On the Role of Labour Market Reform for the Enlargement of a Monetary Union

Andrew Hughes Hallett and Svend E. Hougaard Jensen*

Abstract: This paper studies the incentives to join a monetary union, and the incentives to reform within a monetary union and within the candidate countries, respectively. We present some “orders of magnitude” evidence on the size and balance of the incentive effects for joining and being joined, and on the desirability of reform in and out of the existing EMU in Europe. It is found that countries will only want to join a monetary union where there has been sufficient labour market reform, and where labour markets are more flexible than their own. But existing members will want the same properties of their new partners as well. (JEL F02, F15, F33, F42)

1 Introduction

Recent research seems to suggest that the formation of a monetary union has a positive impact on the real economy of its members. For example, Engel and Rose (2002) have found that members of a monetary union are more integrated than countries with their own currencies, reflected in more trade and less volatile real exchange rates. Similarly, Frankel and Rose (2002) have estimated that every one percent increase in trade would raise income per capita by roughly one percent over twenty years. Moreover, for the group of OECD countries Frankel and Rose (1998) report evidence of converging business cycles as these countries become more integrated, thus weakening the need for the exchange rate as a shock absorber.

If this is true, then there should be strong incentives for countries to form and/or enlarge monetary unions. Yet, in Europe, for example, several members of the European Union (EU) have been reluctant to introduce the single currency (euro), even if they satisfy the criteria for entering the Economic and Monetary Union (EMU). While many countries in Central and Eastern Europe

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have expressed strong interests in joining the EU, including the EMU, it remains a fact that the adoption of the euro is a controversial issue. Moreover, the current members of the monetary union are not necessarily interested in allowing any candidate in. Pushed to extremes, it seems as if the countries who want to join the EMU are those whom the existing members do not want admitted; and those countries who the existing members would like to have join are exactly those who are unwilling to join.

Several factors, including non-economic ones, may be critical for the decision to join or enlarge a monetary union. In this paper we discuss the role of economic structures, with a focus on labour market structures. This topic has already received a lot of academic attention (see, e.g., Calmfors 2001), and has generally been seen as a question of whether, or at what pace, a less reformed candidate country would be able to meet a certain set of entrance criteria before being let into a better reformed union (see, e.g., Ozkan, Sibert and Sutherland 1997). Here we make an attempt to broaden this perspective, by discussing not only whether a candidate country is sufficiently reformed to join an existing union, but also whether existing members are reformed to an extent such that an outsider would want to join.

More precisely, we find it helpful to think of three different categories of European countries. First, there are the “I-countries”, being the current members of the EMU or incumbents. Second, there are the “Northern” countries, being those able but possibly unwilling to join the European monetary union, such as the UK, Denmark and Sweden. These “N-countries” typically enjoy relatively small transactions benefits if they join, and output disturbances that are the same or larger than before. But they will have relatively small reform needs, and less need for or gains from reform, than the insiders. Third, there are “Eastern” countries, being those willing but potentially unable to join. These “E-countries”, and here we have countries like Poland, Hungary and the Czech Republic in mind, would typically enjoy larger transactions gains than average, and smaller output disturbances. But they will typically also have larger reform needs than the insiders.

Using a formal framework for discussing these issues, we are able to calculate the gains and losses of, respectively, the I-, N- and E-countries for each of the cases when the I-countries do and do not undertake reforms. This allows us to say something about the incentives to undertake reforms of different types; and the necessity for doing so if the union is to perform successfully both for the I-countries and for those joining, whether they are N-countries or E-countries. We can also make predictions about which of the labour reforms are the more important for reaching the individual countries' objectives, about what factors determine the success of those reforms, and whether the pressures for (and
gains from) reform are diluted when the candidates represent small or large economies and when the incumbents already form a large group.

We find that rigid labour markets, as characterized by lack of international labour mobility and/or wage flexibility, would bring costs for both new entrants and existing members. That holds whether the lack of reform is in the entrants or in the existing union. Indeed, candidate countries would only want to join a union which already had sufficient flexibility and, similarly, a candidate country would only be accepted if it brought sufficient market flexibility with it. That implies a form of Groucho Marx theorem: countries already reformed, or with considerable market flexibility, would not want to join a union of less flexibility or with fewer structural reforms. But that union would want them. Conversely, a union that has reformed will be reluctant to admit new members that have not yet reformed, even if they want to join. That clearly makes the process of enlargement much more difficult.

From here the paper proceeds as follows. In Section 2 we present some evidence of labour markets and reform needs in the N-, I- and E-countries, respectively. Section 3 offers a broad description of our theoretical model, and Section 4 then uses this framework to provide quantitative answers to questions such as whether E- and N-countries would want to join, and whether the Eurozone would accept them as new members. Finally, in Section 5 we discuss some of the limitations associated with our analytical framework, and suggestions for extensions are pointed out.

2 Labour market reform: What is it? Does it matter?

Labour market reform is one among several important aspects of the enlargement debate in Europe. Indeed, labour market reform is widely regarded as a necessary part of a policy programme for a country which strives to satisfy the Maastricht criteria. Formally, however, labour market reform is not a criterion for admission to the EMU, and existing members cannot be excluded from the EMU even if their labour markets are far from well-functioning. Moreover, the assessment made by existing members of a candidate country’s labour market performance is in principle irrelevant to EMU enlargement.

More generally, it is widely argued that structural reform is a prerequisite for a successful EMU, see Delors Committee (1989). It is mainly based on the analytic and empirical evidence of a negative relationship between (real) wage rigidity and economic performance, see, e.g., Bruno and Sachs (1985) and Nickell (1997). For a useful recent overview of the theoretical, empirical and policy aspects of structural reforms, see Van Bergeijk, Van Sinderen and Vollaard (1999).
Although the focus of this paper is on the role of labour market reform for the enlargement of a monetary union, it is evident that other factors also play a role. For example, for countries that already fulfill the Maastricht criteria, typically the N-countries, the decision about joining the EMU may be based on cost-benefit elements other than strictly economic ones, including issues related to national sovereignty. For other countries, typically the E-countries, the costs of joining the EMU may well be represented by the costs of fulfilling the Maastricht criteria, but these may involve a broader set of policies than labour market reform per se.

While the process of qualifying for entrance to the EMU is likely to require some kind of labour market reform, it is not particularly clear what kind of reform is called for. Indeed, labour market reform has become a catch-all term, comprising many different initiatives. Usually it means initiatives which serve to speed up the process of driving the labour market, or the economy in general, closer to the perfect competition standard. In this paper we shall characterize the structure of labour markets by the degree of wage flexibility and labour migration; and by labour market reform we mean policy initiatives which either weakens the assumption that nominal wages can go up but not down, or by policy initiatives which have the effect of raising the degree of international labour mobility (geographically or sectorally) within the Eurozone. The role of both of these initiatives may be studied within our analytical framework set out below.²

The aim of the rest of this section is to motivate that it is relevant to distinguish between I-, E- and N-countries. This distinction applies not only to recent labour market performance, but also in relation to the magnitude and speed of implementation of initiatives designed to improve the functioning of the labour market.

Let us first assess this from a “N-country versus I-country” perspective. Recent work by the OECD (see, e.g., Turner, Boone, Giorno, Meacci, Rae and Richardson 2001) gives some evidence to support our claim that N and I-countries differ. As far as recent labour market performance is concerned, when looking at estimates of the level of the NAIRU there certainly is a difference between I and N-countries: While the NAIRUs in 1999 in Denmark, Sweden, Norway and the UK were estimated to be, respectively, 6.3, 5.8, 3.7 and 7.0 percent, the corresponding numbers for France, Germany, Italy and the

² Several other policy initiatives could well be thought of. For example, in OECD (1999) also tax/transfer systems; employment protection legislation, working-time flexibility, and active labour market policies are listed as labour market reform initiatives. Each of these dimensions may well interact but for analytical purposes it is helpful to think of them as distinct initiatives. Notice that we exclude initiatives in relation to training and education, as well as initiatives to improve the business environment.
Euro area were, respectively, 9.5, 6.9, 10.4 and 9.0. Similarly, when comparing the changes in the NAIRU during the 1990s, it is remarkable that it has been falling in all N-countries except for Sweden, whereas it has been rising in all the major euro countries. Thus, in terms of actual labour market performance, it is evident that the N-countries have done better than the I-countries. Whether this can be attributed to differences in the degree of wage flexibility is not entirely clear, but not unlikely.

One could also look at initiatives that have been taken to improve the labour market performance. This has been followed closely as part of the so-called OECD Jobs Strategy (see, e.g., Elmeskov and Kohl 1998 and Elmeskov, Martin and Scarpetta 1998), which outlined a number of recommendations in several areas of structural policy. In general, it turns out that while actions have been taken to a considerable extent in order to improve the business climate, countries have been much more hesitant to implement labour market reforms, especially with respect to wage formation. Indeed, not only was progress slow in that area, it was even the area where most contrary action was concentrated. This may be seen as strong indication that countries are anxious about steps which in the short run might lead to a wider dispersion of incomes.

To further illustrate the “N versus I divide”, a comparison between the UK and Germany may be helpful. For Germany the OECD listed 24 recommendations for changes in the area of labour market reforms, whereas for the UK only 6 recommendations were made. When assessing to what extent, and how, the two countries have reacted to those recommendations, it turns out that Germany in 3 cases took no action and in 2 cases took an opposite action. And among the 19 actions taken, only in 3 cases was this done sufficiently. On the other hand, the UK acted on all the recommendations, and in half of the cases to an extent which, in the judgement of the OECD, was seen as sufficient.

Unfortunately, due to lack of relevant data, the “E versus I” comparison is much more difficult to illuminate. It is evident, though, that E-countries already have experienced dramatic changes in their labour markets, including a substantial amount of labour reallocation across economic sectors, changes in patterns of labour force participation, emergence of unemployment, etc. Clearly, in the absence of major reform programmes, such as changes in macroeconomic policies, trade liberalization, financial deregulation, privatization, etc., these changes would not have occurred.

Some initial attempts to estimate the impact of labour market policies and institutions on the performance of E-countray labour markets have been made, however. For example, using a similar methodology as the one used by the OECD, Riboud, Sanches-Paramo and Silva-Jauregui (2002) suggest that most
of the E-countries have adopted labour market institutions similar to those in the EU and are, therefore, likely to have introduced rigidities similar to those existing in the EU. Overall, E-countries are found to be in the middle of the labour market flexibility scale when compared to current members of the EU.

Just from casual observation, it seems as if the I-countries are most concerned about factors such as monetary instability and inflation, fiscal irresponsibility, competition for structural funds, large unemployment and poverty, mass migration, social dumping and delocalization. The first two of these factors are closely related to, and handled by, the Maastricht criteria. The remaining ones are directly or indirectly related to the labour market. Indeed, needs for “structural funds” and “unemployment and poverty” may be rooted in wage rigidity, whereas it could be argued that “mass migration and social dumping” are signals of labour market flexibility in some places and rigidities elsewhere, not of rigidity itself!

Burda (1998) has suggested that the transition from command to market economies in East and Central Europe has created dual economies: on the one hand there is an official sector with low competitiveness, high taxation, high social protection and high unemployment, and on the other hand there is an underground sector with low taxation, low social protection, tax evasion, wage flexibility and free entry and exit (migration). While the former sector would find it hard to compete with the “social market” standard of the continental West European tradition, the latter sector might pose a serious challenge to existing EMU countries. This may help explain why, as Burda (1998) put it, “it may even be in the interest of current EU members to extend their labour market inflexibility to newcomers, thereby reducing or eliminating competition along this dimension”. According to this view, the real problem behind E-countries’ admission is not merely one of wage rigidity but rather of low productivity and competitiveness in the official sector or more widely. Certainly, this appears to have been the major problem in the recent example we have of an enlargement of an existing currency union in Europe, namely German unification in 1990 (see, e.g., Hughes Hallett and Ma 1994). The key role played by market rigidities, and the costs for the joiner and joinees when sufficient flexibility cannot be introduced into wage bargaining, product costs or migration, are now plain to see. Hence, while a discussion focussing on wage rigidity and migration might not capture all important aspects, it would still be a relevant part of the relationship between E- and I-countries.

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3 This is clearly a very broad picture. Indeed, as well as different labour market structures are found within the EU, diversity in terms of employment protection legislation, support to the unemployed, taxation on labour, strength of unions etc. are found within the E-countries.
Finally, it should be stressed that our suggested distinction between N-, I- and E-countries by no means intends to offer a complete account of the economic reform needs in Europe. This is clearly a highly complicated issue, which cannot be properly addressed within the confines of this paper. Therefore, this broad characterisation should not be taken as evidence that, say, N-countries are fully reformed, or only have small reform needs. For example, the Nordic countries are characterised by a relatively large wedge between the gross and net wage because of the large welfare state. How does this fact impact on labour market flexibility? On the one hand, since the drop in income in case of unemployment is only minor, the large welfare state could be expected to exert a direct negative effect on wage rigidity. On the other hand, it is widely held that the generosity of the unemployment/insurance system has served to make it very easy for firms to lay-off workers not only in downturns but also at other times where firms find it desirable to reduce the workforce. In any case, we stick to the view that Denmark is an excellent example of the idea that the Northern group, despite substantial design differences within that group, has introduced more labour market reforms than most other countries in recent years. For example, during the 1990s work availability and benefit eligibility conditions were tightened to a substantial extent (see, e.g., Andersen, Jensen and Risager 1999).

3 The theoretical framework: An overview

In order to establish how a labour market reform could affect a country’s decision to join a monetary union, as well as a decision by the existing members whether to admit a new member, we need a formal model of the incentives for either side to adopt a common currency. We have created such a model by adapting, and then extending, a model first suggested by Bayoumi (1994). The model is cast in a general equilibrium framework. Compared to most existing literature based on optimal currency areas the model has stronger microfoundations, thereby allowing for assessments based on an explicit treatment of incentives and welfare comparisons. Thus, our methodological approach is to undertake a cost-benefit analysis of whether the adopting of a common currency is net beneficial, by calculating for both parties the changes in welfare if the candidate country does join, compared to the status quo if it does not.
The model has four main building blocks: (1) production; (2) wages; (3) exchange rates; and (4) aggregate demand. The main macroeconomic variables that enter the enlargement decision include:

- The interrelationship of aggregate demand between countries
  This is captured in the form of expenditure shares, denoted by the parameter $\beta_{ji}$, which is the proportion of country j’s income spent on goods produced in country i. The $\beta_{ji}$ parameters are subject to the normalisations $\sum_i \beta_{ji} = 1$ and $\sum_j \beta_{ji} = 1$, to ensure that total income is spent and that aggregate demand exhausts income spent on each good.

- The size of countries
  A country is characterized as “large” if it has a “large impact on the union”, and “large” can therefore be equated with being “open” with respect to the rest of the union. But the same economy may not be “large” or “open” with respect to the rest of world, which is why the word “open” is avoided here. Similarly, “small” means having a small impact on the union, and hence possibly “closed” with respect to the union but not necessarily with respect to the rest of the world.

- The size of the underlying disturbances
  We consider both supply and demand disturbances. The next section shows how these are handled in the empirical implementation.

- The correlation between the disturbances in different countries
  For the empirical implementation we calculate standard deviations for the demand, supply and monetary disturbances in the N- and E-countries, and the correlations of each of those individual country shocks with the corresponding average for the core or periphery group of countries in the EU.

- The costs of transactions between different currencies
  Each country has to choose its preferred exchange rate regime. They can either opt for a monetary union with a single currency, or they can choose separate currencies. In the latter case there is a transactions cost between the two currencies, implying that, in value terms, goods exported from country i “shrink” by a factor $(1 - \tau_j)$ when they arrive in country j. This is the usual Samuelson “iceberg” assumption. So rather than modeling a separate exchange rate

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4 The formal details of our analytical framework are set out in Hughes Hallett and Jensen (2002). A brief technical exposition is available upon request.
transportation sector, we simply assume that a fraction of a good shipped melts away in transit. For simplicity, we let $\tau_i = \tau$ for all countries.

- The degree of rigidity in the adjustment of nominal wages

To incorporate wage rigidity, a so-called “normal” wage is defined to hold when there is full employment, when there are no shocks, when the initial level of prices is normalised at 1 for convenience, and when the exchange rate is at its parity value. If there is excess demand for labour when the wage is at its “normal” wage level, then wages will be raised until the excess demand falls to zero. But if there is excess supply of labour at the “normal” wage, then wages remain at this level and unemployment results. Very importantly, we assume that employment would always be at its full-employment level if the exchange rate is flexible.

- The level of factor mobility across countries

In the European Union with a single market, no one can prevent the unemployed trying to leave one country and seek employment in another country if they want to. However, this is not the same as saying that they actually do move in response to imbalances. Indeed, there is plenty of evidence of low labour mobility in Europe, at least compared to the US (see, e.g., Begg 1995 and Obstfeld and Peri 1998). Here we simply assume that some initiative, of whatever kind, is taken to increase the degree of labour mobility such that enough flexibility is created to accept these movements in the excess supply of labour. This requires that country j’s markets have sufficient wage and price flexibility to absorb the additional workers from country k, or to reemploy them at home. And vice versa when the shocks hit country j.

At this stage it may be helpful to have a little intuition into why these factors are important for determining the extent of the adjustment costs and welfare losses in a monetary union. The key point in this model is that all the costs (welfare losses) are caused by rigidities in the labour markets that prevent wages, output and employment from adjusting as they should to clear the goods and labour markets around the cycle. By preventing adjustment in one place, those rigidities cause spillovers onto others via trade. Consequently, the more flexible each country’s labour market ($\delta_j, \delta_k$), the smaller the adjustment needed at home or in other countries. A higher $\delta_j$ value means that more unemployed can migrate to country k or get employment at lower wages at home in bad times; or that wage rises will be moderated by increased inflows of labour or attempts at output stabilisation in boom periods. Hence the costs fall with $\delta_j$ and $\delta_k$. 
However, the costs (welfare losses) fall with the correlation between the shocks because there is then less need or capacity for each economy to adjust and absorb the unemployed from abroad (when another country is in a downturn); or have their unemployed absorbed when the domestic economy is in a downturn; or to contain either partner’s wage inflation in an upturn – assuming, each time, that market flexibility is incomplete \((\delta_j, \delta_k < 1)\). But if the markets are completely flexible, \(\delta_j = \delta_k = 1\), then there are no costs irrespective of the degree of correlation involved.\(^5\)

By contrast, the costs of adjustment will rise with the size of the shocks \((\sigma_j^2, \sigma_k^2)\), given a certain level of intercountry correlations. And the size of the adjustments will rise with the size of the spill-over effects, on one economy, from a disequilibrium in the other \((\beta_{jk}, \beta_{kj})\) and the larger are the impacts of cyclical fluctuations at home \((\beta_{jj}, \beta_{kk})\). Finally, since the adjustments all have to go through the labour market, the costs (losses) will be larger the larger the share of labour in national income \((\alpha)\), affected by the residual rigidities.

From here we proceed by presenting some “orders of magnitude” calculations to indicate the likely size of the incentives which the N-countries and the E-countries face for joining, or not joining, the EMU. At the same time we can calculate the corresponding incentives for the existing members of the union to accept new members from either group into the EMU.

### 4 The incentives to join and the incentives to reform:
#### A quantitative assessment

#### 4.1 Data

Table 1 shows the expenditure shares of each of the candidate countries, spent on their own domestically produced goods \((\beta_{jj})\) and on imports from the rest of the Eurozone \((\beta_{jk})\). Note that the candidate country is indexed by \(j\), and the existing currency union by \(k\). In line with the earlier analysis, we assume that each country decides whether to join or not to join on a unilateral basis, not as part of a group. The E-countries are here represented by the “first-wave”

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\(^5\) These results may be seen most clearly in the formulae for the expected welfare gains/losses, given in equations (1) and (2) below, and in the expected costs of joining or being joined in equations (3)-(6).
of candidate countries from Eastern and Central Europe. Table 1 also shows the existing Eurozone’s expenditure share on its own domestically produced goods, and on goods imported from the various candidate countries.

Table 1

Stylized facts of trade flows

<table>
<thead>
<tr>
<th>Country j:</th>
<th>Proportion of country j’s income spent on goods produced in the EU-15 (EU-12 for N-countries)</th>
<th>Proportion of country j’s income spent on domestically produced goods</th>
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<td>United Kingdom</td>
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<tr>
<th>Country j:</th>
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<th>Proportion of EU-12 (EU-15) income spent on EU-12 (EU-15) goods</th>
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<td>Estonia</td>
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Source: IMF Direction of Trade Statistics and OECD National Accounts Data.
From these figures we can already see that the E-countries are qualitatively different from the N-countries, as we pointed out in section 2, and with predictable consequences for the incentives to join or be joined. The $\beta_{jk}$ parameters are 2 to 4 times larger in the E-countries, while their $\beta_{jj}$ parameters are 70–100 percent smaller. Evidently, the E-countries do tend to be the “smaller” countries and more dependent on the rest of the EU/Eurozone, while the N-countries tend to be “big” countries economically speaking and proportionately less dependent on trade with the Eurozone.6

Table 2 supplies standard deviations for the demand, supply and monetary shocks in the N-countries, measured as a proportion of GDP in each case; and correlations of the individual country shocks with the corresponding average for the core or periphery group of countries in the EU. These figures are taken from Demertzis, Hughes Hallett and Rummel (1998), and are estimated using data for the period 1972–95 inclusive. The conventional Blanchard and Quah (1989) decomposition method is used to ensure that each group of calculated shocks (demand, supply and monetary) are orthogonal to one another.

The core and periphery countries are defined as follows:

- **Core:** Austria, France, Germany, Belgium, the Netherlands, Denmark.
- **Periphery:** UK, Greece, Ireland, Portugal, Spain, Finland, Sweden, Italy.

From the figures in Table 2, one can see that, with the exception of the demand shocks, none of the N-countries are well correlated with the other members of the Eurozone. And as far as the demand shocks are concerned, Denmark is only correlated with the core; and Sweden and the UK only with the periphery. Sweden meanwhile appears to suffer rather larger shocks than the other two candidates. Note that the group averages are calculated not to include the candidates’ own shocks here.

Unfortunately, we do not have corresponding figures for the E-countries because, as far as we are aware, there have been no such studies of the patterns of their shocks. This may be because the sample period since the transition of those economies to a market based system has been too short to make any reliable estimates of the relevant standard deviations or correlation coefficients. The best we can do is to calculate rough orders of magnitude, using the variance of the shocks from a comparably sized economy with similar conver-

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6 Note that the figures are calculated from the IMF’s Direction of Trade Statistics for 1998, and the OECD’s National Accounts Statistics. They assume that the E-countries would join a Eurozone consisting of all 15 EU members, whereas the N-countries would join the 12 existing members of the Eurozone on an individual basis. But to vary these assumptions makes no effective difference to our numerical results.
cence problems as a guide. We take Greece in 1995 as the comparator. The correlations of those shocks with the existing EU countries are taken from Boreiko (2002).

Table 2

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(a) Correlation with

(b) Standard deviations

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<td>E-countries</td>
<td>.246</td>
<td>.0227</td>
<td>.0119</td>
</tr>
</tbody>
</table>

* Denotes statistically significantly different from zero at the 5 percent level.

Source: Demertzis, Hughes Hallett and Rummel (1998); Boreiko (2002).

Note: Boreiko (2002) does not distinguish between demand, supply and monetary shocks for the E-countries. Consequently, without implying anything about the relative size of each of those shocks in each case, we assume that each has the same degree of correlation with its counterpart in the Eurozone. This is an assumption that needs to be relaxed in future work.

Table 3 shows our assumptions for the remaining parameters. The figures for \( \delta \) represent the degree of flexibility in the labour market, which may take two alternative interpretations. First, it may refer to the degree of labour mobility, whereby we simply mean that whenever there is unemployment in country
k, a proportion of those unemployed, \( \delta_k \), can migrate and take up employment in country j. Similarly, we shall define \( \delta_j \) as the proportion of the unemployed in country j that would migrate to economy k if the occasion demanded it. In the numerical assessment \( \delta_j \) is set such that either 10 percent (column 1) or 50 percent (column 2) of the domestically unemployed are allowed to migrate to jobs elsewhere in the Eurozone in a certain period. The corresponding figures for \( \delta_k \) are the degrees of flexibility which allows 10 percent or 50 percent of the Eurozone’s unemployed to migrate elsewhere in Europe. But that migration is assumed to be distributed equally across all member countries, so that each of the candidate countries gets only its GDP share of the total migration.

Table 3

Degrees of market flexibility (assumed values for the \( \gamma \) and \( \delta \) parameters)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \gamma )</td>
<td>( d_j )</td>
<td>( d_k )</td>
<td>( d_j^* )</td>
</tr>
<tr>
<td>N-countries:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>.566</td>
<td>.1</td>
<td>.002</td>
<td>.5</td>
</tr>
<tr>
<td>Sweden</td>
<td>.714</td>
<td>.1</td>
<td>.003</td>
<td>.5</td>
</tr>
<tr>
<td>UK</td>
<td>.592</td>
<td>.1</td>
<td>.020</td>
<td>.5</td>
</tr>
<tr>
<td>E-countries:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td>.471</td>
<td>.1</td>
<td>.003</td>
<td>.5</td>
</tr>
<tr>
<td>Hungary</td>
<td>.419</td>
<td>.1</td>
<td>.003</td>
<td>.5</td>
</tr>
<tr>
<td>Poland</td>
<td>.423</td>
<td>.1</td>
<td>.010</td>
<td>.5</td>
</tr>
<tr>
<td>Slovenia</td>
<td>.575</td>
<td>.1</td>
<td>.005</td>
<td>.5</td>
</tr>
<tr>
<td>Estonia</td>
<td>.518</td>
<td>.1</td>
<td>.004</td>
<td>.5</td>
</tr>
</tbody>
</table>

Notes:
1) \( \gamma \) is defined as one half of the ratio of labour’s share of income to capital’s share.
2) \( d_j \) is the proportion of the unemployed in country j that will migrate to country k (i.e., the rest of EU) within the period of analysis. \( d_k \) is therefore the proportion of the EU’s unemployed that would migrate to country j.
3) The alternative interpretation of \( d_j^* \) is an index of wage flexibility such that the proportion \( d_j^* \) or \( d_k^* \) of the unemployed in j or k are re-employed at home.
4) \( d_j^* \) and \( d_k^* \) are defined in the main text.

Source: Own calculations.

An alternative interpretation of these parameters is that they represent the degree of labour market flexibility that will allow wages (and prices) to adjust so
that 10 percent (or 50 percent) of the domestically unemployed to be reemployed at home - whether in the candidate country, or in the Eurozone as a whole. Columns (3) and (4) of Table 3 then show our calculation of degrees of market flexibility which, when shared equally between candidate and the existing union, would overcome the disincentives caused by a lack of structural or market reform and make joining attractive from an economic point of view.

The value of $t$ is taken to be 2 percent throughout. That is the upper bound of the gains from adopting the single currency, as estimated by the European Commission (1990).

We are now fully equipped to calculate a cost-benefit analysis for each candidate country, to answer the question “do they want to join?”. Similarly, we can perform a cost-benefit calculation for the existing EU-12 (when the candidates are the N-countries) or EU-15 (when the candidates are the E-countries), to answer the question “would the Eurozone want to be joined”.

More precisely, to answer the “do they want to join” question, we make use of

$$E(\Delta U_j) = \beta_{j\delta} \tau - \gamma \left[ \beta_{j\delta} (1-\delta_j) + \beta_{j\delta} (1-\delta_k) \right] \times \frac{1}{\sqrt{\sigma_j^2 + 2\rho \sigma_j \sigma_k + \sigma_k^2}}$$

where $\phi(0)$ is the distribution function of a standard jointly normal distribution of random variables and $\gamma = \alpha / (2(1-\alpha))$, where $\alpha$ is equal to the labour share in national income, as implied by a Cobb-Douglas production function. Similarly, to answer the “would the Eurozone want to be joined” question, we insert the relevant parameter values into:

$$E(\Delta U_k) = \beta_{k\delta} \tau - \gamma \left[ \beta_{k\delta} (1-\delta_k) + \beta_{k\delta} (1-\delta_j) \right] \times \frac{1}{\sqrt{\sigma_j^2 + 2\rho \sigma_j \sigma_k + \sigma_k^2}}$$

Details of how (1) and (2) are derived will be found in Hughes Hallett and Jensen (2001; 2002). The term $E(\Delta U_j)$ represents the expected net benefit of joining; where the first term on the right describes the net trade benefits under a single currency, and the second term the expected adjustment costs given normally distributed supply and demand shocks. There is an asymmetry of behaviour in each country’s labour market due to nominal wage rigidities: if there is excess demand for labour at the current wage rate wages will be raised till that excess demand is eliminated. But if there is excess supply at that level, then wages remain as they are and unemployment rises. The extent to which wages (or unemployment rises) actually rise depends on the elasticity of the demand for labour ($\alpha$); and on the propensity for domestic labour to migrate
out \((\delta_j)\) or foreign labour to migrate in \((\delta_k)\). Finally, the extent to which adjustments are needed depends on the shares of national income spent on domestically produced goods \((\beta_{jj})\) or on imports from the rest of the union \((\beta_{jk})\), being the effect of supply/demand shocks on the aggregate demand for labour at home. The gains are the gains, for country \(j\), from the increased profitability of trade: \(\beta_{kj}\tau\) therefore.

4.2 N-countries

The results for the N-countries are set out in Table 4: panel (a) for “would the N-countries want to join the Eurozone?”, and panel (b) for “would the Eurozone want to accept the N-countries?”. Note that in each case we have calculated the net benefit of joining or being joined under the 10 percent market flexibility and 50 percent market flexibility assumptions (corresponding to columns (1) and (2) in Table 3), and also when the candidate joins alone or as one of the group (corresponding to the different \(\beta_{jk}\) and \(\beta_{kj}\) parameters in Table 1).

The results show that none of the N-countries would benefit from joining the Eurozone on current data, with either limited market flexibility or lacking a stronger degree of labour market reform. Interestingly, greater labour market flexibility does make joining the Eurozone more attractive in each case. But it does not do so by very much. The degree of rigidity, as captured by our model, is simply too large.

In fact the degree of flexibility needed to reduce these welfare/utility losses to zero, if shared equally between the candidate country and the rest of the EU, runs from about 70 percent for Denmark, to 90 percent for the UK (Table 3, column (3)). That means substantial labour market reforms would need to be undertaken – enough in fact to reach the point at which wage and price flexibility (or labour mobility) would clear 70 percent to 90 percent of any unemployment or other macroeconomic disequilibria – before it would become worthwhile for these countries to join on economic grounds.

Such a strong liberalisation seems somewhat implausible in the current political environment. However, that said, the expected losses, at 1–2 percent net in utility units, are not huge and imply absolute losses which are roughly double the conventional estimates of the expected gains from adopting a single currency, see European Commission (1990). And Denmark is clearly the closest to wanting to join, while the UK is furthest away. Similarly, it makes very little difference if these countries join as a group. The net losses are slightly larger if
they do so, since they then have to deal with the rigidities of their fellow N-countries as well as the rest of the Eurozone, but the extra costs are very small.

Table 4

The cost-benefit analysis of a northern enlargement without full structural reform

(Changes in utility units, percent)

<table>
<thead>
<tr>
<th></th>
<th>Panel (a): “Would the N-countries want to join the Eurozone?”</th>
<th>Panel (b): “Would the Eurozone want to accept the N-countries?”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(i) Joining singly (1)</td>
<td>(ii) Joining as a group (2)</td>
</tr>
<tr>
<td>Denmark</td>
<td>-.87</td>
<td>-.79</td>
</tr>
<tr>
<td>Sweden</td>
<td>-1.23</td>
<td>-1.11</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>-1.87</td>
<td>-1.62</td>
</tr>
</tbody>
</table>

Source: Own calculations.

The net losses reported in panel (b) also confirm our theoretical analysis in that, at these levels of market flexibility, the Eurozone would be made net worse off if the N-countries were to join. The effect of the additional rigidities would outweigh the reduction in transactions costs and the gains in price stability. Moreover, the Eurozone countries would, as our model predicted, be more willing to have the N-countries join than the N-countries would be to join. Taking them singly, the EU-12’s losses are 17 percent smaller under column (1), for Sweden and the UK, than Sweden and the UK’s own net losses. And they are 45–50 percent smaller under column (2), than the corresponding national net losses.
4.3 E-countries

Repeating the same steps with the data for the E-countries, produces the net gains which are reported in Table 5. Several points stand out. First, as predicted, the losses for the E-countries due to insufficient flexibility or reform are indeed much smaller: typically one third to one tenth the size of the corresponding figure for the N-countries, at the same level of market inflexibility – with some net gains starting to appear when the degree of flexibility reaches the level where wage (or migration) adjustments can be relied on to eliminate half the E-countries' unemployment.

Table 5

A cost benefit analysis of an eastern enlargement without full structural reform

(Changes in utility units, percent)

<table>
<thead>
<tr>
<th>Panel (a): “Would the E-countries want to join the Eurozone?”</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech Republic</td>
<td>-0.27</td>
<td>-0.03</td>
</tr>
<tr>
<td>Hungary</td>
<td>-0.24</td>
<td>-0.19</td>
</tr>
<tr>
<td>Poland</td>
<td>-0.65</td>
<td>-0.55</td>
</tr>
<tr>
<td>Slovenia</td>
<td>-0.66</td>
<td>-0.37</td>
</tr>
<tr>
<td>Estonia</td>
<td>-0.23</td>
<td>+0.07</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel (b): “Would EU-15 want to accept the E-countries?”</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech Republic</td>
<td>-1.16</td>
<td>-0.65</td>
</tr>
<tr>
<td>Hungary</td>
<td>-1.10</td>
<td>-0.61</td>
</tr>
<tr>
<td>Poland</td>
<td>-1.10</td>
<td>-0.61</td>
</tr>
<tr>
<td>Slovenia</td>
<td>-1.11</td>
<td>-0.67</td>
</tr>
<tr>
<td>Estonia</td>
<td>-1.10</td>
<td>-0.68</td>
</tr>
</tbody>
</table>

Notes:

a) Only “first wave” countries are considered. – b) Joining singly, or as a group, gives the same results for each country, but should be accumulated to give the overall impact on the EU-15 if they join as a group. – c) We assume the Euro has all 15 members in these calculations.

Source: Own calculations.

---

These figures are for guidance only, as they have been calculated under the assumption that the E-countries would have shocks with a similar variance to those in Greece in 1995.
On the Role of Labour Market Reform for the Enlargement of a Monetary Union

Evidently, the Czech Republic, Hungary and Estonia are closer to being able to benefit at low levels of market flexibility or reform than Poland and Slovenia. On the other hand, and again as predicted, the existing EU would find accession by the E-countries a good deal less attractive (at any level of market flexibility) than the E-countries would find it to join. Two to four times less attractive in fact.

That contrasts with the results of Table 4 which showed the opposite holds for the N-countries: the EU-12 would find it up to 50 percent more attractive to have the N-countries join, than the N-countries would find it advantageous to join. In other words, our theoretical model stands confirmed: those who have the largest incentive to join are the least acceptable, and those who might not wish to join are the most welcome. However, what our theoretical model did not show is the extent to which ordinary market rigidities can affect the incentives to join a single currency zone. Net benefits do not appear until the degree of flexibility has gone past the 40 percent mark ($\delta_j^*, \delta_k^*$ are the values of $\delta_j$ and $\delta_k$ which reduce the cost terms in equations (1) and (2) down to the level of the benefit terms, so $E(\Delta U_j = 0)$). At that point nearly half of any unemployment problem can be cured by wage flexibility or migration; see Table 3, columns (3) and (4). And for the N-countries, we need this flexibility index to rise above 70–90 percent. To put these numbers in perspective, the 90 percent figure for the UK in Table 3 would mean absorbing roughly twice as many emigrants from the EU as she has actually had in the past two decades; or establishing the wage flexibility necessary to create an equivalent number of jobs (roughly 2.7 m) over the same period.

4.4 Discussion

Two features of these results require further explanation. First, as the theory showed, there are costs to both sides in an enlargement. And it is entirely possible, although not common, that the cost to the existing EU members is going to be larger than to the joining country – even when that country is more flexible than the existing EU. Denmark is a case in point. The assumptions in Table 3 show the Danish economy to be more flexible. Yet enlargement – when joining singly – would entail a utility loss of 0.87 percent in Denmark but 0.97 percent in the Eurozone.

This results from the fact that flexibility is a two-way street: there will be times when Denmark needs to be flexible in migration or wage settlements to resolve her unemployment problems; and times when the EU-12 countries need to be flexible to solve their problems. However, when Denmark is being flexible,
she needs the EU-12 to be flexible enough to absorb the migrant workers from Denmark (or the newly competitive goods after the Danish moderation in wages). And vice versa: the EU-12 will need Denmark to be flexible enough to absorb any migration from the EU, or the consequences of changes in EU’s relative wages. Of course neither side will be fully flexible. But the costs remaining will be higher for the EU here because Denmark is too small to absorb very much of the EU-12 unemployment (or provide much additional demand if relative wages fall in the EU-12). That imbalance would not arise when the new partners are either larger or a lot more flexible, as Table 4 illustrates.

Second, it must be born in mind that all these costs/benefits are measured relative to maintaining separate currencies by the candidate countries. The benchmark solution has an independent monetary policy in the joining countries, and hence the possibility that the EU or the candidate would devalue their currency to help reduce any unemployment caused by ‘excessive’ rigidities in their labour markets. Thus, with imperfect flexibility in a currency union, there are always costs to joining or being joined because one degree of freedom (or flexibility) has been closed down. But if the joining country is more flexible than the rest of the union, then the average adjustment cost to the existing members will go down – although not to zero.

This second point may be illustrated by the Danish case. Here the costs to the EU-12 will have gone down to 0.97 percent when Denmark joins, but will have gone up by 0.87 percent for Denmark herself. In fact, it can be shown (see equations (1) and (2) that for a fixed degree of inflexibility in each country – we take the extreme case of total inflexibility, \( \delta_j = \delta_k = 0 \), by way of example), the cost to joining or being joined is given by

\[
\gamma (\beta_{jk} + \beta_{ij}) \times \phi(0) \frac{\sigma^2_j - 2\rho\sigma_j\sigma_k + \sigma^2_k}{\sqrt{\sigma^2_j - 2\rho\sigma_j\sigma_k + \sigma^2_k}} \beta_{jk} \tau
\]

\[
\gamma (\beta_{kk} + \beta_{kj}) \times \phi(0) \frac{\sigma^2_j - 2\rho\sigma_j\sigma_k + \sigma^2_k}{\sqrt{\sigma^2_j - 2\rho\sigma_j\sigma_k + \sigma^2_k}} - \beta_{kj} \tau
\]

respectively, where \( j \) is the candidate and \( k \) the EU-12. But if the joiner is more flexible than the EU-12 (\( \delta_j \neq 0, \delta_k = 0 \), say), then the costs to the union will be reduced by

\[
\gamma \beta_{jk} \delta_j \phi (0) \frac{\sigma^2_j - 2\rho\sigma_j\sigma_k + \sigma^2_k}{\sqrt{\sigma^2_j - 2\rho\sigma_j\sigma_k + \sigma^2_k}}
\]

whereas the costs to the joiner will only rise to

\[
\gamma \beta_{jk} (1 - \delta_j) \phi (0) \frac{\sigma^2_j - 2\rho\sigma_j\sigma_k + \sigma^2_k}{\sqrt{\sigma^2_j - 2\rho\sigma_j\sigma_k + \sigma^2_k}}
\]
i.e. by

\[ \gamma \beta_{jk} \delta_j \phi(0) \sqrt{\sigma_j^2 - 2\rho \sigma_j \sigma_k + \sigma_k^2} \]

less than in the previous, zero flexibility case. These two expressions for the reduction in costs come from subtracting the change in utility, relative to maintaining a separate currency, when joining a currency union with more flexible markets, from the change in utility when that is done with less flexible markets – using the expressions (1) and (2) and keeping \( \delta_k = 0 \) fixed. Thus, introducing more flexibility via new members reduces the cost elements in each case: it reduces the overall costs for the existing union, and moderates the joining costs for the candidate. But nonzero costs remain for either part. And those costs may be larger or smaller in the candidate or in the existing union depending on the relative flexibility in the new members’ domestic markets, and on that new members’ relative size or capacity for absorbing migrants or changes in relative wages elsewhere in the union. The issue then is whether the new costs are actually lower, for either part, than the transaction gains from the extra trade or, in practice, it appears not – although less so for the E countries (Table 5) than the N-countries (Table 4).

5 Concluding remarks

The above analysis has focussed explicitly on two central themes: the incentives to join EMU; and the incentives to reform within EMU and within the candidate countries. We have presented some “orders of magnitude” evidence on the size and balance of the incentive effects for joining and being joined; and on the desirability of reform in and out of the existing union.

Yet, we are well aware that there are many other important aspects to the enlargement decision than those considered in this paper. For example, issues of commitment, credibility and joint decision making could be argued to be at least equally important determining factors, especially for the E-countries. Also, the absence of financial assets, including money and interest rates, from a model devoted to the study of monetary unions may seem a bit odd. In fact, whether an (un)reformed country decides to join a monetary union will partly depend on the monetary policy rules it expects the enlarged union to adopt. Issues of timing may also be important in the decision to join or enlarge a monetary union (Funke 1993). Moreover, we neglect the question of how the incentives of outsiders would be affected by the decision of some other outsiders to join an already existing monetary union. Nevertheless, our results are
instructive on the relative sizes for the incentives to join or be joined, and on
the need for structural reforms.

More specifically, our modelling framework has been restricted by two impor-
tant factors:

First, the incentive structures, particularly with respect to the possibility of
market flexibility reforms, were limited to exogenously imposed structural
reforms. We have assumed that the incentives to undertake reforms are unre-
lated to the development of the model’s endogenous variables. This may not be
a very realistic assumption. Indeed, one would typically expect that structural
reforms would strengthen trade relationships, create more flexible price and
 wage responses, lower the natural rate of unemployment, give rise to more
stable growth prospects, etc. The incentives to undertake further reform would
therefore depend on the behaviour of those variables.

Second, the analysis has been conducted within a comparative statics fram-
work. As a result, we have been unable to capture the fact that the costs associ-
ated with structural reform would typically appear before the benefits. Among
the costs, we expect to see alterations (losses) in the ability to manage short-
runtime stabilisation operations, losses in job security and a shake out in employ-
ment, a possible worsening in the distribution of incomes and the capacity to
use public expenditures for social/redistribution purposes. There may also be
increased pressure on public finances and debt, a greater need to use fiscal
policy or interventions in labour markets, as a result of being “in” and re-
formed, versus being “out” and unreformed. But among the long run gains, we
could expect to see an increase in output capacity, enhanced growth prospects,
lower natural rates of unemployment, increased market flexibility, increased
trade, etc. The question then is, how do these costs stack up over time? Is it a
case of short run costs versus long run benefits?

In future work we therefore propose to refine and extend our results in two
different directions: First, structural reforms, in the existing union as well as in
the candidate countries, will be defined in terms of the development of the
model’s endogenous variables. Second, the comparative statics approach will
then be extended into a dynamic setting, which allows us to analyse the timing
and size of the costs of reform or enlargement vs. their benefits. In particular,
we would like to see if the apparent lack of progress on the reform agenda may
be due to the short run costs which appear to be “large” compared to the longer
run, but possibly uncertain, benefits of extensive structural reforms. Again, this
means that our existing framework needs to be placed within a larger empirical
or calibrated dynamic model so that we can estimate the timing and relative size of these costs and benefits.\footnote{One obvious direction for evaluating the empirical significance of the time profile of the costs and benefits of reform would be to superimpose our existing framework on the labour market equations of the individual country models of a large-scale macroeconometric multicountry model. This would allow us to make our estimates of the costs and benefits of reform in the existing EMU members and the candidate members for the enlargement, directly and without resorting to stylised facts or stylised models.}

References


Demertzis, M., A. Hughes Hallett and O. Rummel (1998), “Is a 2-Speed System the Answer to the Conflict Between the German and Anglo-Saxon


