

Directorate-General for Research

WORKING PAPER

**LABOUR COSTS AND WAGE POLICY
WITHIN EMU**

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Summary and Conclusions

Part A of this study is empirical. It provides an analysis of nominal and real wage convergence, and the changing relationship between them; the different measures of real wages; the share of wages in national income; wage costs; relative wages across sectors; and regional developments.

Part B is more theoretical. It provides a brief discussion of how EMU might affect the wage-setting regime, and whether higher wages could increase demand, and thus employment.

The main conclusions are as follows.

- There is considerable evidence that *substantial wage moderation* has occurred in the EU over the last decade. This can be seen from the evolution of real wages and, with particular force, from the evolution of the share of wages in overall income, which has fallen considerably in most member countries over the last years. There is considerable diversity among member states, regarding short-term developments, but very little diversity regarding longer-term trends. In particular the fall in the wage share is common to most member countries.
- But the picture changes if one takes into account labour taxes and thus looks at labour costs. In most member countries, *wages plus labour taxes have been roughly constant as a percent of GDP over the last decades*. A first explanation why the wage moderation one can observe does not seem to have led directly and visibly to more employment is thus that an increase in labour taxes has offset any beneficial effects wage moderation might have had. (We did not investigate the link between wages and unemployment any further since this was not in our terms of reference.)
- The idea that higher wages can lead to higher employment because higher wages would stimulate demand can work only under very restrictive conditions that are unlikely to be satisfied in practice. Simulations with macroeconomic models suggest that higher wages should actually lead to less employment because the supply effect (higher wage costs induce firms to use less labour) would be far more important than any demand effect (which is likely in any event to be rather small and might even turn negative).
- The impact of EMU on wage-setting behaviour is difficult to determine. Smaller countries that shadowed the DM in the past are not really affected. There is reason to believe that Germany might be the only case where EMU would lead to a deterioration of labour market performance because the incentives for German trade unions are now different.

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Part A. Empirical Analysis of Wages

This part looks at the following variables/issues:

1. nominal wage convergence
2. real wage convergence
3. changing relationship between nominal and real versus wages
4. different measures of real wages (cost versus consumption value)
5. share of wages in national income
6. wage costs (wages plus labour taxes)
7. relative wages across sectors
8. regional developments

We have in most cases adopted a longer-term perspective because in our view the period of low inflation and fixed exchange rates of the 1960s can provide valuable insights for the future under EMU. We have also in most cases included the UK in our empirical analysis. Our results suggest that the UK is not much different from the large euro-area countries in terms of wage-setting.

1. Nominal Wage Convergence

There has clearly been convergence in the evolution of nominal wages in Europe. Figure 1.1 shows five-year averages (to even out short-term fluctuations) in nominal wage growth for the four largest member states and the euro-11 average. It is apparent that the German values have always been the lowest throughout the entire period considered here: 1961-99. It is also apparent that the dispersion across countries was rather low during the 1960s (when exchange rates were fixed), but increased dramatically during the 1970s. The 1980s then saw a period of slow convergence, and the dispersion has actually returned during the last period (1995-99) to the low level of the 1960s. The divergence during the 1970s was due to the different policy choices that were taken at that time in reaction to the first oil crisis. Similarly the general acceptance of price stability as an over-riding goal for monetary policy has now led to convergence on low-wage inflation.

Not only is the dispersion across countries lower now, but also the average wage increases are lower than they were during the 1960s. From this simple perspective, wage developments are compatible with price stability. Nominal wage developments are, of course, not a sufficient indicator because they must be seen in conjunction with productivity. Hence we now turn to real wage developments.

2. Real Wage Convergence

The strong convergence in wage growth achieved during the 1990s is not just a result of the convergence in inflation; but there has been real convergence as well. Figure 2.1 presents real wages (nominal wages deflated by the CPI) over the same period and for the same countries as above. (Looking at wages deflated by the GDP deflator, Figure 2.2, which gives real wage costs, yields broadly similar results since, as shown below these two prices indices tend to move

together over longer time horizons.)

It is interesting to note that during the 1960s there was considerable divergence. The two outliers of the early 1960s have traded places: During the 1961-64 period, Italy had by far the highest real wage increases and the UK the lowest. The difference was over 5% (on average during a five-year period, which means a cumulative difference of over 25%). By contrast during the late 1990s, Italy had the lowest real wage increase (close to zero) whereas the UK showed the highest with about 2.5%. But not only did these two countries trade places, there is also a general convergence (even neglecting the UK) over time. Real wages now evolve much more in line than during previous periods. If one discounts the Italian value for the second half of the 1990s, it appears that real wages in the EU economies are now moving very closely together (less than 1% difference).

The lower average growth rate of real wages is, of course, just a reflection of the slowdown in productivity observed in most industrialised countries.

3. Changing Relationship between Nominal and Real versus Wages

In an environment of stable prices, nominal wage increases also translate into real wages increases. This is compatible with equilibrium in the labour market only if productivity grows correspondingly. It is well known that productivity growth has slowed considerably since the 1960s; one would thus expect that the relationship between nominal and real wages has changed over time. Figure 3.1 show that during the 1960s nominal wages translated almost one to one into real wages (the simple correlation coefficient is equal to 0.85) but this is no longer the case. During the seventies, there seems to be no relationship between real and nominal wages (the correlation coefficient for this decade drops to 0.16). The same can be said for the 1980s, except that nominal wage growth is on average much lower (the correlation coefficient is slightly higher than that of the 1980s, at 0.33). The last decade of this century seems to see a certain return to the patterns of the 1960s, as price stability and moderate growth allow nominal wage gains to be translated into real ones as well (the value of correlation coefficient for the 1990s is 0.59).

4. Real Wages (Cost versus Consumption Value)

If one looks at wages as costs, one should deflate them with output (value-added) prices. If one looks at the living standard wages permit, one has to deflate them with the CPI. These two points of view lead to different results only if there is a difference between the evolution of the GDP deflator and the CPI. A difference between these two indices could also become important because the ECB looks only at the CPI, whereas one would presume that labour demand is more affected by wages deflated by the GDP deflator.

Since consumption accounts for over 60% of GDP, on average for the euro-11, one would actually expect the GDP deflator and the CPI to move closely together unless the prices for investment goods have a consistently different evolution. The data show indeed that over the long run these two indices tend to move together. Figure 4.1 shows the ratio CPI/GDP deflator. This figure shows that since the mid-1980s there has been little net movement in this ratio, but that

over the last years up to the latest available data, 1997, the CPI has tended to increase somewhat more than the GDP deflator, by about 0.5% p.a. If this trend were to continue, this would imply that an inflation rate measured by the CPI of below 1% the GDP deflator would have to be flat or even declining. But during the high-growth years prior to 1991, the trend went in the opposite direction. It is thus not clear what one has to expect in the near future.

5. Wage Shares

The share of wages in GDP is another way to look at real wages. This indicator might also reflect the relative political strength of capital and labour.

Figure 5.1 shows the evolution of the wage share since 1960. It is apparent that there are large differences across member countries and that there has been little convergence. Some large changes are notable: Italy started with the highest value (67%) in 1960 and ended up with the lowest value (below 57%) in 1998. It is also remarkable that during the early 1990s the Italian and French values were for five years equal to each other, but have since diverged so much that the difference is now about 8% points. But even with all this variability over time and across countries, a clear time trend is apparent in that after the peak, reached usually during the oil crisis of 1974-75, wage shares are declining in most member countries.

There is also considerable diversity across member countries in the medium run (as reflected in the five-year averages) evolution of wage shares; see Figure 5.2. The dispersion in this respect seems to be larger now than during the 1960s, but this is largely due to the outlier represented by the Italian data. It thus appears that the policy of wage moderation in Italy seems to have been more successful (at least if one considers low wages a success) than in other countries.

6. Wage Costs (Wages plus Labour Taxes)

The data on labour shares used so far relate to the net wages workers receive. This is of course the decisive criterion for them. However, for employers what matters is the total cost of labour, i.e. wages plus labour taxes. If one looks at labour costs, one should thus add labour taxes to net wages. Eurostat has just published a new series on labour taxes that allows one to at least get a rough idea of the evolution of labour costs inclusive of taxes. To obtain labour costs we multiply the tax rates on labour income reported by Eurostat with wages (measured as a share of GDP). The graphs in Figures 6.1 and 6.2 show these data for the big three in the euro-zone (F, D and IT), and Figure 6.3 shows the data for the UK.

Figure 6.1 shows that taxes on labour income have clearly increased over the last decades. Between 1970 and 1996 (the latest year for which data are available), the tax rate on labour has increased from 28.3% to 45.2%. Consequently labour costs have declined much less as a share of GDP than one would expect from the data on wage shares reported above. During the 1990s wage costs have practically been stable as a proportion of GDP.

The UK is different from the big three of the euro-zone in that neither the wage share nor the tax rate shows a trend since the 1970s.

These data suggest strongly that wage costs (defined as wages plus taxes on labour income) have been a much more stable proportion of GDP than wages alone. This would tend to confirm the contention of Daveri and Tabellini (1997) that increases in the taxation of labour income have been one of the major causes of the European unemployment problem despite the decline in the measured wage share.

7. Sectoral Issues: Services versus Manufacturing

Unfortunately systematic data for wages by sectors are not available for the euro-11. However, for the four largest member states some data is available. Figure 7.1 shows the ratio of wages in services to wages in manufacturing in Germany (the data refer to West Germany), France, Italy and the UK. This picture shows that there are important differences across countries, but that there is also a common trend over time. Unfortunately we were not able to find data of this type. In most countries services wages are lower, on average, than manufacturing wages. But there are large cross-country differences: In Italy, the ratio services/manufacturing wages is now just below one whereas in the UK it has now fallen to about 0.7, which implies that wages in the services sector are only about 70% of manufacturing services. This is surprising given the large number of high-paying positions in the city. Before one jumps to the conclusion that this confirms the popular stories about “Mac-jobs”, however, one has to take into account the fact that productivity growth is traditionally slower in services. Germany and France appear to be in the middle between the extremes formed by Italy and the UK. In France and Germany, the relative price of services has also been somewhat more stable.

There is also a clear time trend common to most countries: Services wages decline over time relative to manufacturing. On average, the decline seems to amount to almost 1% each year. This would imply that over the last year of low productivity growth, real wages in the services sector must have been flat. It would be interesting to know whether there has been an increase in wage inequality within the services sector as one generally assumes that the relative wages of some branches (finance, software engineering, etc.) have actually increased over time.

8. Regional Developments

It is difficult to document regional developments on a systematic basis because the data became available only with a certain time lag and the coverage is variable. Table 8.1 presents the wage (compensation per employee) data for the three largest euro-area countries: France, Germany and Italy.

The data show that in industry the dispersion across regions is similar in all three countries (the standard deviation is very similar). It is striking to note, however, that in Germany the differences across regions are much larger for the overall economy than for industry. This seems to reflect the agreements negotiated by the large unions in industry which insisted on quick convergence in wages between East and West. By contrast, in Italy the dispersion is lower for the overall economy than for industry.

In all cases, however, the high unemployment regions tend to have lower wages. Wages thus seem to reflect at least partially regional labour market conditions. But it is difficult to say whether wages in the high unemployment regions adequately reflect regional productivity. It is tempting to measure directly regional wages relative to regional productivity. The presumption would be that local unemployment results only if wages are high relative to productivity. This cannot be the case in the long run, however. As firms will hire workers only up to the point at which their marginal productivity equals their wages, one should find that in the long run local wages mirror local productivity. However, if local wages are kept high for some time, one would expect that the adjustment is via the exit of firms in the tradables sector. This is apparently what has happened in Italy, where the high unemployment regions have almost no industry left. In Germany the new Länders in the East started off with an excessively high share of industry so that the picture is somewhat different. But it appears that most of the labour-shedding has come from this sector.

Part B. EMU and Wage-Setting Behaviour

In this part we discuss the impact of EMU on wage-setting behaviour to find out whether the introduction of the euro will change this behaviour, possibly leading to an end to wage moderation. Section 1 starts with the basic issue that the exchange rate is no longer available under EMU as an escape valve should wages no longer be compatible with price stability. Section 2 concentrates on the interaction between trade unions and the ECB. The third section applies these ideas to the case of Germany arguing that the theory implies that EMU should worsen labour market performance only in this country and that recent wage rounds in Germany are consistent with this idea. Section 4 turns to the idea that an increase in wages could increase employment because it would increase demand. Section 5 offers conclusions.

1. Wages and the Exchange Rate as a Security Valve

Monetary autonomy is only needed when countries experience asymmetric national shocks. A domestic wage explosion is an example of such a large nationally differentiated shock. The likelihood of such a development cannot be independent of the exchange rate regime. Participation in EMU would be a clear signal to all participants in the labour market that excessive wage increases would have serious consequences and hence should reduce the likelihood of wage explosions for purely domestic reasons. The advent of monetary union might then exert a disciplinary pressure on national labour unions as they realise that monetary autonomy is no longer given. Hence, real wages directly translate into unemployment rather than being lowered through increased inflation, as might be the case in a purely national framework (Horn and Persson, 1988).¹

In general terms, this argument implies that EMU should discipline wage-setting behaviour because workers realise that the "escape clause" exchange rate is irrecoverably lost. While the theory would point to beneficial effects of a fixed exchange rate (or EMU) for wage discipline, experiences in those countries that pegged to the DM do not suggest a clear-cut conclusion. It seems that there has been a big difference between the larger countries with initially substantial inflation differentials vis-à-vis Germany (France, Italy and Spain) on the one hand, and the two countries that used to shadow German monetary policy, namely Austria and the Netherlands.

Regarding the former, Viñals and Jimeno (1998) and Calmfors (1998a) argue that those economies did not show an increase in wage flexibility subsequent to joining the ERM. The reason is that it proved difficult to convince labour to agree to nominal wage moderation and real wage cuts are also not possible in an environment of very low inflation because nominal and real wages are essentially the same. The experience of the latter (AU and NL) was different in that they were able to coordinate wage-setting more quickly on the low-inflation norm given by Germany. This might have been due to their smaller size which allowed them to rely on a "corporatist" approach whereby trade unions play an important role in the overall economic policy framework. This suggests that smaller countries might be better placed to benefit from EMU.

¹ On empirical evidence concerning the relationship between exchange rate regime and wage setting, see Alogoskoufis and Smith (1991).

The Austrian and Dutch Experience

Austria and the Netherlands are often cited as examples of countries which managed to shape their economic policy in such a way so as to reap the benefits of price stability by shadowing the Bundesbank's monetary policy. Are there any similarities or differences in their policy choices? This is what we explore next.

Austria has been one of the very few countries to always favour a pegging strategy, ever since 1953. Austria effectively started its peg to the DM in 1981, after opting for a trade-weighted basket peg in 1971, following the collapse of the Bretton Woods system. The Netherlands adopted a very gradual approach to their pegging strategy with the DM, which can be sub-divided into 5 periods. In the Bretton Woods era, the peg was with the US dollar. In 1972, the Dutch authorities chose to peg their exchange rate to the Benelux. Between 1979 and 1983 the Guilder was balanced between the Belgian franc and the DM, sometimes following the former, and sometimes the latter. The period 1984-1992 was a period of increasing focus on the DM, also because of the fact that the 1983 realignment was considered as a mistake by the authorities, given its consequences on interest rates. The last period up to the present has been characterised by an effective fixed exchange rate regime with Germany. These trends are visible in figure B.1.

Austria's social partnership structure has always been highly centralised, and based both on consensus and solidarity between the different sectors of the economy. This has allowed Austrian policymakers to internalise the benefits of macroeconomic stabilisation policies, while neutralising the opposition to change from the losing sectors. It has also allowed Austrian real wages to remain highly flexible (the ratio of the elasticity of real wages to inflation to that of real wages to unemployment between 1967 and 1988 was 0.6 for Austria, compared to 1.75 for the Netherlands -- see Jones et al, 1998: 26). Real wages increases were also kept below productivity growth, so as to leave some breathing space for employment growth.

The key to Austria's credibility and economic success lies in its capacity to foster the partnership between government and social partners, through the implementation of basic economic principles, such as low inflation and budgetary and wage moderation. This has allowed Austria to put its economy on a sustainable growth path. Finally, it is worth noting that the system has always been backed by the working population, as proved by the decision in a referendum to keep compulsory membership, backed by impressive margins between 1995 and 1996.

The Dutch approach to the peg was more gradual, and was triggered, among other things, by the economic crises of the seventies. As opposed to Austria's centralised social partnership, trade unions in the Netherlands were more decentralised (Union membership in Austria was 66.2% and 56.2% in 1970 and 1980, compared to 38% and 35.2% for the Netherlands -- see OECD, 1994: 10) and the whole of the seventies was characterised by excessive wage growth and rigidity (the wage share increased from 68.9% in 1973 to 78.1% in 1984). This led to the explosion of unemployment and fiscal deficits.

The watershed in economic policy, which happened between 1982 and 1984, was triggered by two major events. To begin with, the wage agreement with the social partners in 1982 favoured wage restraint in return for more jobs. The second triggering event was the final acceptance of the Guilder-DM peg by politicians, which contributed to the reduction of unit labour costs for firms (see figure B.2). The new breathing space created by these two policy shifts was used by firms to clean up their balance sheets and invest in capital-intensive projects, which in turn proved a winning strategy in that the peg and this renewed industrial strength became mutually reinforcing. As a consequence, unemployment tumbled to 5.6%, from 11.9% in 1982, in a decade.

In conclusion, even if the experience of these two countries is quite different (Austria has constantly relied on its centralised social partnership; the Netherlands have focused more on the strengthening of its industry), it is still apparent that their policy choices put them in a relatively favourable position to reap the benefits from EMU.

2. The Interaction between Trade Unions and the ECB

But developments in the ERM may have only little predictive value for developments under EMU. Not only is EMU a stronger commitment but, in addition, a common central bank has been created, thus profoundly changing the interaction between labour and the monetary authority. So far, only very few and theoretical papers exist that try to analyse the interaction between wage-setting and the European Central Bank (ECB). Grüner and Hefeker (1996, forthcoming 1999) argue that EMU creates a spillover effect among different national labour unions.² In autarky, national labour unions face a trade-off between real wages and unemployment, and in setting their nominal wage demands they take the reaction of the central bank into account (which depends on the inflation aversion of the central bank). Thus, unions know how high the inflationary increase will be that the central bank allows in response to nominal wage demands. An important, realistic assumption in this context is that the central bank is not the only institution to care about inflation, unions also oppose inflation, at least to some degree. This should discipline them because too high nominal wages cause higher inflation. The trade-off is different for the core EMS countries because the followers of the German monetary policy know that the Bundesbank will not react to their demands and thus accordingly choose their point between real wages and employment directly and unilaterally without any reaction from the central bank.

The move to EMU, however, will change this situation. The ECB will set its monetary policy with regard to the average of the euro-area. Thus, the former followers in the EMS will now be taken into account, as will be those countries that previously had an independent monetary policy. Therefore, even the unions in the core EMS can now expect the ECB to react in an expansionary manner in response to excessive wage claims. This prospect, in much the same way that was argued above, should discipline each of the member unions in their wage-setting behaviour. They will only have a small influence, however, on the overall policy of the ECB. This creates an incentive for national labour unions to demand higher nominal wages, because they perceive a possibility to achieve higher utility because real wages can be increased without prompting higher inflation. In other words, national labour unions lose the disciplining constraints from knowing that their wage demands create inflation. Obviously, since all unions in this symmetric model have the same incentive, the overall effect will not be zero. As each one increases its wage demands, the ECB will be forced to allow higher inflation in response to European-wide wage increases. Thus, nominal wage demands in all countries will be partly offset by higher inflation, but not enough to ensure the same employment level. Thus, inflation and unemployment will increase from moving to EMU.³

² They start from a model which assumes perfect integration of product markets, such that effects from imperfect (and monopolistic) product markets can be neglected. A similar argument has been made by Cukierman and Lippi (1998) who use a set-up with sectoral labour unions and a national central bank. Increasing the number of sectoral trade unions is comparable to a number of countries forming EMU so that several national labour unions confront a common central bank.

³ This is only different for the followers of Germany, because they are taken into account by the ECB, in contrast to what the Bundesbank did earlier.

Two conclusions emerge from this consideration. On the one hand, it would imply that a limited number of large labour unions are detrimental to employment and monetary stability because then the neglect of external effects would be strongest. On the other hand, the theory would imply that a highly stability-oriented central bank would only worsen the situation. As Velasco and Guzzi (1998) have shown, a central bank that is very much concerned with stabilising employment by using monetary policy (what is called a "populist" central bank) could be even welfare-improving. This is because given that the reaction function of the central bank is known, the inflation aversion of labour unions kicks in again. Since they want to avoid inflation, they will set moderate wage demands, knowing that the central bank will react with monetary expansion. The conclusion from this argument suggests that the ECB should not become preoccupied with monetary stability.⁴

3. Vae Germania?

A interesting conclusion from the ideas discussed so far is that the only country for which the outcome worsens is Germany. The German trade union movement is strong and integrated; pilot agreements, although negotiated formally at the regional level, are de facto binding for the rest of the economy. Until recently, the Bundesbank was solely responsible for German monetary policy, thereby positioning the country very close to the extreme of centralised wage-setting which should lead to low inflation and unemployment. But this has now changed: the German trade unions know that they cover about one-third of the euro area. Higher wage demands will not lead to significantly higher inflation in the entire area. Moreover, for the same reason, the reaction of the ECB to German wage agreements will be much more muted than the reaction of the Bundesbank. Germany thus finds itself in the worst-case scenario described above: its trade unions are large enough to have some monopoly power, but not large enough to internalise the impact of their demands on the entire area. If the euro area consisted of just three economies of Germany's size, the prospects would be bleak. Fortunately, however, most other member economies are much smaller (in terms of GDP).

While EMU thus implies an unambiguous deterioration for Germany, little has changed for the other countries in the euro area. Until now, their trade unions knew that the Bundesbank would not react to excessive wage demands in their country, and they therefore had to behave more like very small trade unions. In small countries, where there was no doubt about the strength of the commitment to the DM peg, such as Austria and the Netherlands, this worked well resulting in low inflation and low unemployment. The pre-EMU Bundesbank-led system worked less satisfactorily in larger countries (e.g. France and Italy) where there could always be some doubt about the strength of the external commitment. For the small "DM shadowers", EMU has thus changed nothing, so that there is no reason why their performance should deteriorate (their weight in the Euro-zone is so small (less than 5%) that their trade unions cannot expect the ECB to react to their actions).

It is interesting to note that the small countries that are newer to the price stability game are

⁴ A contrary result is reached by Grüner (1998), however.

performing better in terms of growth and employment creation. This is consistent with the theory which would also predict that Finland, Ireland and Portugal should perform better than their larger neighbours (Sweden, the UK and Spain), and of course much better than Germany.

The last wage round in Germany provides an almost perfect fit with the ideas discussed here about labour market performance: Wage moderation is stopping at exactly the time the ECB takes over from the Bundesbank. But as usual, the dog that did not bark is even more interesting. Although wage moderation and high profit growth would constitute a strong argument for higher wages in the eyes of trade unions throughout the euro area, it has been only the German unions that have taken it up. Wage growth in the rest of the euro area has remained moderate. No other country seems interested in following Germany's lead in this particular case.

This fits the theory very well, but it has the depressing implication that the core of EMU will remain structurally weak. Germany entered EMU with a DM that was overvalued relative to other European currencies (but not necessarily overvalued against the dollar). The end of wage moderation in Germany has now been called for by trade unions in precisely the sector that is most exposed to European competition. The outcome can only be a long drawn-out and painful process of de-industrialisation accompanied by high structural unemployment in Germany. The other large countries should show a middling performance, and the periphery should boom on the back of undervalued exchange rates and continuing wage moderation.

4. Can wage-push increase employment?

This idea has attracted some attention recently because it has been proposed by some politicians, but economists are generally very sceptical of its merits. We wish to discuss this issue in a neutral manner by simply investigating the conditions which must be fulfilled if this approach is to work.

Simple general considerations already suggest a number of restrictive conditions that must be met if an increase in wages forced on employers is to increase employment. To give a practical example, it is assumed in the following discussion that the wage shock would consist in an across-the-board increase in nominal wages of 5% over and above productivity growth. A first condition is that the central bank does not fully validate the increase in nominal wages. If it did increase the money supply also by 5% (again 5% over and above the increase warranted by normal GDP growth), the only effect of the wage increase would be an increase in inflation of 5%. The real equilibrium would be exactly the same as before: real wages would not have been affected, employment would not have changed and production would also be the same. Nominal short-term interest rates would increase, but this would reflect only higher expectations of inflation; real interest rates should thus remain unaffected as well.

That a wage push can work only if it is not accommodated fully by the central bank is an important condition because it implies that it is not consistent to ask for a more expansionary monetary policy and encourage at higher wages the same time with the idea that this would actually mean higher real wages.

If the central bank does not increase the money supply in response to the wage-push, it will have real effects. Prices cannot increase by the same amount so that real wages increase. The next key

question is will this increase demand? In the first instance (when production has not yet had the time to increase), the increase in real wages is only a redistribution of income from owners of capital to workers. This can lead to an increase in demand only if these two groups have different propensities to consume; otherwise consumption demand by capitalists would just fall by the same amount it rises from the workers' side. Proponents of the wage-push sometimes say openly that in their view workers consume all increases in income (because they are poor), whereas capitalists tend to save because they do not know what to do with the money. This might well be the case, but we have not found any empirical study that documents this type of behaviour. Moreover, while this assumption might have been useful in the past, it seems much less evident in today's world of much smaller differences in living standards across social groups⁵.

We emphasise this point because there can be little increase in overall consumption demand unless the difference in the propensity to consume is pronounced. An example can clarify this: Assume before the wage-push that the distribution of income is 70 (wages) : 30 (profits). An increase in (real) wages of 5% would increase wage income by 3.5 (% of GDP) and reduce profits by the same amount. Let us also assume that the marginal propensity to consume of workers is 80% and that of capitalists only one-half that amount (40%). The net increase in consumption from an increase in wages of 5% would then be only 1.4 (% of GDP) (it is given by: $3.5(0.8 - 0.4) = 1.4$) – much less than one-half of the increase in wage income which would amount to 3.5% of GDP. In order to have a sizeable net effect on overall consumption demand, the difference in the propensity to consume must thus be very large.

This point is reinforced if one considers an open economy where a large part of demand falls on foreign goods. The propensity to consume domestic goods is thus likely to be much smaller than assumed above. Even for Germany, a relatively large economy by European standards, imports amount to close to 30% of GDP. This implies that the propensities to consume domestic goods must be much smaller than assumed in the example above. Even if workers were to spend every cent of additional income, only about 70% would fall on German goods, and 50-60% might be more realistic. Moreover, as domestic products become more expensive with higher wages, consumers will tend to buy more foreign goods. This would further reduce the impact on demand at home (and might even make it negative).

So far we completely neglected the impact of higher real wages on the demand for labour. But with higher real wages, firms will try to substitute more expensive labour with capital. This implies that the “jobs content” of any demand growth would be reduced. How important is this effect? The answer depends clearly on the time horizon one uses. Changing production techniques take time so that in the short run the impact might be minor. But even then it can have an important effect on balance as a simple example can show. Econometric studies suggest that each percentage increase in wages leads to a fall in labour demand by about 0.5% in the medium to long run. (This is a partial effect, meaning that one has already taken into account everything else that is happening in the economy, e.g. changes in demand, the oil price, etc.) Let us assume that the short-run elasticity is only 0.2. This would imply that the increase in wages of 5% considered here would by its own

⁵ Moreover, it is usually argued that the high stock market valuations in the US have been an important factor in sustaining a robust growth in demand. This implies that even capitalists spend more in response to higher income or wealth (a wage-push would presumably also lead to lower stock market valuations). For Europe, where share ownership is more concentrated, the estimates of the wealth effect are usually low, but still positive.

reduce employment at a given level of overall demand immediately by about 1%. Any increase in consumption demand induced by the higher wages would thus have to be much larger than 1% if there is to be a net gain in jobs. This underlines the importance of the point made above concerning the difference in consumption propensities between workers and capitalists.

This is as far as one can go with simple, general considerations. We retain at this point one conclusion, namely that a policy of wage-push cannot be effective in an open economy. Hence it would certainly never make sense to attempt such a policy at the national level. Would it make sense at the EU level? The simple, general considerations presented here suggest that even under the most favourable circumstance, the net impact would be minor.

The next question one ask is what do standard economic models tells us about this issue? We have not found any standard model that would give the result that an increase in wages could lead to higher employment. The reason for this is quite simple: modern models do not incorporate the crucial assumption that the marginal propensity of workers is radically different from that of the owners of capital.

The Economics of Oskar Lafontaine

The former German Minister of Finance, Oskar Lafontaine, has supported, among others, in a book (Lafontaine and Müller, 1998) and in policy pronouncements the idea that increasing wages could increase employment in Germany. His idea, enthusiastically welcomed by German labour unions, is that increasing the wages of employees should increase demand for goods in Germany, which in turn should boost output and lead, finally, to higher employment. We have discussed above the general limitations of this approach. In the specific case of Germany today these general considerations apply with particular force.

Our first point was that the aim of the policy must be to increase real wages. If higher nominal wages are accompanied by higher prices as well, little would be achieved. As the ECB has the task of preserving price stability, this should be actually be the case. Germany is only part of the euro-area. The ECB would thus react only little to any increase of wages in Germany alone.

The considerations made above about open economies applies here as well. Higher demand because of higher income of workers would not exclusively fall on German products. Especially in such a highly open economy as Germany, one should expect a considerable part of demand to be directed to foreign goods. Although higher income abroad should in the next step also increase demand for German goods, this second-round effect will be limited because only a small part of the overall imports of Germany's trading partners falls on German goods. In addition, higher wages make German products more expensive, thus lowering international demand for German exports.

Furthermore, a necessary condition for this effect to work is that workers have a much higher marginal propensity to consume domestic goods than capital owners. This because, in order for nominal increases in wages to lead to higher internal demand and thus higher employment, one needs workers to *spend* any extra income, and not save it. But this is unlikely, especially in the present situation. Given the precarious situation of the German labour market, one might reasonably expect that consumers would pocket higher income to save for an uncertain future. The current outlook of rather modest growth of the German economy over the next years is certainly not conducive to inspiring confidence and higher spending. As Keynes, on whose theories the theses discussed here allegedly are based, always stressed, expectations are important for the development of an economy. Finally, most economists would agree that higher wages are unlikely to lead to expectations of higher growth.

All in all it appears to us that most of the general considerations that suggest that a policy of wage-push is unlikely to increase unemployment apply with particular force to the situation in Germany under the present economic environment.

5. Concluding Remarks

The theoretical contributions discussed here clearly do not fully reflect reality. However, that labour unions are now confronted with a different central bank than before is clearly relevant to wage-setting behaviour. Given that the followers in the ERM were already in a similar situation before EMU, their position is not much affected by the introduction of the euro. But the theory points to Germany as the one country whose wage-setting framework might now deliver worse results. The fact that the other (large) euro-area countries are not much affected by EMU does not imply that they are in a much better position. They improve only relative to Germany, whose position worsens through EMU (in terms of wage-setting incentives).

There are two possible scenarios for avoiding this unfavourable result: one would be that (national) unions coordinate across the euro-area; the other would be that within (the larger) member countries regional situations are allowed to influence wages much more.⁶

In the first case coordination internalises the negative externalities of union behaviour and avoids the excessive increase in nominal and real wages, which would lead to higher inflation and unemployment. In the second case, individual regional wage norms would not be expected to have any influence on the ECB so that this might lead to an atomistic wage setting that allows the labour market to clear at least at the regional setting.

The chances for an explicit euro-area wide coordination are rather small because national political considerations and differences in national legal and social frameworks are so large that the same percentage increase might have quite different meanings in different countries and wage negotiations are almost never only about wages, but also about many other different aspects. In any event, from a purely practical point of view it would be difficult to coordinate wages of dozens of labour unions in an expanding EMU with different traditions, legal frameworks, etc.

We would prefer an outcome under which wages react to regional developments. Most of the larger member states are, in economic terms, a collection of very diverse regions. These regions differ enormously in terms of unemployment and industrial structures. As workers have shown that they prefer not to move, even within countries and even if unemployment rates differ greatly, local wages must be allowed to adjust to local labour market conditions.

⁶ Note that coordination does not mean the same level of wages for all, it only says that individual wages are set by taking the impact on others into account.

Appendix: The Effect of Wage Increases on Employment

The former German Minister of Finance, Oskar Lafontaine, has supported, among others, in a book (Lafontaine and Müller, 1998) and in policy pronouncements the idea that increasing wages could increase employment in Germany. His idea, enthusiastically welcomed by German labour unions, is that increasing the wages of employees should increase demand for goods in Germany, which in turn should boost output and lead, finally, to higher employment. We have discussed above the general limitations of this approach. In the specific case of Germany today these general considerations apply with particular force.

Our first point was that the aim of the policy must be to increase real wages. If higher nominal wages are accompanied by higher prices as well, little would be achieved. As the ECB has the task of preserving price stability, this should be actually be the case. Germany is only part of the euro-area. The ECB would thus react only little to any increase of wages in Germany alone.

The considerations made above about open economies applies here as well. Higher demand because of higher income of workers would not exclusively fall on German products. Especially in such a highly open economy as Germany, one should expect a considerable part of demand to be directed to foreign goods. Although higher income abroad should in the next step also increase demand for German goods, this second-round effect will be limited because only a small part of the overall imports of Germany's trading partners falls on German goods. In addition, higher wages make German products more expensive, thus lowering international demand for German exports.

Further more, a necessary condition for this effect to work is that workers have a much higher marginal propensity to consume domestic goods than capital owners. This because, in order for nominal increases in wages to lead to higher internal demand and thus higher employment, one needs workers to *spend* any extra income, and not save it. But this is unlikely, especially in the present situation. Given the precarious situation of the German labour market, one might reasonably expect that consumers would pocket higher income to save for an uncertain future. The current outlook of rather modest growth of the German economy over the next years is certainly not conducive to inspiring confidence and higher spending. As Keynes, on whose theories the theses discussed here allegedly are based, always stressed, expectations are important for the development of an economy. Finally, most economists would agree that higher wages are unlikely to lead to expectations of higher growth.

Finally, and this is probably the most serious flaw of Lafontaine's (and the labor unions') argument, the supply side of the economy is totally neglected. Even if one, contrary to supply side economist, takes the demand side of an economy seriously, this does not imply that one can deliberately neglect the supply side of an economy. And on this side, as no Keynesian economist would doubt, higher wages (real wages that is) do lower the demand for labor. In other words, higher wages would imply a movement down the labor demand curve. (We consider only real wages here because they are important for the consideration of firms to hire labor. If higher nominal wages are accompanied by higher prices as well, they are partly compensated for by those higher prices.) This can best be shown in a simple model.

Consider a standard Keynesian model such as can be found in Romer (1996).

We begin with the supply side of the model that incorporates the labor market. Wages are exogenously given and output is given from the production function

$$Y = F(N, \bar{K}) \quad (1)$$

that uses labor N , whose input is variable and capital K which is fixed. The production has the standard properties $F_N > 0, F_{NN} < 0$. Profit maximizing firms will determine the amount of labor used such that

$$F_N(N) = \frac{w}{p} \quad (2)$$

is fulfilled. Marginal productivity of labour is therefore equal to its real wage. Differentiating this condition totally gives:

$$F_{NN}dN = F_N \frac{dw}{w} - F_N \frac{dP}{P} \quad (3)$$

The aggregate demand curve is given as the locus of intersections between LM and IS-Curve which depict equilibrium in the money market and the goods market.⁷ The money market is described by

$$\frac{M}{P} = L(i, Y) \quad (4)$$

so that money supply (LHS) is equal to money demand (RHS). Money demand is decreasing in the interest rate i and increasing in income Y . Differentiation of (3) yields⁸

$$dM = PL_i di + PL_Y dY + \frac{M}{P} dP \quad (5)$$

After having derived the LM curve, we next turn to the IS curve. Total expenditures (E) in the economy are given by:

$$E = E(Y, I, G, T) \quad (6)$$

where Y is income, I is investment, G is public expenditures and T are taxes. Equilibrium requires that $E=Y$. (6) can thus be specified as:

$$Y = C(Y(1 - \tau)) + I(i - \pi^e) + G \quad (7)$$

so that consumption C is increasing in net-income, investment is decreasing in the real rate of

⁷ This is not entirely correct because the supply side is not contained in IS. It is nevertheless common to refer to IS as the good markets equilibrium.

⁸ Usually the equation is differentiating totally solved for di/dY giving the familiar positive slope in i - Y space.

interest (in what follows we use i for shorthand, thus setting $\pi^e = 0$). τ denotes the tax rate levied on income. We make an additional assumption and split consumption into that of labour and capital owners respectively. Then

$$Y = C^K \left[\left(Y - \frac{w}{P} N \right) (1 - \tau) \right] + C^L \left[\left(\frac{w}{P} N \right) (1 - \tau) \right] + I(i) + G \quad (8)$$

Consumption of capital owners is determined by the value of production minus the real wage that is paid to employed labour N . Consumption of labour is a function of its real income. Both are taxed at the same rate τ .

Differentiation of this last equation then gives:

$$dY = \frac{1}{1 - c_y^K (1 - \tau^K)} LAF \cdot \left[F_N N \frac{dw}{w} - F_N N \frac{dP}{P} + F_N dN \right] + I_i di \quad (9)$$

where by c_y^i we mean the derivative of consumption with respect to income either for workers or capital owners, and LAF indicates $c_y^L (1 - \tau^L) - c_y^K (1 - \tau^K)$. This is meant to denote the different marginal propensities to consume of capital owners and labour. We will see that the positive implications of a (nominal) wage increase on employment, as advanced by Oskar Lafontaine and labour unions is based on such a difference. We call this effect the Lafontaine effect; it is absent if the difference between the two marginal propensities is zero.

The easiest way to solve for the result we are most interested in, that is, the partial derivative of employment with respect to wages, is by writing equations (3), (5) and (9) as a system and then solving for the derivative. This system can be written in matrix form as:

$$\begin{pmatrix} F_{NN} & \frac{F_N}{P} & 0 \\ PL_Y F_N & \frac{M}{P} & PL_i \\ F_N - \frac{LAF \cdot F_N}{1 - c_y^K (1 - \tau^K)} & \frac{LAF \cdot F_N N}{P(1 - c_y^K (1 - \tau^K))} & -I_i \end{pmatrix} \begin{pmatrix} dN \\ dP \\ di \end{pmatrix} = \begin{pmatrix} F_N \frac{dw}{w} \\ dM \\ \frac{LAF}{1 - c_y^K (1 - \tau^K)} \cdot F_N N \frac{dw}{w} \end{pmatrix} \quad (10)$$

Applying Cramer's rule, under the (usual) assumption that the Lafontaine⁹ effect is absent, the partial derivative of employment with respect to wage changes is given by:

$$\left. \frac{dN}{d(dw/w)} \right|_{dM=0} = \frac{-M/P \cdot F_N I_i}{L_i (F_N)^2 - M/P I_i F_{NN} + L_Y I_i (F_N)^2} \quad (11)$$

Which is unambiguously negative.

On the other hand, if one assumes that the Lafontaine effect is not absent (LAF is non-zero), the

⁹ That is, under the assumption that the marginal propensities to consume of capital owners and workers, times (one minus) their respective tax rates are equal and therefore cancel out.

partial derivative is given by:

$$\frac{dN}{d(dw/w)} \Big|_{dM=0} = \frac{-\frac{M}{P} \cdot F_N I_i}{L_i(F_N)^2 - \frac{M}{P} I_i F_{NN} + L_y L_i(F_N)^2} - \frac{-\frac{M}{P} \cdot F_N I}{L_i F_{NN} F_N N \frac{LAF \cdot}{LAF + 1 - c_y^L(1 - \tau^L)} + \frac{L_i(F_N)^2}{P} \frac{LAF}{LAF + 1 - c_y^L(1 - \tau^L)}} \quad (12)$$

One immediately sees that the right-hand-side of equation (12) is given by two terms: the right-hand-side of equation (11), which is unambiguously negative; and a second ratio, whose sign is indeterminate. For the Lafontaine effect to work, one would need the sign of the second ratio to be positive, and secondly one would also need this second ratio to more than compensate the first, negative ratio.

A necessary condition for the second ratio to be positive is that the elasticity of labour demand with respect to employment be less than one over the price level, that is:

$$-\frac{F_{NN}N}{F_N} < \frac{1}{P} \Leftrightarrow \epsilon_N^{L^D} < \frac{1}{P} \quad (13)$$

But the reader should bear in mind that this condition is only necessary, but not sufficient, given that for the Lafontaine effect to work, as we said above, the first ratio must also be more than compensated for.

Technical Bibliography

- Alogoskoufis, G. and R. Smith**, (1991), "The Phillips-Curve, the Persistence of Inflation and the Lucas-Critique: Evidence from Exchange Rate Regimes", *American Economic Review* 81, 1254-1275.
- Bean, C. R.** (1994) "European Unemployment: A survey", *Journal of Economic Literature* XXXII-2, 573-619.
- Bertola, G.** (1998) "Microeconomic perspectives on Aggregate Labor Markets", in *Handbook of labour Economic, Vol. III*
- Blanchard, O. and L. Summers** (1986) "Hysteresis and the European Unemployment Problem", *NBER Macroeconomics Annual* 1, 15-78.
- Blanchard, O. and J. Jimeno** (1995) "Structural Unemployment: Spain versus Portugal", *American Economic Review* 85 (Papers and Proceedings), 212-218.
- Bruno, M. and J. Sachs** (1985) *The Economics of Worldwide Stagflation*, Cambridge: Harvard University Press.
- Buiter, W. H. and A. C. Sibert** (1997) "Transition Issues for the European Monetary Union", CEPR Discussion Paper 1728.
- Calmfors, L.** (1998a) "Macroeconomic Policy, Wage Setting and Employment – What Difference does the EMU Make?", Institute for International Economics Studies, Reprint series 586.
- (1998b) "Unemployment, Labour-Market Reform and Monetary Union", Institute for International Economics Studies, Seminar Paper 639.
- (1998c) "Monetary Union and Precautionary Labour-Market Reform", Institute for International Economics Studies, Seminar Paper 659.
- Coe, D. T. and D. J. Snower** (1997) "Policy Complementarities: The Case for Fundamental Labor Market Reform", *IMF Staff Papers* 44, 1-35.
- Cukierman, A. and F. Lippi** (1998) "Central Bank Independence, Centralization of Wage Bargaining, Inflation and Unemployment-Theory and Evidence", CEPR Discussion Paper 1847.
- Daveri, F. and G. Tabellini** (1997) "Unemployment, Growth and Taxation in Industrial Countries", CEPR Discussion Paper 1681.
- Dramais, A.** (1993) "Les relations entre rentabilité du capital, investissement fixe et modération salariale dans l'Europe des Douze au cours des années 1980", *Economica*, 198-210.
- Eurostat** (1998) "Structure of the Taxation Systems in the European Union: 1970-1996", Office for official publications of the European Communities, Luxembourg.
- Frankel, J. A. and A. K. Rose** (1996) "The Endogeneity of the Optimum Currency Area Criteria", NBER Working Paper 5700.
- Gros, D. and C. Hefeker** (1998) "EMU and Labor Markets: Much Ado About Nothing?" University of Saarbruecken, Discussion Paper 9805.

- Grüner, H. P.** (1998) "New Macroeconomics Games in Europe", University of Bonn, mimeo.
- Grüner, H. P. and C. Hefeker** (1996) "Militant Labor and Inflation Aversion. The Impact of EMU of Labor Union Behavior", University of Bonn, Discussion Paper A 536.
- (1999) "How Will EMU Affect Unemployment and Inflation?", *Scandinavian Journal of Economics*.
- Haltiwanger, A.** (1995) "Real Wages and the Business Cycle", *Journal of Economic Literature*, Vol. 33, pp. 1215-1265.
- Hefeker, C.** (1998) "Labor Market Rigidities, Unions and Monetary Union", WWZ-Discussion Paper 9801.
- (1999) *Labor Market Structure and Monetary Union in Europe: Does it Make a Difference?*, CEPS Paperback, Brussels: Centre for European Policy Studies.
- Horn, H. and T. Persson** (1988) "Exchange Rate Policy, Wage Formation and Credibility", *European Economic Review* 32, 1621-1636.
- Jones, E., Frieden, J. and F. Torres** (1998) "Joining Europe's Monetary Club: The Challenges for Smaller Member States", MacMillan, London.
- Lafontaine, O. and C. Müller** (1998) "Keine Angst vor der Globalisierung – Wohlstand und Arbeit für alle", Dietz, Bonn.
- Landmann, O. and J. Jerger** (1993) "Unemployment and the Real Wage Gap: A Reappraisal of the German Experience", *Weltwirtschaftliches Archiv* 129, 689-717.
- Layard, R. and S. Nickell** (1997) , "Labour Market Institutions and Economic Performance", The Labour Market Consequences of Technical and Structural Change Discussion paper series n° 23, Institute of Economics and Statistics, Oxford University, Oxford.
- Layard, R., St. Nickell and R. Jackman** (1994) "*The Unemployment Crisis*", Oxford University Press.
- Madsen, J.** (1994) "Wage Gap and Technology", *Kyklos* 47, 95-108.
- Nickell, S.** (1997) "Unemployment and Labor Market Rigidities: Europe versus North America", *Journal of Economic Perspectives* 11 (Summer), 55-74.
- OECD** (Organisation for Economic Co-operation and Development) (1994) *The OECD Job Study: Evidence and Explanations*, Paris: OECD.
- (1996) *Employment Outlook*, Paris: OECD.
- Rodrik, D.** (1997) "Has Globalization Gone Too Far?" Washington: Institute for International Economics.
- Sachs, J.** (1983) "Real Wages and Unemployment in the OECD Countries", *Brookings Papers on Economic Activity*, 255-304.
- Saint-Paul, G.** (1996) "Exploring the Political Economy of Labour Market Institutions", *Economic Policy* 23, 263-315.
- Sibert, A. and A. Sutherland** (1997) "Monetary Regimes and Labour Market Reform", CEPR Discussion Paper 1731.

Siebert, H. (1997) "Labor Market Rigidities: At the Root of Unemployment in Europe", *Journal of Economic Perspectives* 11 (Summer), 37-54.

Summers, L. (1987) "Comments", *European Economic Review* 31, 606-614.

Velasco, A. and V. Guzzo (1998) "The Case for a Populist Central Banker", New York University, mimeo.

Vinals, J. and J. Jimeno (1998) "The Impact of EMU on European Unemployment", Austrian Nationalbank, Working Paper 34 (November).

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