs obviously to look at all the links in the chain: EMU → product market integration → product market competition → wages and employment.

Consider first the link between the EMU and product market integration. The problem is to know how much the ongoing process of increasing international product market integration is affected by the common currency. Both theoretical and empirical research have produced ambiguous results. Theoretically, one cannot rule out that exchange-rate variations could lead to more trade and FDI, as it is possible that exchange-rate uncertainty increases the expected marginal return to these activities (DeGrauwe, 1988; Flam and Jansson, 2000). (This occurs if the return is a convex function of the exchange rate.) Several empirical studies find that reduced exchange-rate fluctuations increase trade, but surprisingly many studies have been unable to come up with any such effects (Flam and Jansson, 2000; Rose, 2000). However, it is conceivable that a common currency, which eliminates all exchange rate risk in connection with trade within the currency area, could have *much* larger effects than a reduction of exchange-rate variability between different currencies. The recent study by Rose (2000) supports this view.⁶

Second, it is not necessarily the case that increased product market integration means more competition. The opening up of domestic markets may help large-scale multinational firms expand, which in the long run could actually reduce the amount of competition in national product markets (Calmfors et al., 2001, Ch. 3). It should be noted that according to a recent study (Nicoletti et al., 2001), price convergence does not appear to have been significantly stronger between the EU countries that have succeeded the best in stabilising their mutual exchange rates (Austria, Belgium,

⁶ It is, however, difficult to know how strong conclusions to draw from this study, as it cannot get round the problem that most of the countries that have adopted a common currency are small and very atypical.

Germany, Luxembourg, and the Netherlands) than between the EU countries in general. However, product market integration in the form of an expansion of European multinationals could still create incentives for wage moderation, because these firms can credibly threaten to relocate production among units in different countries in the case of wage pressures at a specific production site.

Consider then finally the link between product market competition and wages. The strength of this link depends on the degree of national co-ordination in wage bargaining. To the extent that there is a hump-shaped relationship between the degree of bargaining co-ordination and the aggregate real wage level of the Calmfors-Driffill type (Calmfors and Driffill, 1988; Calmfors, 1993b), it is well-known that the hump with intermediate co-ordination (bargaining at the industry level) is likely to be flattened by increased foreign competition in the product market (Danthine and Hunt, 1994). This is illustrated in Figure 1. The explanation is that the incentives for wage moderation are strong anyway at both low and high levels of national co-ordination (because of competition between domestic firms in the first case, and because of internalisation of negative externalities of wage increases in the second case), which means that increased product market competition then does not make so much difference.⁷ But it will make a large difference with industry bargaining, in which case the incentives for wage restraint are weakened because all domestic competitors are exposed to similar wage increases. This wage-raising effect is obviously of lesser importance, the larger is the risk to lose market shares to foreign competitors. Since industry bargaining is still the dominant form of wage bargaining in the euro countries (Calmfors et al., 2001, Ch. 4), increased product market competition from other EU countries could thus have potentially large effects.

Considering all these arguments, it is difficult to arrive at any definite conclusions on the importance of the links between the EMU, integration, product market competition and wage bargaining.

4.2. The interaction with monetary policy

Several recent papers have dealt with the interaction between monetary policy and wage setting. The starting point is that co-ordinated wage setters will act

⁷ The negative externalities on other groups of wage increases for one group include a higher aggregate price level, a smaller tax base, higher costs for unemployment benefits, higher aggregate unemployment and jealousy effects (Calmfors, 1993a).

strategically and take the anticipated monetary policy responses of central banks to wage settlements into account. Two mechanisms have been emphasised. The first focuses on the existence of an inflation bias for monetary policy, which co-ordinated unions might want to influence. The second mechanism concentrates instead on how central bank responses to inflation will affect the perceived employment costs of wage increases.

The starting point for the *inflation-bias argument* is the Barro and Gordon (1983) analysis of an inflation bias for monetary policy. They pointed to how a policy maker concerned with both inflation and unemployment has an incentive to pursue inflationary policies when equilibrium unemployment is higher than the policy maker's unemployment goal. This gives rise to an inflation bias, which is increasing in the deviation between equilibrium unemployment and the unemployment goal. The argument is now that non-atomistic wage setters in an economy with co-ordinated bargaining and a flexible exchange rate will realize that they can influence the inflation bias of monetary policy through their real wage decisions, as these affect equilibrium unemployment (Skott, 1997; Cukierman and Lippi, 1999; Velasco and Guzzo, 1999). So, if unions are concerned about inflation (in addition to real wages and employment), they have an incentive to compromise on their real wage objectives in order to reduce equilibrium unemployment, because this induces the central bank to pursue a policy that leads to lower inflation. Such interaction between wage setters and the central bank thus adds a motive for wage restraint in an economy where the national central bank can control monetary policy. But this incentive is lost once the country is in the EMU, because national wage setters will then be too small relative to the ECB to affect its behaviour, even if they co-ordinate nationally. So for this reason, real wages should become higher inside than outside the EMU.

According to the second approach, unions set wages by trading off real wages against unemployment, but without caring about inflation per se (Soskice and Iversen, 1998, 2000; Corricelli et al., 2000). Central bank behaviour is now important because it may affect this trade-off. Put differently, the incentives for wage restraint depend on the effective elasticity of labour demand with respect to wages. If unions, bargaining in a co-ordinated way, realise that wage increases that threaten the price stability goal of the central bank will trigger an interest-rate rise, they have to count on a larger fall in employment in the case of a wage rise than would otherwise be the case (a higher effective elasticity of labour demand). An extra incentive for wage restraint is then

added outside the EMU, because central bank policy works as a *deterrent* to wage increases. But inside the EMU, also nationally co-ordinated wage setters will be so small relative to the ECB that they will not anticipate any interest-rate response to their actions. So in this case, too, the incentives for real wage restraint are weakened by EMU membership.

Although both the arguments reviewed motivate why EMU membership could weaken the incentives for wage restraint, the two types of reasoning are not equally plausible. There are good reasons to be sceptical to the inflation-bias argument. On the face of it, this reasoning might seem to provide an explanation of the combination of real wage restraint and high inflation, which was a characteristic feature of the Scandinavian economies in the second half of the 1970s and in the 1980s when bargaining was highly centralized (Calmfors, 1993b). But yet the argument is an implausible one, as it would imply a situation where the typical trade union behaviour is to urge inflation-prone central banks to tighten monetary policy, so that unions would face less need to compromise on their real wage objectives. This has certainly not been the typical situation even in the Scandinavian countries, and is, of course, even less plausible in a situation with independent central banks, focusing on price stability as their prime objective.

The deterrent argument is much more plausible, as it is consistent with the traditional roles of unions and central banks we observe. A few caveats should, however, be raised. First, although there is some empirical support in favour of this hypothesis, the results are not clear-cut. One prediction is that the wage-restraining effect of a domestic anti-inflationary policy should be the greatest under intermediate co-ordination. With very decentralized bargaining, there should be negligible effects because wage setters are then too small to act strategically. With a high degree of co-ordination, the incentives for wage restraint may be very strong anyway, because other negative externalities of high wages are internalised, so anticipated monetary policy reactions may then not make much difference (Corricelli et al., 2000; Soskice and Iversen, 2000). Iversen (1998a,b) did indeed find such a pattern, but the results of Hall and Franzese (1998) and Cukierman and Lippi (1999) give only partial support for these theoretical predictions.⁸ Given the limited number of observations of

⁸ Hall and Franzese (1998) found that higher central bank independence increases unemployment at low levels of bargaining co-ordination, but that this effect becomes smaller at higher levels of co-ordination (and is possibly reversed at very high levels). Cukierman and Lippi (1999) found that higher

different combinations of bargaining structure and monetary regime, it is perhaps not surprising that the empirical results are not robust. The most that can be said is probably that there is *some* evidence that anti-inflationary monetary policy has favourable employment effects under intermediate co-ordination of bargaining, i.e. under the conditions prevailing in most EU countries.

Second, the impact of EMU membership obviously depends on the alternative monetary regime. The deterrent argument was developed to explain the earlier wage restraint in Germany with the interaction between the trade union movement and the Bundesbank. Because of Germany's leading role in the ERM, the Bundesbank was free to adjust monetary policy to domestic price stability objectives (Hall and Franzese, 1998; Soskice and Iversen, 1998). The reasoning seems also now to apply to Sweden, which is outside the ERM with a flexible exchange rate, and where the central bank appears to have established credibility for its inflation target. In fact, Swedish trade unions have recently been running internal campaigns in order to convince their rank-and-file membership of the need to adjust wage policy to the anti-inflationary monetary policy stance, which is very much in line with the deterrent argument (Calmfors, 2000).

It is not entirely clear how the deterrent argument applies to the other countries that were members of the earlier ERM. With monetary policy tied down by a credible fixed exchange rate in Austria, Belgium, France, Luxembourg and the Netherlands, domestic monetary policy could not deter wage increases. But on the other hand, the interaction between the German central bank and wage setters may have helped keep down wage increases also in the other ERM countries because of competition effects (Hochreiter and Winckler, 1995; Visser, 1998a,b; Pochet, 1999b). But it is reasonable to expect the wage-restraining effects of anticipated Bundesbank responses to be stronger in Germany than in the other ERM countries. The empirical picture in the 1980s, with lower nominal wage increases in Germany than in the other ERM countries (except in the Netherlands), is consistent with this conjecture (see Table 1). But on the face of it, the picture in the 1990s, when wages increased faster in Germany than in the other ERM countries in the table is not (although the demand pressure in the wake of re-unification may be part of the explanation).

For a country like Italy, the deterrent argument may not be applicable at all. If the alternative to EMU membership is a soft monetary policy, where the central bank is expected ultimately to react to inflationary wage increases by an accommodating policy, the argument would be reversed. EMU membership would then increase the incentives for wage restraint. Similar reasoning might perhaps hold also for Finland, which has a long history of devaluations in the post-war period.

5. EMU, equilibrium unemployment and bargaining institutions

My analysis of the effect of the EMU on equilibrium real wages and unemployment has so far built on an assumption of unchanged bargaining institutions, just as I started out the discussion of nominal wage flexibility. In a similar way as there, I shall now widen the analysis and discuss how the *ceteris paribus* effects on equilibrium real wages and unemployment may create incentives to change bargaining institutions. The discussion will be based on the assumption that the deterrent argument is valid.

Holden (2001) has advanced the argument that higher equilibrium unemployment inside than outside the EMU under intermediate bargaining co-ordination, due to the change in the interaction between monetary policy and wage setting, would strengthen the incentives for bargaining co-ordination in countries like Germany and Sweden. The reason is that co-ordination and domestic anti-inflationary monetary policy can be regarded as substitutes for each other when it comes to disciplining wage setters. As discussed in Section 3.2, the threat of monetary policy reactions may be necessary to hold back wages in an economy with intermediate bargaining co-ordination (sectoral wage bargaining). But with high co-ordination, the incentives for wage restraint could be so strong anyway that a domestic anti-inflationary monetary policy may not add very much. The loss of domestic monetary policy as a disciplining device in the EMU may therefore lead to substantially higher unemployment with intermediate bargaining co-ordination, but could have a small effect with highly co-ordinated bargaining. For this reason, EMU membership could strengthen the incentives for national co-ordination: the welfare loss for a sectoral union of renegeing on co-ordinated agreements, and bargaining instead on its own, is

larger when there is no domestic central bank that can make up for lack of co-ordination.⁹

The Holden argument focuses on the incentives for upholding co-ordination at the national level versus bargaining at the industry level. However, another relevant comparison is between industry-level bargaining and decentralized bargaining at the level of the firm. Industry-level bargaining will be more favourable as compared to decentralized bargaining outside the EMU, when monetary policy is pursued by an anti-inflationary domestic central bank, than inside the EMU. The reason is again that the monetary policy reactions to wage settlements are partly internalised outside the EMU, whereas there is no such internalisation inside the EMU. As a consequence, the incentive to move from intermediate co-ordination to decentralization are stronger inside than outside the EMU. So, one could also argue that, for this reason, EMU membership may strengthen the incentives for decentralized wage bargaining at the level of the firm in countries like Germany and Sweden.

Both the arguments above suggest that the change in the interaction between monetary policy and wage setting implied by the EMU will weaken the incentives for intermediate bargaining co-ordination. But it is not theoretically evident whether the incentives for co-ordination or the incentives for decentralization are strengthened the most.

6. Future bargaining institutions

Summing up my discussion so far, there are theoretical arguments for why the EMU might promote national co-ordination of wage bargaining. Both a need for greater nominal wage flexibility and a tendency to higher equilibrium unemployment, because of the change in the interaction between monetary policy and wage bargaining, might work in this direction (although the nominal flexibility argument appears to be more clear-cut than the equilibrium unemployment argument).

⁹ Technically, the likelihood of co-ordination (co-operation) can be analysed by examining the incentives for an individual union to renege on such a solution. The assumption is then that renege causes future co-ordination to break down for a finite or infinite period of time. The smaller the future welfare loss from this to be set against the immediate gain from defecting, the lower is the discount rate required to uphold co-ordination (Holden, 2001).

6.1. Actual developments

To what extent do actual developments of bargaining structure underpin the conjectures above? Table 2 from Calmfors et al. (2001), which is based on work by Visser (2000), is an attempt to quantify how the degree of bargaining co-ordination has evolved over time in a number of European countries.

Comparing the 1970s with the 1990s, there is a clear trend in the direction of decentralization. Such a development occurred in Austria, Belgium, Denmark, Finland, France, Germany, Italy, Spain, Sweden, Switzerland and the UK. The only exceptions are Ireland, the Netherlands, Norway and Portugal.

However, a comparison of the 1980s and 1990s gives a somewhat different picture. Between these periods, there has been an increase in bargaining co-ordination in Austria, Belgium, Ireland, Italy, Portugal and Spain. It is interesting to note that these countries represent six of the ten countries in the table opting for EMU membership. But it should also be noted that in most of the cases (Austria, Belgium, Italy and Spain), the “recentralization” did only make up partially for the earlier move in the direction of decentralization.

Somewhat paradoxically, the return to higher bargaining co-ordination in many EU countries has occurred at the same time as there has been a tendency to more of *formal* de-centralization of wage bargaining in the sense that actual wage contracts have been concluded at lower levels (Calmfors et al., 2001, Ch. 4). The co-ordination attempts have taken the form of so-called *social pacts* on wage moderation. There are broad agreements on guidelines for nominal wage increases between union confederations (or a number of industry unions) and employer associations. Sometimes such agreements have been bipartite, sometimes they have involved the government as a third party. These agreements can be seen as a way of substituting consensual norms and moral suasion for formal centralisation of wage bargaining in a situation when the general development towards lower-level bargaining has made such centralization impossible (Visser, 1998a,b; Crouch, 2000a,b).

Social pacts have occurred in the 1980s and 1990s especially in the countries that opted for a non-accommodating monetary regime within the ERM and later for membership in the EMU (see e.g. Calmfors et al., 2001, Ch. 4; EIRO (2000); or Pochet, 1999c). The prime examples are the Netherlands and Ireland. The Dutch Wassenaar agreement on wage moderation in 1982, and subsequent agreements, did

not formally involve the government, but were concluded under the implicit threat of government intervention. In Ireland, the government has been a direct party to the agreements exchanging tax cuts for wage restraint. Other examples of social pacts include Finland, Greece, Italy and Portugal and to a lesser extent Belgium, Germany and Spain.¹⁰

The social pacts of the 1980s and 1990s can be explained by the incentives created when it became increasingly clear that the high unemployment at the time necessitated downward real wage adjustments, which in the ERM system could only be accomplished through money wage restraint. One should expect the EMU to provide similar incentives.

The incentives for national bargaining co-ordination are likely to differ between actors. Governments should be the ones most interested in finding a substitute for lost policy instruments. Employers may be less interested, as they are likely to regard decentralization as the first-best option for reasons to be discussed in the next section. But at the same time, employers may also see the benefits of achieving wage moderation through co-ordination rather than through a lengthy and uncertain process of labour-market reforms, involving serious political conflicts. For unions, the exercise of nominal wage restraint may face internal opposition, but in a situation when they are losing ground (see the discussion in the next section), demonstrating their capacity as a social actor by entering into social pacts may be regarded as a way of obtaining legitimacy (Crouch, 2000a).

6.2. The ultimate breakdown of national bargaining co-ordination

Even though the EMU is likely to promote national co-ordination of wage bargaining, the incentives may be weaker once the EMU has materialised than during the run-up to the EMU when there was a strong desire in many countries, viz. Belgium and the Southern European countries, to make their economies fit for EMU membership (Streeck, 1998). One could perhaps also argue that the high unemployment in the EU countries in the 1990s was particularly conducive to co-ordinated wage restraint.

¹⁰ Norway and Sweden are examples outside the EMU. Norway has a long tradition of “social contracts”. In Sweden, the 1997 “Industrial agreement” between a number of unions and employer associations might perhaps to some extent be seen as a preparation for later EMU membership (Elvander, 1999).

One must also take other factors affecting bargaining structure into account. Table 2 illustrates what appears to be a long-run development in the direction of decentralization. This development has been driven by the employer side and there are reasons to expect it to continue, because the same factors as in recent decades seem still to be at work. These factors include: (i) more decentralized decision-making within flatter hierarchical business organisations, which has been argued to require less standardised pay systems and more pay differentiation to create appropriate incentives for employees (Lindbeck and Snower, 2000); (ii) stronger international competition, which makes it more important to adjust wage costs to foreign competitors rather than to secure a “level playing field” in the sense of equal wages across the domestic economy (Crouch, 2000a,b); and (iii) a desire to limit the political power of unions by limiting their role as a national actor (Elvander, 1999; Calmfors et al., 2001, Ch. 6).

The development towards more decentralization could also be seen as an outcome of “bargaining” between unions and employers about the level at which wage negotiations should take place. To the extent that the relative bargaining strength of employers has increased, they may have been able to shift the locus of wage bargaining in their preferred direction (Calmfors et al., 2001, Ch. 6). One possible reason for such a shift in bargaining power is the increasing degree of capital mobility, which gives the employer side a better “fall-back” position in the case of disagreement with unions.

Another explanation of the shift in bargaining power in favour of employers is deunionisation, i.e. the fall in union density rates, in most European countries. This tendency has been documented in Ebbinghaus and Visser (2000) and Calmfors et al. (2001), who show that average union density in Western Europe has declined from 44 percent in 1979 to 32 percent in 1998. This development seems to be related to ongoing structural changes, which are likely to exert continuing downward pressures on union density rates: the relative shift in employment from manufacturing and the public sector to private services and the growing importance of part-time work and temporary employment contracts.¹¹

¹¹ The reductions in union density in most Western European countries have probably also to some extent been driven by the rise in unemployment that occurred in the 1970s and 1980s, a development that is now probably being reversed to some extent. However, econometric estimates by Checchi in Calmfors et al. (2001) suggest that the adjustment speed may have been so slow that union membership towards the end of the 1990s had adjusted only partially to the earlier rise in unemployment. This

I have argued that EMU membership implies important benefits of national bargaining co-ordination. But the ongoing structural changes working in the direction of decentralization may eventually overtake the forces promoting bargaining co-ordination. If formal wage contracts are increasingly concluded at more decentralized levels, the costs of co-ordination increase. And to the extent that lower rates of unionisation are associated with lower coverage of collective agreements, the benefits of co-ordination will gradually decrease. The reason is that co-ordination of union contracts produce more favourable results the more employees that are encompassed, as the extent of internalisation of externalities then is larger (Holden and Raaum, 1991). In addition, lower union membership could mean that the legitimacy of moderating wage agreements struck by unions is reduced and thus also the incentives to abide by them.

These considerations suggest that bargaining co-ordination through social pacts and consensual norms is likely to work only up to a point. In a long-term perspective, such co-ordination will probably be increasingly difficult to sustain. So, my conclusion is that national bargaining co-ordination in the EMU will probably only represent a *transitional phase* (say for the next 10-15 years) and will ultimately break down. But it is hard to predict how this transition will occur. One possibility is that the attempts at national co-ordination become less and less effective and just “fade away”. However, it is also possible that the breakdown could be quite a “bumpy ride”. This would be the case if a failure of unions to deliver co-ordinated wage restraint in times of macroeconomic crisis provoke governments to take more drastic actions to hold back wages. One possibility could be more direct government interventions in the wage-setting process through legislation on wage increases, as has occurred in recent years in Belgium.¹² Such attempts seem bound ultimately to fail, either because they cannot be enforced or because they impose inefficient relative-wage rigidities, but they could still lead to serious political and social conflicts before they are abandoned.

means that a return to somewhat lower unemployment – but still higher than in the 1960s and 1970s – may not be enough for exerting a strong effect in the opposite direction.

¹² In 1996-98, legislation set a maximum for wage increases at the company and sector levels. Subsequent wage bargaining has also occurred within strict legal limits allowing sanctions against companies and sectors that exceed the norms for wage increases (Pochet, 1999b).

6.3. *The economic consequences of a move towards decentralization*

What will be the macroeconomic consequences if there is a long-run shift towards decentralized bargaining at the level of the firm? One probable effect, which follows from the analysis in Section 3, is that nominal wage flexibility will be reduced. This will have adverse effects on the possibility to cope with asymmetric shocks in the EMU.

Another issue is the effect on equilibrium real wage and employment levels. A number of empirical studies on panel data for the OECD countries have examined the relationship between the degree of bargaining co-ordination and unemployment (controlling for other factors). These studies are summarised in Table 3.¹³ Broadly speaking, half of the studies have found the relationship to be hump-shaped in line with the Calmfors-Driffil (1988) hypothesis, and half of the studies have found it to be monotonic (with more co-ordination always leading to lower unemployment). So, there is disagreement on the effect of moving from intermediate to low co-ordination. But the two sets of studies do agree that highly co-ordinated bargaining seems to lead to *much lower* unemployment than highly decentralized bargaining. *Ceteris paribus*, unemployment is on average 4.9 percentage points lower under high co-ordination than under decentralization in the studies with a hump-shaped relationship and 7.1 percentage points lower in the studies finding a monotonic relationship.

If one takes the studies at face value, they suggest that a move over the long run from highly co-ordinated bargaining (of the type that has occurred in many small European countries) to highly decentralized bargaining would mean substantially higher unemployment, everything else constant. However, everything else will not remain constant, as the reduction of bargaining co-ordination, according to my argument, is associated with factors such as increased international competition, increased capital mobility and deunionisation, which are likely themselves to have direct wage-reducing effects in addition to the effects working via changes in the extent of bargaining co-ordination. In addition, these factors may facilitate employment-promoting labour-market reforms of unemployment insurance, employment protection legislation, tax systems etc. So, the general-equilibrium

¹³ In the table, I have excluded the studies focusing on the interaction between monetary policy and bargaining co-ordination because the results are not very robust. According to theory, the interaction effects should not affect the comparison between very co-ordinated and very decentralized systems (see Section 4.2).

effects of lower bargaining co-ordination on employment remain unclear, even if the partial-equilibrium effects are likely to be adverse.¹⁴

7. Transnational bargaining co-ordination at the European level

Finally, I shall discuss the possibility of transnational co-ordination of wage-bargaining at the EU level. There exist incentives for a development in this direction, too.

First, it could be argued that the europeanisation of monetary policy makes it natural to co-ordinate collective bargaining across borders. If the deterrent argument in Section 4 holds true, there should be an incentive for unions to try to re-establish the earlier game between the Bundesbank and the German trade unions at the European level. If wage settlements are co-ordinated throughout the euro zone, wage setters would once again internalise the anticipated monetary policy reactions (now of the ECB) to their actions. According to my earlier reasoning, this would promote wage restraint and would be welfare improving.

The Macroeconomic Dialogue within the framework of the Employment Pact, which was established by the EU in 1999, could provide a framework for such a development. The dialogue provides an arena where European-level union and employer representatives regularly meet with the ECB (as well as with the Commission and EU ministers of Finance) to discuss macroeconomic issues. Transnational co-ordination of wage bargaining would make unions a more “equal” partner” to the ECB in this context.

Second, increased competition among firms in different European countries could also be expected to strengthen the incentives for transnational co-ordination of wage bargaining. Such co-ordination at the sectoral level would increase union bargaining power, as similar wage increases in a sector across countries imply smaller job losses than wage increases in a sector within one country only. The driving force for transnational co-ordination of this type is similar to the one that has led to bargaining at the sectoral level within nations. Such considerations seem to play a role especially among German trade unions, where there appears to be a worry that

¹⁴ Moreover, changes in the degree of bargaining co-ordination may, of course, affect variables like production efficiency, growth and the ability to cope with local or sectoral shocks. To analyse these issues is outside the scope of this paper.

national attempts to achieve wage competitiveness will lead to a reduction of labour's share of national income (Bispinck and Schulten, 1998).

Third, a similar argument holds to the extent that large multinational firms have production units in different countries. Cross-border bargaining co-ordination would be a natural response of unions to the increase in firms' bargaining power that follows from the possibility to credibly threaten to reallocate production between these units.¹⁵

There have been some – small – steps in the direction of transnational bargaining co-ordination at the EU level. EU-wide agreements between the peak level European union and employer confederations on some issues (such as minimum provisions on parental leave and minimum rights of employees working part time or on fixed-term employment contracts; see Calmfors et al., 2001, Ch. 6) have been concluded. Within the EMF (the European Metal Workers' Federation), common norms for wage policy have been agreed. In Germany and the Benelux countries, union officials from the other countries have taken part in the negotiation processes at the regional level.

However, although there are thus incentives for transnational co-ordination of wage bargaining, the obstacles still appear huge. The main reason is that co-ordination costs are probably very high because of the fundamental differences among European countries with respect to a number of factors. These include the pay concepts negotiated over, union-employer relations, bargaining arrangements, the norms that guide wage demands and settlements, the structure of unions and employer organisations, traditions of government involvement, traditions and norms with respect to labour-market conflicts, the size of strike funds, procedures for dispute settlement, etc.

Compared to other segments of society, unions have been lagging far behind in the internationalisation process. The fact that the restructuring of unions through mergers – as a response to cost pressures and declining membership – that is occurring in many countries has not yet involved any cross-border amalgamations is

¹⁵ A possible objection to the argument is that multinational firms are often integrated vertically, with production units in one country producing inputs for units in other countries. In that case, unions would actually be better off by bargaining separately at each production site, as this would allow them to "divide the pie" several times with the firm (Horn and Wolinsky, 1988). Then the employer has an interest in bargaining jointly with the unions at all production sites. This may hold in a short-term perspective. However, in a long-term perspective the mere existence of production units in different countries gives the employer a credible option to choose where to locate new production.

evidence of this (Calmfors et al., 2001, Ch. 2). A plausible explanation is that knowledge of labour-market relations is very country-specific. Another obstacle to transnational bargaining co-ordination is probably insufficient knowledge of foreign languages among (especially blue-collar) union representatives.

There is also strong opposition to transnational bargaining co-ordination from employers. For example, in the metal industry – which acts as pattern setter in wage bargaining in many European countries – there does not even exist a European peak-level employer organisation. To the extent that there is a general long-run trend, driven by employers, in the direction of decentralization, as we argued in Section 5.2, this will also tend to counteract tendencies to higher-level transnational bargaining co-ordination.

Finally, the gains to unions from transnational bargaining co-ordination within the EU are reduced to the extent that competition comes from outside the EU.

Against this background, a development towards centralized wage bargaining at the European level, and also sectoral wage agreements at the European level, seems unlikely. Transnational co-ordination through *pattern bargaining* is somewhat more probable. But the obstacles are great here, too. The main difficulty is the need to agree on a wage leader. German unions – viz. the IG Metall – is the natural candidate, and also appears to strive for such a role (Hege, 1999). Such German wage leadership might be natural to accept for unions in Austria, Belgium and the Netherlands, where comparisons with German wage developments have traditionally played an important role. But unions in France, Spain and Italy – not to mention the UK – may oppose being dominated by German unions (Burda, 1999). And German unions themselves may have great difficulty convincing their rank-and-file membership that they should take into account European rather than national conditions when they formulate their wage demands. Perhaps most importantly, the declining importance of the manufacturing sector makes it less natural for the IG Metall to act as wage leader.¹⁶

To the extent that there is a development in the direction of transnational co-ordination of wage bargaining, it is most likely to occur *within multinational firms*. This prediction rests on costs of co-ordination being smaller within multinationals than among national sectoral unions or national union confederations in different countries. There are several reasons for this. Similarities in production are likely to

¹⁶ An illustration of this is the fact that a new service-sector union that will be larger than the IG Metall has now been formed in Germany.

mean that production units in different countries are exposed to similar supply-side as well as demand-side shocks. Similarities in production also promote similar systems of pay and other benefits. This is all the more likely to the extent that multinationals apply similar management principles in all their units. Union co-ordination within multinationals is also facilitated by the fact that employees in different countries interact regularly in their normal work.

Moreover, union co-ordination may get a boost by the European Works Councils. These are the result of a Commission directive in 1994. It required multinational firms in the EU above a certain minimum size (1000 employees in total and a minimum of 150 employees in at least two countries) to establish such works councils. They represent institutionalised networks of employees across borders, where local union representatives will meet regularly, and could provide a basis for co-ordination of bargaining (Marginson and Sisson, 1998). Although formal transnational co-ordination of wage bargaining within multinational firms may be far off for reasons similar to the ones discussed above, one could conceive of a development where common norms on pay setting develop within these firms, or where some production units come to act as pattern setters for the rest. Such a development would be consistent with the general development in the direction of decentralized bargaining at the level of the firm, which was discussed in Section 5.2.

Summing up, my main conclusion is that higher-level co-ordination of wage bargaining at the EU level is unlikely ever to fly because of the co-ordination costs involved. It is true that there are factors tending to reduce these costs. One such factor is that the common currency facilitates wage comparisons among countries. Another factor is that EU decision-making in general provides an incentive for both unions and employers in different member states to co-ordinate their views on various policy issues to be able to exercise maximum influence in Brussels.¹⁷ If procedures are developed for forming common views at the European level in other fields, this might help to reduce the costs of co-ordinating wage bargaining as well. My hypothesis is, however, that these factors will be of much less importance than the general long-run factors working in the direction of decentralized wage bargaining.

¹⁷ The most obvious illustration is the fact that agreements between the peak-level European labour-market organisations can be made legally binding in all the EU states through a directive by the European Commission.

8. Conclusions

I have surveyed the arguments on how the EMU may affect wage bargaining. The incentives for nominal wage flexibility will probably be stronger when asymmetric macroeconomic shocks can no longer be countered by national monetary policy, although one should not expect a large effect. To the extent that there is such an effect, it is likely to come about through stronger incentives for national co-ordination of wage bargaining than would otherwise be the case.

The EMU may affect equilibrium real wages and employment (the average real wage and employment levels over the cycle) through at least two mechanisms. To the extent that the common currency promotes competition, it will tend to raise employment. But it is difficult to judge whether or not this effect will be quantitatively important. I put more emphasis on the change in the interaction between monetary policy and wage setting that is implied by the EMU. This effect is likely to increase wage pressure and thus to reduce equilibrium employment. But as a consequence, there may be stronger incentives for national bargaining co-ordination, as this may work as a substitute for the “deterrent effect” of anti-inflationary policy outside the EMU.

My overall conclusion is thus that monetary unification will probably promote national co-ordination of wage bargaining. As in recent years, co-ordination is likely to take the form of the establishment of consensual norms and moral suasion within various forms of social pacts. These may continue to play an important role in many countries in the medium term (the next 10-15 years). But in a long-term perspective, other forces working in the direction of decentralized bargaining and deunionisation can be expected to dominate and lead to the breakdown of national bargaining co-ordination. This could occur rather smoothly, but it could also involve serious political and social conflicts if severe macroeconomic crises prompt governments to intervene more directly in wage setting.

As to the likely macroeconomic consequences of such a long-run development towards decentralized wage bargaining at the level of the firm, there is a presumption that nominal wages will become more rigid. It is less clear how equilibrium real wages and employment will be affected. Available empirical studies disagree on the effects of a move from intermediate bargaining co-ordination to decentralized bargaining. But the studies do agree that decentralized bargaining will probably be

associated with substantially higher unemployment than highly co-ordinated wage bargaining. This is, however, a partial-equilibrium result as it does not take into account that the factors driving the decentralization process (globalisation, deunionisation etc.) are likely to have direct employment-raising effect beside their indirect effects through the degree of bargaining co-ordination.

Although factors such as the europeanisation of monetary policy and product market integration provide incentives for transnational co-ordination of wage bargaining at the EU level, such a development is not probable. It would be in direct contradiction to the long-run development towards more decentralized bargaining that I have outlined. Costs for higher-level transnational co-ordination of wage bargaining are likely to remain prohibitively high. To the extent that there is such transnational co-ordination, it is most likely to occur within multinational firms. In addition, some higher-level transnational bargaining co-ordination on specific issues relating to non-wage issues can be expected, but this will amount to much less than co-ordination of actual wage bargaining.

References

- Agell, J & Lundborg, P, (1995), "Theories of Pay and Unemployment: Survey Evidence from Swedish Manufacturing Firms", *Scandinavian Journal of Economics*, 97.
- Agell, J & Lundborg, P, (1999), Survey Evidence on Wage Rigidity and Unemployment: Sweden in the 1990s, IFAU, Working Paper 1999:2.
- Akerlof, G A & Yellen, J, (1990), "Fairness and Unemployment", *Quarterly Journal of Economics*, 105.
- Alogoskoufis, G C, and Manning, A, (1988), "On the Persistence of Unemployment", *Economic Policy*, 7.
- Ball, L, (1987), "Externalities from Contract Length", *American Economic Review*, 77.
- Ball, L, Mankiw, N G & Romer, D, (1988), "The New Keynesian Economics and the Output-Inflation Trade-off", *Brookings Papers on Economic Activity*, 1.
- Ball, L & Romer, D, (1991), "Sticky Prices As Coordination Failure", *American Economic Review*, 81.
- Barro, R & Gordon, D B, (1983), "A Positive Theory of Monetary Policy in a Natural Rate Model", *Journal of Political Economy*, 91.
- Bewley, T F, (1998), "Why Not Cut Pay?", *European Economic Review*, 42.
- Bispinck, R & Schulten, T, (1998), "Globalisierung und das deutsche Kollektivvertragssystem", *WSI-Mitteilungen*, 4.
- Boldt, P J, (1998), Finnish Social Partner Agreement on Counter-Cyclical EMU Buffers, Finnish Confederation of Labour.
- Burda, M, (1999), European Labour Markets and the Euro: How Much Flexibility Do We Really Need?, CEPR Discussion Paper No. 2217, London.
- Calmfors, L, (1993a), Centralisation of Wage Bargaining and Macroeconomic Performance - A Survey, *OECD Economic Studies*, No. 21, 1993.
- Calmfors, L, (1993b), "Lessons from the Swedish Macroeconomic Experience", *European Journal of Political Economy*, 9.
- Calmfors, L, (1998a), "Macroeconomic Policy, Wage Setting, and Employment – What Difference Does the EMU Make? ", *Oxford Review of Economic Policy*, 14.
- Calmfors, L, (1998b), Monetary Union and Precautionary Labour-Market Reform, Institute for International Economic Studies, Stockholm University, Seminar Paper No 659.

- Calmfors, L, (2000), "EMU och arbetslösheten", *Ekonomisk Debatt*, 2.
- Calmfors, L, (2001), "Unemployment, Labour-Market Reform and Monetary Union", *Journal of Labor Economics*, 19.
- Calmfors, L & Driffill, J, (1988), "Bargaining Structure, Corporatism and Macroeconomic Performance", *Economic Policy*, 6.
- Calmfors, L, Flam, H, Gottfries, N, Jerneck, M, Lindahl, R, Haaland Matlary, J, Nordh Berntsson, C, Rabinowicz, E & Vredin, A, (1997), *EMU - A Swedish Perspective*, Dordrecht: Kluwer Academic Publishers.
- Calmfors, L, Booth, A, Burda, M, Checchi, D, Naylor, R & Visser, J, (2001), "The Future of Collective Bargaining in Europe", in: T. Boeri, A. Brugiavini and L. Calmfors (eds), *The Role of Unions in the Twenty-First Century*, Oxford: Oxford University Press, forthcoming.
- Corricelli, F, Cukierman, A & Dalmazzo, A, (2000), Monetary Institutions, Monopolistic Competition, Unionized Labor Markets and Economic Performance, University of Sienna.
- Crouch, C, (2000a), The Snakes and Ladders of Twenty-First-Century Trade Unionism, *Oxford Review of Economic Policy*, 16.
- Crouch, C, (2000b), "National Wage Determination and European Monetary Union", in: Crouch, C (ed.) *After the Euro, Shaping Institutions for Governance in the Wake of European Monetary Union*, Oxford: Oxford University Press.
- Cukierman, A & Lippi, F, (1999), "Central Bank Independence, Centralisation of Wage Bargaining, Inflation and Unemployment: Theory and Some Evidence", *European Economic Review*, 43.
- Danthine, J P & Hunt, J, (1994), "Wage Bargaining Structure, Employment and Economic Integration", *Economic Journal*, 104.
- De Grauwe, P, (1988), Exchange Rate Volatility and the Slowdown in Growth in International Trade, *IMF Staff Papers* 35.
- Dornbusch, R, Favero, C & Giavazzi, F, (1998), "Immediate Challenges for the European Central Bank", *Economic Policy*, 26.
- Ebbinghaus, B & Visser, J, (2000), *Trade Unions in Western Europe since 1945*, London: Macmillan.
- Eichengreen, B, (1998), "European Monetary Unification: A *Tour d'Horizon*", *Oxford Review of Economic Policy*, 14.

- EIROOnline, (2000), "Wage Policy and EMU", European Industrial Relations Observatory, Comparative Studies, /http://www.eiro.eurofound.ie/, European Foundation for the Improvement of Living and Working Conditions, Dublin.
- Elvander, N, (1999), *The Industrial Agreement: An Analysis of Its Ideas and Performance*, Sandviken: ALMEGAs förlag.
- Flam, H & Jansson, P, (2000), EMU Effects on International Trade and Investment, Seminar Paper No 683, Institute for International Economic Studies, Stockholm University.
- Gottfries, N, (1992), "Insiders, Outsiders, and Nominal Wage Contracts", *Journal of Political Economy*, 100.
- Groth, C & Johansson, Å, (2001), *Centralization of Wage Bargaining, Central Bank Independence and the Phillips Curve*, mimeo, Institute for International Economic Studies, Stockholm University.
- Grüner, H P & Hefeker, C, (1998), "How Will EMU Affect Inflation and Unemployment in Europe?", mimeo, University of Bonn and University of Basel.
- Hall, P A & Franzese, R J, (1998), "Mixed Signals: Central Bank Independence, Coordinated Wage-Bargaining, and European Monetary Union", *International Organization*, 52.
- Hege, A, (1999), "Collective Bargaining in Germany in the Age of Monetary Union", in: Pochet, P (ed), *Monetary Union and Collective Bargaining in Europe*, Series Work & Society, 22, Brussels: P.I.E.-Peter Lang.
- Hochreiter, E & Winckler, G, (1995), "The Advantages of Tying Austria's Hands: The Success of the Hard Currency Strategy", *European Journal of Political Economy*, 11.
- Holden, S, (1994), "Wage Bargaining and Nominal Rigidities", *European Economic Review*, 38.
- Holden, S, (2001), *Monetary Regimes and the Co-ordination of Wage Setting*, Munich: CESifo Working Paper No. 429.
- Holden, S & Raaum, O, (1991), "Wage Moderation and Union Structure", *Oxford Economic Papers*, 43.
- Holm, P, Kiander, J & Tossavainen, P, (1999), *Social Security Funds, Payroll Tax Adjustment and Real Exchange Rate: the Finnish Model*, VATT, Government Institute for Economic Research, Discussion Paper, No 198, Helsinki.
- Horn, H & Wolinsky, A, (1988), "Bilateral Monopolies and Incentives for Merger",

- Rand Journal of Economics*, 19.
- Iversen, T, (1998a), "Wage Bargaining, Central Bank Independence, and the Real Effects of Money ", *International Organization*, 52.
- Iversen, T, (1998b), "Wage Bargaining, Hard Money and Economic Performance: Theory and Evidence for Organized Market Economies", *British Journal of Political Science*, 28.
- Keynes, J M, (1936), *The General Theory of Employment, Interest, and Money*, London: Macmillan.
- Layard, R, Nickell, S & Jackman, R, (1991), *Unemployment: Macroeconomic Performance and the Labour Market*, Oxford University Press.
- Lindbeck, A & Snower, D J, (2000), "Centralized Bargaining and Reorganized Work: Are They Compatible?", forthcoming in *European Economic Review*.
- Marginson, P & Sisson, K, (1998), "European Collective Bargaining: A Virtual Prospect?", *Journal of Common Market Studies*, 36.
- Nickell, S, Vainiomaki, J & Wadhvani, S, (1994), Wages and Product Market Power, *Economica*, 61.
- Nicoletti, G, Haffner, R, Nickell, S, Scarpetta, S & Zoega, G, (2001), "European Integration, Liberalization and Labour Market Performance", in: G. Bertola, T. Boeri & G. Nicoletti, *Welfare and Employment in a United Europe*, Cambridge, Mass.: MIT Press.
- Obstfeld, M, (1998), *EMU: Ready or Not?*, Essays in International Finance No 209, Department of Economics, Princeton University.
- Pochet, P, (1999a), "Monetary Union and Collective Bargaining in Finland", in: Pochet, P (ed), *Monetary Union and Collective Bargaining in Europe*, Series Work & Society, 22, Brussels: P.I.E.-Peter Lang.
- Pochet, P, (1999b), "Monetary Union and Collective Bargaining in Belgium", in: Pochet, P (ed), *Monetary Union and Collective Bargaining in Europe*, Series Work & Society, 22, Brussels: P.I.E.-Peter Lang.
- Pochet, P, (1999c), "Monetary Union and Collective Bargaining in Europe: An Overview", in: Pochet, P, (ed), *Monetary Union and Collective Bargaining in Europe*, Series Work and Society, 22, Brussels: P.I.E.-Peter Lang.
- Rose, A, (2000), One Money, One Market: The Effect of Common Currencies on Trade, *Economic Policy*, 15.

- Saint-Paul, G & Bentolila, S, (2000), Will EMU Increase Eurosclerosis? Discussion Paper 2423, Centre for Economic Policy Research, London.
- Sibert, A C & Sutherland, A, (2000), "Monetary Union and Labour Market Reform", *Journal of International Economics*, 51.
- Skott, P, (1997), "Stagflationary Consequences of Prudent Monetary Policy in a Unionized Economy", *Oxford Economic Papers*, 49.
- Solow, R M, (1979), "Another Possible Source of Wage Stickiness", *Journal of Macroeconomics*, 1.
- Soskice, D & Iversen, T, (1998), "Multiple Wage-Bargaining Systems in the Single European Currency Area", *Oxford Review of Economic Policy*, 14.
- Soskice, D & Iversen, T, (2000), "The Nonneutrality of Monetary Policy with Large Price or Wage Setters", *Quarterly Journal of Economics*, February.
- Streeck, W, (1998), The Internationalization of Industrial Relations in Europe, Cologne: Max Planck Institute for the Study of Societies, MPIfG discussion paper 98/2.
- Thomas, A, (2001), The Costs and Benefits of Various Wage Bargaining Structures: An Empirical Exploration, mimeo, Washington: International Monetary Fund.
- Velasco, A & Guzzo, V, (1999), "The Case for a Populist Central Banker", *European Economic Review*, 43.
- Visser, J (1998a), "Two Cheers for Corporatism. One for the Market", *British Journal of Industrial Relations*, 36.
- Visser, J (1998b), "Concertation – the Art of Making Social Pacts", in: *National Social Pacts, Assessment and Future Prospects*, Notre Europe, Paris.
- Visser, J (2000), "A Combined Indicator of Union Centralisation and Coordination", Amsterdam: Amsterdam Institute for Advanced Labour Studies, Working Paper 00/3.

Table 1: Nominal wage growth in the hard core of the EMU

	1981-90	1991-2000
Austria	5.2	3.4
Belgium	5.0	3.7
France	7.3	2.8
Netherlands	2.2	3.1
Luxembourg	6.0	3.5
Germany	3.6	4.1

Source: EIRO (2000)

Table 2: Bargaining authority and co-ordination

		Distribution of bargaining authority			C-index
		w_1	w_2	w_3	
Austria	1973-77	0.8	0.2	0	0.82
	1983-87	0.6	0.2	0	0.62
	1993-97	0.6	0.4	0	0.65
Belgium	1973-77	0.52	0.48	0	0.52
	1983-87	0.36	0.04	0	0.31
	1993-97	0.4	0.56	0.04	0.42
Denmark	1973-77	0.8	0.2	0	0.64
	1983-87	0.56	0.44	0	0.47
	1993-97	0.4	0.4	0.2	0.34
Finland	1973-77	0.72	0.28	0	0.64
	1983-87	0.72	0.28	0	0.58
	1993-97	0.64	0.28	0.08	0.47
France	1973-77	0.4	0.2	0.4	0.10
	1983-87	0.4	0.04	0.56	0.07
	1993-97	0.4	0.2	0.4	0.08
Germany	1973-77	0.36	0.64	0	0.35
	1983-87	0.2	0.8	0	0.26
	1993-97	0.2	0.72	0.08	0.24
Ireland	1973-77	0.44	0	0.56	0.37
	1983-87	0.32	0	0.68	0.27
	1993-97	0.8	0	0.2	0.76
Italy	1973-77	0.4	0.28	0.32	0.38
	1983-87	0.28	0.32	0.4	0.11
	1993-97	0.4	0.4	0.2	0.32
Netherlands	1973-77	0.48	0.52	0	0.34
	1983-87	0.6	0.4	0	0.45
	1993-97	0.48	0.4	0.12	0.39
Norway	1973-77	0.76	0.24	0	0.42
	1983-87	0.72	0.28	0	0.43
	1993-97	0.72	0.28	0	0.42
Portugal	1973-77	0.4	0.2	0.4	0.22
	1983-87	0.48	0.2	0.32	0.23
	1993-97	0.6	0.2	0.1	0.28
Spain	1975-77	0.6	0.2	0.2	0.40
	1983-87	0.44	0.28	0.28	0.22
	1993-97	0.36	0.24	0.4	0.34
Sweden	1973-77	0.8	0.2	0	0.75
	1983-87	0.48	0.52	0	0.49
	1993-97	0.4	0.4	0.2	0.39
Switzerland	1973-77	0.2	0.8	0	0.21
	1983-87	0.2	0.8	0	0.20
	1993-97	0.2	0.72	0.08	0.19
UK	1973-77	0.44	0.28	0.28	0.37
	1983-87	0.2	0.4	0.4	0.18
	1993-97	0.2	0	0.8	0.14

Notes: The co-ordination index C is defined as $C = \sum (w_j \cdot p_{ij}^2)$, where w_j is the relative bargaining authority accorded to each bargaining level (the sum of all $w_j = 1$), and p_{ij} is the share of union members organised by the union (or confederation) i at level j . The w_j 's measure the vertical dimension of co-ordination and the p_{ij} 's the horizontal dimension. The overall index C captures both the horizontal and vertical dimensions of bargaining co-ordination and varies between 0 and 1. Let $j = 1$ denote the national (confederation) level, $j = 2$ the industry level, and $j = 3$ the local (firm) level. If all bargaining power is concentrated at the national level and there is only one central union confederation, then both $w_1 = 1$ and $p_{11} = 1$, and thus $C = 1$. If all bargaining is at the industry level, then $w_2 = 1$, whereas all p_{i2} are numbers between 0 and 1. It follows that C will then also be a number between 0 and 1. When bargaining is occurring only at the local level, $w_3 = 1$ but all p_{i3} will approximate 0, and C thus approaches 0.

Sources: Visser (2000) and Calmfors et al. (2001), Ch. 4.

Table 3: Unemployment under various bargaining regimes (ceteris-paribus differences to uncoordinated/decentralized systems) in various studies^{a)}

A: Studies finding a hump-shaped relationship between bargaining co-ordination and unemployment

	Study	Intermediate bargaining	Co-ordinated bargaining	Dependent variable	Measure of bargaining structure ^{b)}
1	Zetterberg (1993) ^{c)}	2.6	- 1.5	Unemployment	Centralization
2	Bleaney (1996) ^{d)}	3.5	- 2.1	Unemployment	Centralization/ co-ordination
3	Scarpetta (1996) ^{e)}	0.9	- 12.0	Unemployment	Centralization
4	Elmeskov et al. (1998) ^{f)}	1.3	- 2.4	Unemployment	Centralization
5	Elmeskov et al. (1998) ^{g)}	1.2	- 4.4	Unemployment	Centralization/ co-ordination
6	Elmeskov et al. (1998) ^{h)}	6.9	-4.6	Unemployment	Co-ordination
7	Daveri & Tabellini (2000) ⁱ⁾	5.8	-7.2	Unemployment	Geographical ^{j)}
	Average	3.2	-4.9	Unemployment	

B: Studies finding a monotonic relationship between bargaining co-ordination and unemployment

	Study	Intermediate bargaining	Co-ordinated bargaining	Dependent variable	Measure of bargaining structure ^{b)}
1	Layard et al. (1991)	- 4.7	- 10.4	Unemployment	Co-ordination
2	Zetterberg (1993) ^{k)}	- 0.4	- 2.4	Unemployment	Centralisation
3	Scarpetta (1996) ^{l)}	- 6.2	- 12.3	Unemployment	Co-ordination
4	Bleaney (1996) ^{m)}	- 2.0	- 3.9	Unemployment	Co-ordination
5	Elmeskov et al. (1998) ⁿ⁾	- 0.8	- 5.7	Unemployment	Co-ordination
6	Nickell & Layard (1999)	- 4.6	- 6.0	Unemployment ^{o)}	Co-ordination
7	Blanchard & Wolfers (2000) ^{p)}	-4.4	-8.9	Unemployment	Centralization
	Average	-3.3	-7.1	Unemployment	

Notes:

^{a)} The table shows how the unemployment rate under intermediate and high co-ordination differs from that under low co-ordination when other factors are controlled for.

^{b)} Measures of centralization capture the level at which actual bargaining takes place. Measures of co-ordination try to capture informal co-ordination as well.

^{c)} Equation (5) in Table 4.14. We have classified the countries ranked 1-3 and 7-9 as centralized, the countries ranked 13-17 as intermediately centralized and the countries ranked 4-6 and 10-12 as decentralized.

^{d)} Equation (4) in Table 5. Bleaney distinguishes between highly centralized systems, highly decentralized systems, moderately centralized systems with a high degree of corporatism and moderately centralized systems with a low degree of corporatism. In my table, the last two categories have been amalgamated to one.

^{e)} Equation (8) in Table 1. The entry for intermediate centralisation refers to the country ranked 14 and the entry for co-ordination to the country ranked 1. The comparison is with the country ranked 17.

^{f)} Equation (2) in Table 2.

^{g)} Equation (4) in Table 2.

^{h)} Equation (4) in Table 4. In the equation, taxes and bargaining co-ordination are interacted. The effects are evaluated at the average tax ratio for the sample period 1983-95.

ⁱ⁾ Equation (5) in Table 9. In the equation, taxes and bargaining co-ordination are interacted. The effects are evaluated at the average tax ratio for 1983-95.

^{j)} This study associates the Scandinavian countries with high co-ordination, the European continental countries with intermediate co-ordination, and the Anglo-Saxon countries with low co-ordination.

^{k)} Equation (3) in Table 4.14. I have classified the countries ranked 1-5 as highly co-ordinated, the countries ranked 6-10 as intermediately co-ordinated, and the countries ranked 11-17 as uncoordinated.

^{l)} Equation (2) in Table 1.

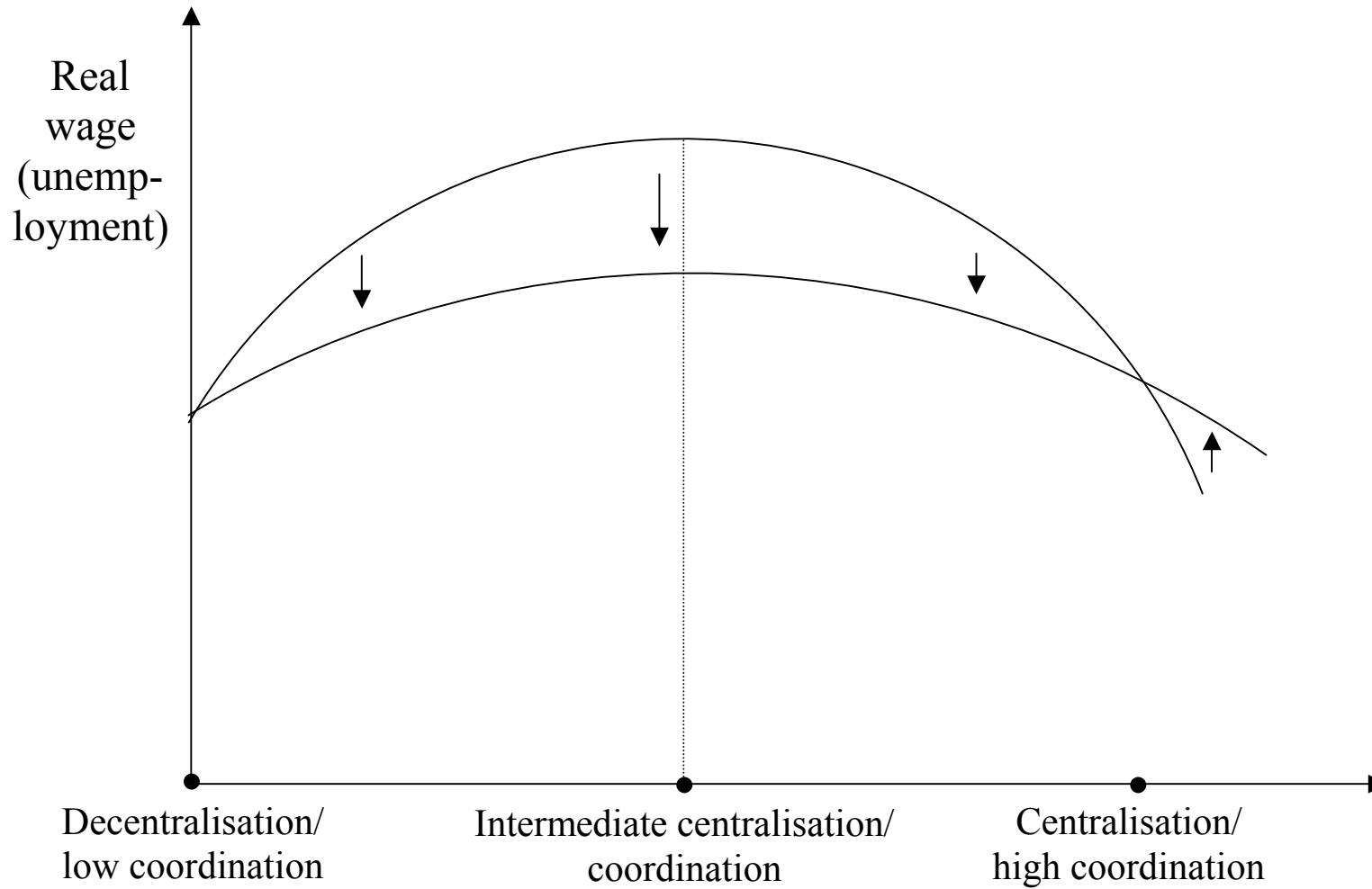
^{m)} Equation (1) in Table 5.

ⁿ⁾ Equation (1) in Table 2.

^{o)} The equation explains the log of the unemployment rate. In the calculation of the effect on the unemployment rate, I have assumed that unemployment under decentralization is equal to the average rate of unemployment among the countries studied during the estimation period.

^{p)} Equation (1) in Table 1. In the equation, macroeconomic shocks and the degree of bargaining co-ordination are interacted. The entries show the differences in the increase of unemployment between the post-1995 period and the 1960-65 period.

Figure 1: The impact of increased foreign competition



SEMINAR PAPER SERIES

The Series was initiated in 1971. For a complete list of Seminar Papers, please contact the Institute.

1996

616. *Assar Lindbeck:* The West European Employment Problem. 31 pp.
617. *Assar Lindbeck:* Full Employment and the Welfare State. 22 pp.
618. *Javier Ortega:* How (Good) Immigration Is: A Matching Analysis. 30 pp.
619. *Joakim Persson and Bo Malmberg:* Human Capital, Demographics and Growth Across the US States 1920-1990. 21 pp.
620. *Assar Lindbeck and Dennis J. Snower:* Centralized Bargaining, Multi-Tasking, and Work Incentives. 43 pp.
621. *Paul Söderlind and Lars E.O. Svensson:* New Techniques to Extract Market Expectations from Financial Instruments. 47 pp.

1997

622. *Assar Lindbeck:* Incentives and Social Norms in Household Behavior. 12 pp.
623. *John Hassler and José Vicente Rodríguez Mora:* Employment Turnover and Unemployment Insurance. 36 pp.
624. *Nils-Petter Lagerlöf:* Strategic Saving and Non-Negative Gifts. 20 pp.
625. *Lars E.O. Svensson:* Inflation Targeting: Some Extensions. 43 pp.
626. *James E. Anderson:* Revenue Neutral Trade Reform with Many Households, Quotas and Tariffs. 36 pp.
627. *Mårten Blix:* Rational Expectations in a VAR with Markov Switching. 37 pp.
628. *Assar Lindbeck and Dennis J. Snower:* The Division of Labor Within Firms. 12 pp.
629. *Etienne Wasmer:* Can Labour Supply Explain the Rise in Unemployment and Inter-Group Wage Inequality in the OECD? 64 pp.

630. *Torsten Persson and Guido Tabellini:* Political Economics and Macroeconomic Policy. 100 pp.
631. *John Hassler and Assar Lindbeck:* Intergenerational Risk Sharing, Stability and Optimality of Alternative Pension Systems. 38 pp.
632. *Michael Woodford:* Doing Without Money: Controlling Inflation in a Post-Monetary World. 62 pp.
633. *Torsten Persson, Gérard Roland and Guido Tabellini:* Comparative Politics and Public Finance. 55 pp.
634. *Johan Stennek:* Coordination in Oligopoly. 14 pp.
- 1998
635. *John Hassler and José V. Rodríguez Mora:* IQ, Social Mobility and Growth. 34 pp.
636. *Jon Faust and Lars E. O. Svensson:* Transparency and Credibility: Monetary Policy with Unobservable Goals. 40 pp.
637. *Glenn D. Rudebusch and Lars E. O. Svensson:* Policy Rules for Inflation Targeting. 51 pp.
638. *Lars E. O. Svensson:* Open-Economy Inflation Targeting. 51 pp.
639. *Lars Calmfors:* Unemployment, Labour-Market Reform and Monetary Union. 35 pp
640. *Assar Lindbeck:* Swedish Lessons for Post-Socialist Countries. 37 pp.
641. *Donald Brash:* Inflation Targeting in New Zealand: Experience and Practice. 11 pp.
642. *Claes Berg and Lars Jonung:* Pioneering Price Level Targeting: The Swedish Experience 1931-1937. 50 pp.
643. *Jürgen von Hagen:* Money Growth Targeting. 34 pp.
644. *Bennett T. McCallum and Edward Nelson:* Nominal Income Targeting in an Open-Economy Optimizing Model. 48 pp.
645. *Assar Lindbeck:* Swedish Lessons for Post-Socialist Countries. 42 pp.
646. *Lars E.O. Svensson:* Inflation Targeting as a Monetary Policy Rule. 51 pp.

647. *Jonas Agell and Mats Persson:* Tax Arbitrage and Labor Supply. 35 pp.
648. *Frederic S. Mishkin:* International Experiences With Different Monetary Policy Regimes. 47 pp.
649. *John B. Taylor:* The Robustness and Efficiency of Monetary Policy Rules as Guidelines for Interest Rate Setting by The European Central Bank. 39 pp.
650. *Christopher J. Erceg, Dale W. Henderson and Andrew T. Levin:* Tradeoffs Between Inflation and Output-Gap Variances in an Optimizing-Agent Model. 43 pp.
651. *Etienne Wasmer:* Labor Supply Dynamics, Unemployment and Human Capital Investments. 36 pp.
652. *Daron Acemoglu and Fabrizio Zilibotti:* Information Accumulation in Development. 43 pp.
653. *Argia Sbordonè:* Prices and Unit Labor Costs: A New Test of Price Stickiness. 33 pp.
654. *Martin Flodén and Jesper Lindé:* Idiosyncratic Risk in the U.S. and Sweden: Is there a Role for Government Insurance? 30 pp.
655. *Thomas P. Tangerås:* On the Role of Public Opinion Polls in Political Competition. 36 pp.
656. *Peter Svedberg:* 841 Million Undernourished? On the Tyranny of Deriving a Number. 39 pp.
657. *Lars Calmfors:* Macroeconomic Policy, Wage Setting and Employment – What Difference Does the EMU Make? 52 pp.
658. *Torsten Persson and Guido Tabellini:* The Size and Scope of Government: Comparative Politics with Rational Politicians. 47 pp.
659. *Lars Calmfors:* Monetary Union and Precautionary Labour-Market Reform. 10 pp.
660. *Daron Acemoglu and Fabrizio Zilibotti:* Productivity Differences. 48 pp.
661. *Ramon Marimon and Fabrizio Zilibotti:* Unemployment vs. Mismatch of Talents: Reconsidering Unemployment Benefits. 35 pp.
662. *Yves Zenou:* Urban Unemployment and City Formation. Theory and Policy Implications. 35 pp.

663. *Stefan Palmqvist:* Why Central Banks Announce Their Objectives: Monetary Policy with Discretionary Signalling. 22 pp.
664. *Kjetil Storesletten:* Sustaining Fiscal Policy Through Immigration. 41 pp.
- 665: *John Hassler,*
José V. Rodríguez Mora,
Kjetil Storesletten and
Fabrizio Zilibotti: Equilibrium Unemployment Insurance. 56 pp.

1999

666. *Michael Woodford:* Optimal Monetary Policy Inertia. 112 pp.
667. *Lars E.O. Svensson:* Monetary Policy Issues for the Eurosystem. 54 pp.
668. *Assar Lindbeck:* The Price in Economic Sciences In Memory of Alfred Nobel 1969-1998. 28 pp.
669. *Lars E.O. Svensson:* The Equilibrium Degree of Transparency and Control in Monetary Policy. 25 pp.
670. *Assar Lindbeck and*
Solveig Wikström: The ICT Revolution in Consumer Product Markets. 23 pp.
671. *Lars E.O. Svensson:* Does the P^* Model Provide Any Rationale for Monetary Targeting? 14 pp.
672. *Glenn Rudebusch and*
Lars E.O. Svensson: Eurosystem Monetary Targeting: Lessons from U.S. Data. 29 pp.
673. *Lars Svensson:* Price Stability as a Target for Monetary Policy Defining and Maintaining Price Stability. 50 pp.
674. *Thomas P. Tangerås:* Collusion-Proof Yardstick Competition. 33 pp.
675. *Bertil Ohlin:* The Theory of Interregional Exchange. 42 pp.
676. *Assar Lindbeck:* Unemployment – Structural. 16 pp.
677. *Assar Lindbeck and*
Solveig Wikström: ICT and Household-Firm Relations. 23 pp.
678. *Andrew K. Rose:* One Money, One Market: Estimating the Effect of Common Currencies on Trade. 40 pp.
679. *Jonas Agell, Mats Persson*
and Hans Sacklén: Labor Supply Prediction When Tax Avoidance Matters. 36 pp.

680. *Lars E.O. Svensson:* How Should Monetary Policy Be Conducted in an Era of Price Stability? 50 pp.

2000

681. *Lars E.O. Svensson:* The First Year of the Eurosystem: Inflation Targeting or Not? 11 pp.

682. *Jonas Agell and Mats Persson:* On the Analytics of the Dynamic Laffer Curve. 25pp.

683. *Harry Flam and Per Jansson:* EMU Effects on International Trade and Investment. 42 pp.

684. *Harry Flam and M. June Flanders:* The Young Ohlin on the Theory of "Interregional and International Trade". 18 pp.

685. *Assar Lindbeck:* Pensions and Contemporary Socioeconomic Change. 27 pp.

686. *Mats Persson:* Five Fallacies in the Social Security Debate. 16 pp.

687. *Lars E.O. Svensson:* The Zero Bound in an Open Economy: A Foolproof Way of Escaping from a Liquidity Trap. 44 pp.

688. *Lars E.O. Svensson and Michael Woodford:* Indicator Variables for Optimal Policy. 43 pp.

2001

689. *Lars E.O. Svensson and Michael Woodford:* Indicator Variables for Optimal Policy under Assymmetric Information. 28 pp.

690. *Lars Calmfors* Wages and Wage-Bargaining Institutions in the EMU - A Survey of the Issues. 36 pp.

691. *Assar Lindbeck and Sten Nyberg* Raising Children to Work Hard: Altruism, Work Norms and Social Insurance. 37 pp.

692. *Lars Calmfors and Åsa Johansson* Unemployment Benefits, Contract Length and Nominal Wage Flexibility. 36 pp.

693. *Peter Svedberg* Undernutrition Overestimated. 38 pp.

ISSN 0347-8769

Stockholm, 2001

Institute for International Economic Studies