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# The European Economy at the Cross Roads: Structural Reforms, Fiscal Constraints, and the Lisbon Agenda<sup>1</sup>

## **1 Introduction**

Structural reform is perhaps the leading economic policy issue in Europe. Indeed, it is widely argued that structural reform is a prerequisite for a successful monetary union (Delors Committee, 1989). Moreover since the European economies appear to be less reformed in market flexibility terms than their American counterparts, efforts to restore economic performance vis-à-vis the U.S. economy have been associated with the need for higher productivity, lower costs and more flexible labour markets in Europe. That has become known as the Lisbon agenda.

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But structural reform also plays a key role in the context of EU enlargement, whether to the East or through the inclusion of the outsiders in the North. Here the issue has generally been seen as a question of whether, and at what pace, a less reformed candidate country would be able to meet a certain set of entrance criteria before being allowed to join a more reformed union.<sup>2</sup> But the reverse problem is equally important: would more flexible economies actually find it attractive to participate in a union of less flexible economies?

This paper, then, has three objectives. First, we examine the proposition that a flexible economy will find it unattractive to be in a union of economies whose markets are relatively unreformed or rigid. That proposition has three important corollaries: a) that the more rigid economies will want the more flexible to join; b) that this incentive pattern reduces the chances of market reform, and could even encourage candidates to move towards the level of the least flexible, once in; and c) it creates a distinction, in terms of membership, between the relatively flexible Northern economies, the less flexible Eastern economies, and the relatively rigid members of the existing European currency union.

Second, we examine the proposition that there may also be a linkage between fiscal discipline and struc-

tural reform which limits the reforms being undertaken. This proposition would explain why, in the European case, market reforms have been so widely discussed and advocated – but so seldom carried out. Agenda 2010 in Germany, labour market legislation in France, pension reform in Italy, or the Lisbon process in general, are just four cases in point.

A third proposition is that structural reforms are hindered by the fact that they typically involve large costs up front, in the short run, and only bring benefits in the longer term. Politically sensitive policy makers may then worry that the short-term costs will outweigh the longer-term benefits – especially if the latter are rather uncertain. To analyse this proposition, we need to use numerical simulations in order to gauge the size and speed of the returns from a programme of structural and market reforms.

These three propositions are familiar. They have become part of the conventional wisdom about Europe; and similar propositions have been derived in other contexts in the academic literature. For example, Hughes Hallett and Viegi (2003) find the same incentive patterns for membership and market reforms in a model with monopolistic labour markets, with employment and wage targets.<sup>3</sup> Dellas and Tavlas (2003) produce the same result again using a New Keynesian

<sup>2</sup> This point of view is derived from the analytic and empirical evidence for a negative link between economic performance and (real) wage rigidity across many countries (Bruno, 1986). The same kind of link has been examined in both, the labour and product markets in Europe (Koedijk and Kremers, 1996), and in the transition economies (Kaminski et al., 1996), where performance is measured in rates of growth and employment, and deregulation appears in competition policy, merger codes and the liberalisation of employment practices.

<sup>3</sup> Similarly, they are also present in our earlier work with competitive labour markets (Hughes Hallett and Jensen, 2001, 2003, 2004).

model with representative households, firms and asset markets – but little detail on the process of wage and price setting. And HM Treasury (2003, charts 6.3 and 6.4) find it in their numerical simulations of flexibility in the U.K. government’s tests for Economic and Monetary Union (EMU) membership. So our propositions are evidently robust to different models, assumptions, or techniques of analysis. But no-one has managed to analyse in any detail why these results emerge. It has not been possible to say, for example, whether the lack of structural reform has been due to a problem of timing (short-run costs versus long-run benefits); or whether it results from a mismatch of incentives; or whether it is due to fiscal restrictions which delay the reform process.

## 2 Methodology

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 extending, a model first suggested by Bayoumi (1994).<sup>4</sup>

Our approach is then 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 a 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 are:

- **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 characterised 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 the world. 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 discussion below shows how these disturbances affect the gains and losses of membership; see equations (1) and (2).

<sup>4</sup> The technical details of this model are lengthy and certainly not original to us. The full framework and derivation of results, is set out in Hughes Hallett and Jensen (2001, 2004). The results quoted here can be seen most clearly in equations (1) and (2) below, which show the net gains (or costs) of EMU membership with partners of different degrees of market flexibility and reform.

– **The correlation between the disturbances in different countries**

For the empirical implementation we need standard deviations for the demand, supply and monetary disturbances in the Northern and Eastern countries, and the correlations of each of those individual country shocks with the corresponding average for the euro area countries.

– **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  $(1 - \tau_i)$  when they arrive in country  $j$ . This is the usual Samuelson “iceberg” assumption. So rather than modelling a separate 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.

– **Factor mobility and wage price flexibility**

To allow for different degrees of flexibility in different countries, we introduce a parameter,  $\delta_i$ , which can vary between 0 and 1 and which allows us to reach both extremes and all points in between. We define  $\delta_i = 0$  as full downward rigidity in wages in country  $i$ ; and  $\delta_i = 1$  as full flexibility so that full employment is always re-established after a negative shock.

– **Asymmetries**

There are four different types of asymmetries: in wage/employment responses; in country specific shocks; in country size; and in degrees of market flexibility. 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. 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 U.S.A. (see, e.g., Begg, 1995, 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 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 their impact on 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. But greater inflexibility means a greater disequilibrium (unemployment/inflation) at home; and consequently abroad too as price and quantity changes are transmitted through adjustments in trade and capital. Thus a higher  $\delta_j$  value means that more unemployed can migrate to country k or can get employment at lower wages at home in bad times; or that, more plausibly, wage rises will be moderated by inflows of labour or attempts at output stabilisation in boom periods. Hence the costs fall with  $\delta_j$  and  $\delta_k$ . But they rise with increasing rigidity ( $\delta_j, \delta_k \rightarrow 0$ ).

However, the costs will also fall with the correlation between the shocks because there is then less need for each economy to adjust and absorb the unemployed from abroad; or have their unemployed absorbed when the domestic economy is in a downturn; or to contain

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.

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 spillover 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 will be larger the larger the share of labour in national income ( $\alpha$ ), affected by the residual rigidities.

We are now in a position to calculate the net effect of EMU membership, for each country, under different degrees of market flexibility. The key parameters will be  $\delta_j$  and  $\delta_k$ , defined above for country j and one of its partners or the union as a whole (k); also  $\sigma_j^2$  and  $\sigma_k^2$ , the variances of the corresponding supply shocks,  $\epsilon_j$  and  $\epsilon_k$  in j and k, respectively, and the correlation between them. In this part of the analysis, demand shocks play no particular role (Hughes Hallett and Jensen, 2001). The expected advantages for country j then turn out to be

$$E(\Delta U_j) = \beta_{jk}\tau - \gamma[\beta_{jk}(1 - \delta_j) + \beta_{jj}(1 - \delta_k)] \times \phi(0) \sqrt{\sigma_j^2 - 2\rho\sigma_j\sigma_k + \sigma_k^2} \quad (1)$$

where  $\phi(0)$  is the distribution function of jointly normal distrib-

uted random variables, and  $\gamma = \alpha/(2(1 - \alpha))$ , where  $\alpha$  is equal to the labour share in national income. Similarly, to answer the “would the euro area want country  $j$  in the union”, we insert the relevant parameter values into

$$E(\Delta U_k) = \beta_{kj}\tau - \gamma[\beta_{kj}(1 - \delta_k) + \beta_{kk}(1 - \delta_j)] \times \phi(0)\sqrt{\sigma_j^2 - 2\rho\sigma_j\sigma_k + \sigma_k^2} \quad (2)$$

Details of how (1) and (2) are derived will be found in Hughes Hallett and Jensen (2001, 2004). However, the first term on the right in the expression for  $E(\Delta U_j)$  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 due to nominal wage rigidities here: if there is excess demand for labour at the current wage rate, wages will increase until 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 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 ( $\delta_k$ ). Similarly, it also depends on the ability of wages in  $j$  to fall ( $\delta_j$ ) to re-absorb those who would otherwise have been unemployed or who migrate out; and on

the ability of wages to rise more moderately because of cost competition, and stem the inflow of labour from, or the outflow of jobs to, country  $k$ .

### 3 Fiscal Policy and the Natural Rate of Output

There are other ways of adjusting the economy in the face of real or nominal rigidities. Two obvious suggestions are fiscal policies which smooth the cycle, and fiscal policies which improve responses on the supply side.<sup>5</sup> These two possibilities divide fiscal policy into two parts: short run adjustments (flexibility in the short-run), and long run adjustments (flexibility in the long-run). The former, working through the economy’s automatic stabilisers, smooths aggregate demand shocks. The latter provides greater flexibility in supply responses, and could include changes in payroll taxes; in the degree and cost of social support, or in the extent of market deregulation and price liberalisation.

#### 3.1 Flexibility in the Short Run

If automatic stabilisers are operating, we can define  $\delta_k$  to be the proportion of those who retain their jobs, or can be reemployed, as a result of an expanding fiscal deficit in a period of low demand in country  $k$  ( $\varepsilon_k < 0$ ). Similarly  $\delta_j$  is the proportion who retain their jobs in country  $j$  when  $\varepsilon_j < 0$ . Thus  $0 \leq \delta_j, \delta_k \leq 1$  as before. The cost-benefit analysis of membership and structural reform now proceeds *exactly* as in section 2.2. Equations (1)

<sup>5</sup> Discretionary fiscal policies would also be possible, but typically suffer from variable lags and uncertain impacts. Taylor (2000) therefore recommends cyclical smoothing be left to the automatic stabilisers; and that discretionary policies be reserved for creating long-run improvements on the supply side. We adopt this convention throughout this paper.

and (2) now give the net benefits of membership, or of accepting new members, but with the new interpretation of  $\delta_k$  and  $\delta_j$  as the “employment saving” consequences of the fiscal stabilisers. These “employment saving” consequences may be significant in practice. For example, Bayoumi and Masson (1995) estimate that fiscal redistribution (regional stabilisation) in the U.S.A. and Canada may contribute 30–40 cents on the dollar to stabilising regional incomes – and hence similar proportions to employment saving. Hence we might expect  $\delta_k$  and  $\delta_j$  to be around 0.3 or 0.4. In Europe, where there are no such redistributive mechanisms in place (structural funds excepted), those parameters would be at least 10–15 times smaller (and perhaps zero) unless the domestic governments can institute strong and effective fiscal policies at that level. The conclusions, nevertheless, remain the same as before:

- Fiscal flexibility, defined to mean strong budget multipliers and minimal restraints on the budget, can overcome the consequences of rigidities elsewhere in the economy – and the costs of adjusting in the labour markets in particular.
- Individual governments are likely to only want a union which has at least as much, if not more, fiscal flexibility than themselves – and who have the freedom and temperament to use that flexibility. But they will want to minimise the cost of using fiscal policy flexibly themselves.
- A “large” country will want to ensure fiscal flexibility at home before joining; but a “small” country, including the current

candidates, would want the union to accept the need for fiscal flexibility before agreeing to join. Conversely, a lack of fiscal flexibility will bring greater costs to both parties – irrespective of where the inflexibilities arise ( $\delta_j \rightarrow 0$  or  $\delta_k \rightarrow 0$ , or both, in (1) and (2)); and irrespective of whether they arise because fiscal deficits are restricted by the Stability Pact, or because debt has become too large. The point is that fiscal restrictions in *one* country will impose costs on *all*, by increasing the amount of adjustment that needs to be undertaken to restore equilibrium within each of the other countries. Conversely, extra flexibility in one country will benefit all, although it will benefit the home country most if  $\beta_{jj} > \beta_{jk}, k \neq j$ , holds in (1) and (2).

### 3.2 Flexibility in the Long Run

What happens if policy makers create greater flexibility in the long run by lowering the natural rate of unemployment? As noted above, these changes would come from structural reforms which reduce payroll taxes; or lower the cost and disincentive effects of social security; or which make institutional changes to liberalise markets, to improve competition, skills and technology etc. Our model shows that such changes would make no difference to the net benefits of union membership if it were thought that those reforms would be undertaken whether or not country  $j$  joined.

The reason is that structural adjustments that alter the natural rate of unemployment or output capacity would add a constant term of  $\Delta \bar{y}_k > 0$  and  $\Delta \bar{y}_j > 0$  to the right of  $U_k$  or  $U_j$  respectively, where  $\Delta \bar{y}_k > 0$  represents an increase in



output capacity. Equations (1) and (2) show that such changes would make no difference to the net benefits of union membership if such reforms would be made anyway since these additional terms of  $\beta_{jk}\Delta\bar{y}_k$  and  $\beta_{kj}\Delta\bar{y}_j$  would, on average, cancel out in (1) and (2). Only in the case where the same reforms failed in the union,  $\Delta\bar{y}_k < 0$ , but succeeded outside  $\Delta\bar{y}_j \geq 0$  would the costs of membership rise.

### 3.3 Could Fiscal Restrictions Prevent Structural Reform?

In the light of the previous section, we have to ask whether Europe's fiscal restrictions – such as those in the Stability and Growth Pact – could prevent the necessary reforms being undertaken. One could imagine that any programme of structural reform would entail additional public expenditures, and possibly lower revenues or larger output gaps while the reforms were being undertaken. Reform will put people out of work while the reforms are being carried out, and it will take time before those people are reemployed. Indeed, many of them may need retraining or new skills. There will therefore be additional unemployment and other social benefits to be paid in the interim, and extra retraining programmes to be paid for. At the same time, there may well be new infrastructure projects, development grants, support for new technologies, etc. In each case, public expenditures will rise. But with unemployment temporarily higher and output lower, tax revenues will fall. Consequently, the fiscal deficit will

be larger, and the deficit ratio larger, than the trend position of either.

These changes will lead to chart 1, which shows how the fiscal deficit ratio could vary with different sizes of the output gap. The bold line AA' shows the position before structural reforms are undertaken.<sup>6</sup> Point D is the structural deficit for this economy; that deficit being positive even though the output gap is zero.

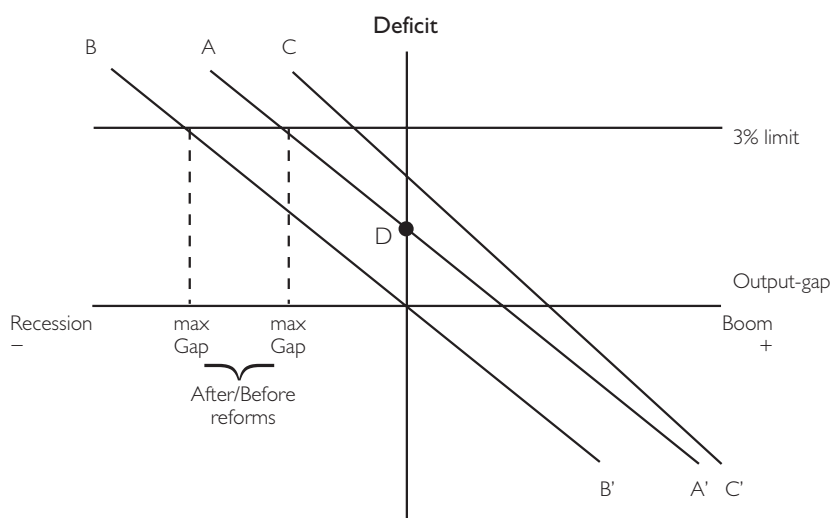
The reform programme would, presumably, be designed to eliminate that structural deficit. That would get us to line BB'. But the argument above shows that we would have to reach that position via the line CC', which represents a short term adjustment phase. In fact, it is not clear exactly where CC' should lie, other than it must be above AA' and with a slope no less than AA'. Consequently, it could be a simple rightward shift from AA'; or a rightward shift with steeper slope; or a rightward shift for negative output gaps only. Experience suggests that it is probably one of the latter two possibilities, since structural reforms during boom periods are going to be easier and cheaper to finance; meaning the unemployment/retraining costs will be lower per unit output gap. In that case, the CC' line will be as we show it.

Now we can impose fiscal constraints to see the consequences. In chart 1 this is represented by the Stability and Growth Pact's (SGP) 3% limit on the deficit ratio. It is immediately obvious that any such restriction would interfere with the process of structural reform. Although the probability of exceeding

<sup>6</sup> The European Commission (2002) has estimated the slope of this line to be approximately  $-0.5$  for the euro area as a whole, a bit steeper for countries with extensive social welfare programmes and a bit less steep elsewhere.

Chart 1

**Link between Fiscal Policy and Structural Reform**



Source: Authors' calculations.

that limit (or more precisely of getting an output gap that forces us to do so) is much lower after the reforms are completed, the probability of exceeding them in the interim will have increased significantly. That would be a considerable barrier to ever undertaking such reforms. Indeed it would make them much more expensive: either in fines, or in the expenditures forgone in order to make room for the reforms. In that case, rational governments would either tend to postpone such reforms, or switch them off each time they approached the 3% limit. We investigate that link next.

#### 4 Empirical Verification

The rest of this paper is concerned with an empirical evaluation of the incentives for enlargement and for structural reform. At its simplest, this can be seen as an attempt at verification of the results we have obtained so far – in particular the incentives for enlargement to the

North, and for the lack of progress towards reform. We aim to get some empirical insight into why:

- there is a serious enlargement problem – some want to join, and some do not. Does flexibility play a role here?
- there is a reform problem – many agree that reforms are necessary, but few find sufficient incentives to implement them. This implies a “hold-up” problem.
- there is a “hold-up” problem, in which the short-run costs are perceived to outweigh the discounted future benefits; and
- and whether the current fiscal constraints effectively prevent the necessary reforms, and exaggerate the disincentive effects as identified above.

#### The model

We carry out the empirical evaluation using the Oxford Economic Forecasting (OEF) model, which is a

traditional multi-country econometric model (OEF, 2003). There are two reasons for selecting the OEF model. First, it is the only publically available model which contains a full specification of all the regions we are interested in: i.e., the Northern, Eastern and euro area countries. Second, unlike the OECD's Interlink and the IMF's Multimod, the OEF model has a clear specification of the structural (supply-side) asymmetries that can be exploited to illustrate the analysis of this paper.

The OEF model contains a sequence of theory based empirical models covering all the OECD economies, 14 of the largest emerging markets economies, and six trading blocs covering the rest of the world economy. These country models are then linked by trade relations, world prices for tradables, intercountry capital flows, and interest rate and exchange rate effects under different possible exchange rate regimes.<sup>7</sup>

The countries covered specifically include the U.S.A., Canada and Japan, plus China and Russia outside the EU; the euro area countries, and the U.K., Denmark and Sweden outside the euro but in the EU; and Poland, Hungary and the Czech Republic among the new accession countries. Each of these country models is based on a traditional income-expenditure specification, plus a rather detailed supply-side specification to determine wages, prices, employment, and unit labour costs.

There is also a government sector to conduct fiscal policy. Total government revenues are collected from a variety of sources, and the government has a number of different outlays. These fiscal policy variables may affect labour market behaviour. Although the specification of each country is broadly similar, there are important differences both in the level of aggregation and in terms of different responses to shocks.

Since we are concerned about wage rigidities in general, and the supply side in particular, we note here the way in which wages and salaries are set. The OEF model incorporates short-run nominal and real wage rigidities, which ensure the existence of involuntary unemployment and monetary effects on the real economy. In the long run the employment equation solves for a constant level of real unit labour costs, given by labour's share in the production function, while the wage and price equations solve for the level of unemployment consistent with this labour share. With vertical Phillips and aggregate supply curves in the long run, monetary policy determines the inflation rate. But structural and supply-side policies determine the unemployment rate. Structural unemployment is therefore possible. Indeed, the equilibrium rate of unemployment is determined by the gap between the total real cost of labour to employers, and the real value of post-tax wages received by employees.

<sup>7</sup> *There is also a monetary sector in the model containing a monetary equilibrium and a Taylor rule. The exchange rate regimes are floating for the dollar, euro, pound, yen and other major currencies; but a single currency within the euro area, and a strict exchange rate targeting arrangement for Denmark (ERM-II), and for the accession countries in Eastern Europe. It is important to note that the model also determines some world market variables (such as oil and commodity prices) and the world aggregates (world GDP, industrial production) endogenously. A more detailed specification of each of the model's expenditure blocs is provided in OEF (2003).*

### Short-run rigidities

Real wage rigidities are higher in some countries than others. In general, each country is modelled in terms of an *error correction model* (ECM), so that each equation contains short-run deviations from the long-run equilibrium – in this case, the natural rate of unemployment  $\bar{U}$ . The smaller the adjustment parameter, the longer it will take to return to equilibrium after a shock.

Within the euro area, each country is expected to have similar structures, as captured by the so-called average earnings equation (AEE). By contrast, the asymmetry between the euro area countries and Northern countries may be substantial. A comparison of the AEE in the United Kingdom and Germany illustrates this point. The British AEE reads as follows

$$\begin{aligned}
 D \ln E = & 0.17 + D \ln P + 0.37978 \cdot D \ln Q^c - 0.01162 \cdot D \ln U_{-1}^a \\
 & + 0.13844 \cdot D \ln(P^c/P) - 0.54447 \cdot D \ln(P/P_{-1}) \\
 & - 0.11192 \cdot D \ln(P_{-1}/P_{-2})^e - 0.067024 \cdot D \ln(P_{-2}/P_{-3})^d \\
 & + 0.4553 \cdot D \ln(E/P)_{-1}^b \\
 & - 0.098497 \cdot [\ln((E/P)_{-1} \cdot Q_{-1})^c + 0.07 \cdot \ln(U/\bar{U})_{-1}^a] \quad (3)
 \end{aligned}$$

where  $E$  is average earnings (in nominal terms),  $P$  is the deflator for GDP,  $P^c$  is the consumer price index,  $U$  is the unemployment rate,

$\bar{U}$  is the NAIRU,  $Q$  is productivity, and  $D$  the difference operator. The German AEE, meanwhile, is:

$$\begin{aligned}
 D \ln E = & 0.5 \cdot D \ln E_{-1}^b + \bar{U}_{-1}^2 \cdot 0.050 \cdot D \ln P^c + 0.10 \cdot D \ln P_{-1}^c \\
 & + 0.10 \cdot D \ln P_{-2}^c + 0.15^d \cdot D \ln P_{-3}^c + 0.10^d \cdot D \ln P_{-4}^c \\
 & + 0.300 \cdot D \ln Q_{-1}^c - 0.0025 \cdot D \ln U_{-1}^a \\
 & - 0.10[\ln E_{-1} - \ln Q_{-1} - \ln P_{-1} + 0.015 \cdot \ln(U/\bar{U})_{-1}^a] \quad (4)
 \end{aligned}$$

While exactly the same variables appear in the two AEEs, there are clear differences between the short term behaviour in the two markets. First, average earnings in the U.K. depend relatively more on the previous unemployment rate and the ratio of the current unemployment rate to the natural rate (the terms marked a) in (3) and (4)). This is perhaps the key difference. It implies that the short-term Phillips curve is steeper in the U.K. than in Germany or the euro area, and explains why the U.K. would have to bear a greater part of the adjustment

burden if she joined the euro as a more flexible economy. In boom conditions (excess demand), the U.K. would find herself having to accept more inflation than her partners, because of the upward flexibility of her prices and wages. Similarly, in the downturn, U.K. wages would have to fall disproportionately (or allow U.K. unemployment to rise more than elsewhere to create the pressure for this wage disinflation) in order to equilibrate the labour markets. That, of course, is exactly the logic set out in theoretical model: see equations (1) and

(2). Interestingly, it is also the conclusion reached in the six numerical simulations conducted by the U.K. Treasury on this issue (HM Treasury, 2003).

Second, once a disturbance has set in, the German equation has more persistence, as reflected in a higher coefficient on the previous period's rate of change in average earnings (term b)). Third, the U.K. has more supply side sensitivity (term c)) if there is a negative productivity shock. Fourth, Germany has more persistent accommodation of price rises, out to  $P_{-4}^c$  instead of  $P_{-2}$  (term d)). Note also that  $P^c$ , unlike  $P$ , has import prices in it, and hence implies an additional source of inflationary stickiness in Germany. Finally,  $P$  is influenced by capacity utilisation which implies extra market sensitivity in the British equation (term e)).

#### Long-run rigidities

In the long run, structural rigidities affect unemployment, and hence wages and economic performance. The equilibrium rate of unemployment is determined by the "tax wedge"  $W$ , defined as the gap between total cost of labour to employers – including social security contributions – and the real value of post-tax wages received by employees. Thus

$$\ln(\bar{U}) = \beta_0 + \beta_1 W + \beta_2 \ln(P^f/P) \quad (5)$$

where  $P^f$  are domestic fuel prices,  $P$  is the GDP deflator, and

$$W = \ln[E(1 + \tau^p + T^{poc}/Y^{WS})/P] - \ln[E(1 - \tau^a - \tau^s)/P^c] \quad (6)$$

where  $\tau^p$  is the payroll tax rate,  $T^{poc}$  is the personal sector other

contributions,  $Y^{WS}$  are wages and salaries,  $\tau^a$  is the average personal income tax rate,  $\tau^s$  is the employee social security contribution rate, and  $E$  and  $P^c$  are as before. Rigidities may therefore vary between countries in the long run because the  $\beta$  coefficients in (5) differ; or because the components of the tax wedge (6) take different values in different places. Structural unemployment created in the short run can therefore persist; and the choice of monetary regime may have long-run effects through  $W$  if not through other channels as well.

## 5 Economic and Monetary Union and Structural Reform

### 5.1 The Baseline Solution

We turn now to the relative importance of market inflexibilities in EMU. To judge that we have to create a counterfactual where there are no enlargements, no new flexibilities, and no additional fiscal constraints. This baseline solution would therefore not have any new economies joining EMU; it will not have the SGP's 3% deficit limit imposed on those countries; and will not have the current degree of labour market flexibility in Germany, France etc. increased.

It is important to stress that the projections from such a scenario are not of great interest in themselves. But they are necessary as a benchmark against which the benefits of an alternative scenario can be measured: such as the United Kingdom joins the euro; national fiscal policies are restrained; or Germany makes her labour market more sensitive to market conditions. Consequently, it is not the baseline values themselves which matter, but whether the

Table 1

**Baseline Statistics: Economic Development in the Absence  
 of Any New Enlargement, 2002–2007**

	U.K.	Germany	France	Belgium	Poland
	%				
Inflation	1.5	2.0	2.0	2.0	5.0
GDP growth	2.5	1.8	3.0	2.8	4.4
Unemployment	3.0–3.5	10.4–8.1	9.0–7.2	11–10	16–14

Source: Authors' calculations.

Additional Figures: U.K. interest rates fall from 5% to 4%; U.K. debt increases 8% over 4.5 years (the debt ratio therefore falls by 7 percentage points over the same period); the pound depreciates from GBP 1.59 to GBP 1.43, and the U.S. dollar depreciates from USD 0.85 to USD 1.12 per euro.

changes from that baseline can be said to be favourable or unfavourable.

In what follows, we focus on deviations of (i) output, (ii) unemployment and (iii) inflation from the baseline path. Table 1 contains the baseline simulation values for those variables for the countries highlighted in the comparisons which follow, averaged over the period from 2002 to 2007 inclusive, in the absence of any extensions to EMU or major changes in market behaviour.

They describe an uncontroversial future in which inflation and growth continue in the 1% to 2% and 2% to 3% ranges respectively; unemployment is falling but very slowly; and the euro appreciates against both the pound and the dollar very much as it did during the 2002 to 2004 period.

Finally, it will be clear that our simulations are being conducted to give the medium term consequences of membership of the union of the various degrees of market flexibility and reform. Of course, being dy-

namic, our calculations also show some of the costs and benefits along the way.

## 5.2 The Flexible Economy Case:

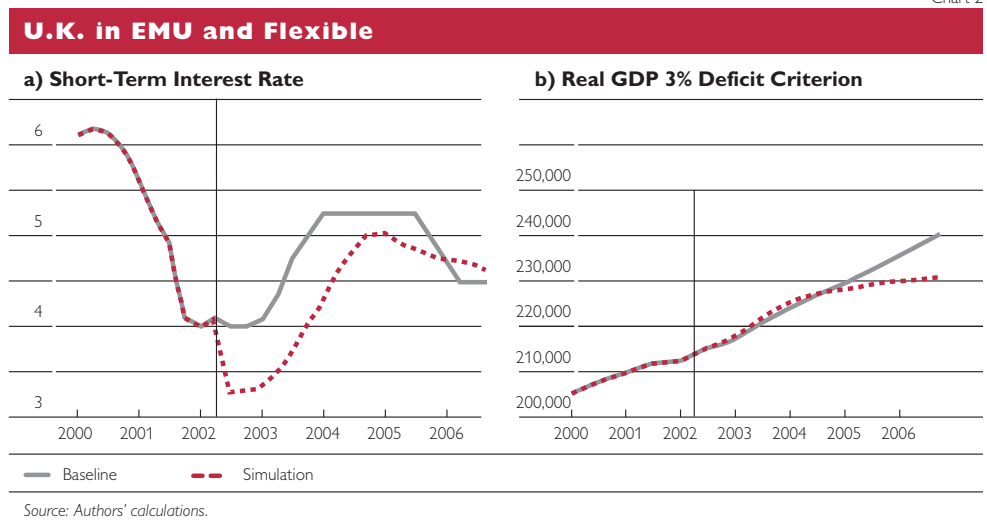
### United Kingdom Joins the Euro

We first investigate the effects of a flexible country (United Kingdom) joining a block of less flexible countries (the euro area). Specifically, we assume that the U.K. would join EMU in the first quarter of 2005, and that this fact is announced in the third quarter of 2002. As a result, the United Kingdom adopts a “European” monetary policy from 2003 onwards; but the exchange rate is not completely fixed in the period from 2002 to 2005. Instead it is fixed at a level of EUR 1.4316/£ 1 at the first quarter of 2005 and does not change thereafter.<sup>8</sup> This assumption is consistent with the exchange rate criterion for joining EMU.

What happens? As a result of joining, the United Kingdom enjoys a lower short term interest rate (chart 2a) over the entire simulation period.<sup>9</sup> One would expect this

<sup>8</sup> We have checked the sensitivity of the results of this assumption of the joining rate, and found our conclusions were not altered for a wide range of plausible joining rates from EUR 1.60/£ 1 down to EUR 1.30/£ 1. So the exact exchange rate value makes no difference. The particular value used here is the model's equilibrium rate for the pound, and is slightly more favourable (to the U.K.) than the market rate at the time of writing (EUR 1.49/£ 1, April 2004).

<sup>9</sup> In chart 2 – and all subsequent charts – the solid schedule refers to the baseline, and the dotted schedule refers to the simulation.



lower interest rate would increase real GDP, together with the implied depreciation of the pound from EUR 1.59/£ 1 in 2002 to EUR 1.4316/£ 1 in 2005. But the expansionary effect does not take place (chart 2b). It is true that lower interest rates and the depreciation of the pound have led to a small increase in output at the beginning of the simulation. However, by the time the United Kingdom joins the euro, the real GDP growth rate is well below the baseline. This reduction is driven by the economic state of the (less flexible) euro area. Since Germany and the other euro area countries are growing below capacity, and since the United Kingdom is now linked with the euro area via a fixed exchange rate, there is a negative spillover effect onto the United Kingdom, which can no longer be offset by monetary policy. If there is to be any recovery in the

United Kingdom, it will have to be through fiscal policy.

A second reason for the reduction in the GDP growth rate is that, towards the end of the sample, the euro appreciates against the dollar. Of course, the pound's depreciation at the time of the United Kingdom joining the euro has had an expansionary effect. But, given the British trade structure, the subsequent euro appreciation (with the United Kingdom as a member) makes the United Kingdom worse off again. So the current account worsens, and therefore GDP. That spills over into lower employment in the private sector and a rise in unemployment (chart 3a). That lower employment then lowers average earnings, which in turn reduces the GDP deflator, and that then reduces the demand for labour in the private sector somewhat further.<sup>10</sup>

<sup>10</sup> Note that the same rise of the euro appears in all our simulations, and in the baseline. So although its appreciation adds to the disequilibrium felt in the U.K. when she is a member, that is not the cause of the costs of membership observed here since the same rise in the euro happens whether the United Kingdom is "in" (this simulation) or "out" (the baseline). The source of those costs is the extra difficulty of dealing with the consequences of that rise when the United Kingdom is "in" because she has to offset the disequilibria transmitted from other markets in the EU as well as her own, and supply the equilibrating adjustments, all without the use of her own monetary policy.

At this point one would expect increasing competitiveness to have an effect. Unfortunately, the time horizon in these diagrams is too short to show the full effect of these adjustments after 2007. However, at that stage falling average earnings do start to increase competitiveness again. Output and employment then expand, and continue to do so as long as expenditure cuts do not force the budget deficit to decline at the same time. It is the latter which makes the difference.

Hence, we have a clear example of a regime change creating short-run costs but long-run benefits. But whether those benefits will turn out to dominate the short-run costs will depend on the size of the fiscal burden (debt) being created at the same time; and on whether that burden would trigger fiscal restrictions which hinder the improved performance. If any restrictions do come into play, they will reduce the scope for benefits in the future. It appears that the latter is a real possibility. The reason is as follows. The United Kingdom's unemployment rate behaves as the analogue of GDP, and rises as GDP falls. This has a knock on effect on government debt which does indeed rise sharply (chart 3b). At this point we need to take into account that, if the United Kingdom were to join the euro, she would be subject to the SGP's 3% deficit criterion. That would trigger sharper cuts in public expenditures, and hence larger falls in GDP (and larger rises in unemployment) than we observe here.<sup>11</sup> Fiscal-monetary interactions are important, therefore.

The opposite holds for the impact, on Germany, of the United

Kingdom joining the euro area. German GDP improves slightly through the simulation, as does the unemployment rate. The bottom line is, therefore, that a more flexible United Kingdom is made worse off by joining, and a less flexible Germany is made better off – exactly as our theoretical results had predicted. The reason is that, in a boom period, the flexible economy gets the wage and price rises. In a recession, it is the one that has to carry the extra unemployment and debt. These mechanisms are, of course, independent of the exchange rate value at which that country joined.

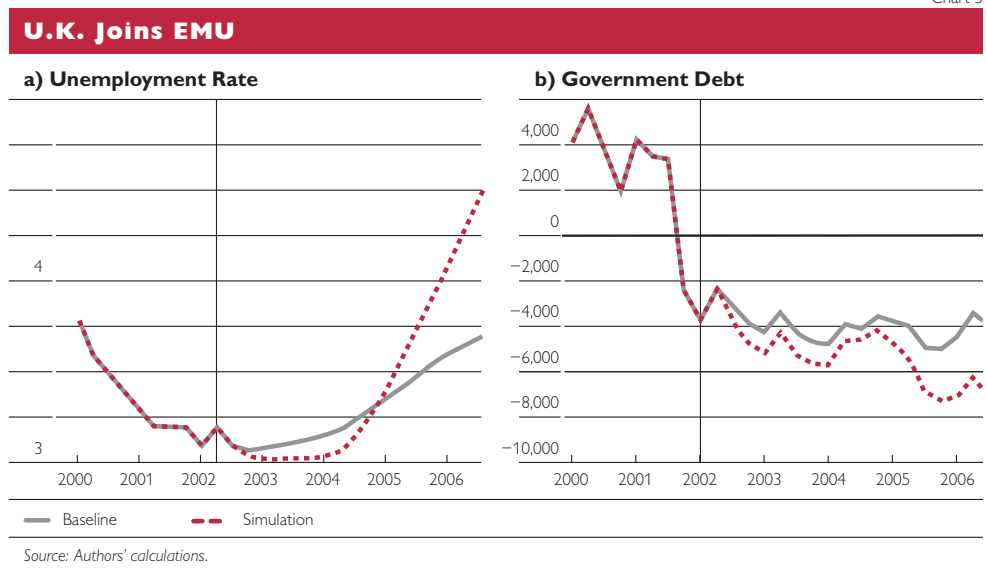
### 5.3 Regime Changes in the Presence of Rigidities

There remains a question of *why* the choice of exchange rate regime matters. The model shows each labour market suffers real and nominal rigidities in the short term; but no nominal rigidities in the long term. The choice of exchange rate should therefore have no long-term effect, unless rigidities convert the short-run effects into persistent changes. That, according to this model, is exactly what happens.

The exchange rate regime, however, does have real effects when there are rigidities in wages or fiscal support. We saw that structural unemployment could be created because unit labour costs do not solve for a level of unemployment consistent with the market clearing rate of unemployment – these markets being imperfectly competitive; and because policy or falling competitiveness alters that natural rate via the tax wedge  $W$ . For example, to the extent that deflationary pressures

<sup>11</sup> We also had a look at inflation, which is similar to what we observe in the baseline and is not reported.





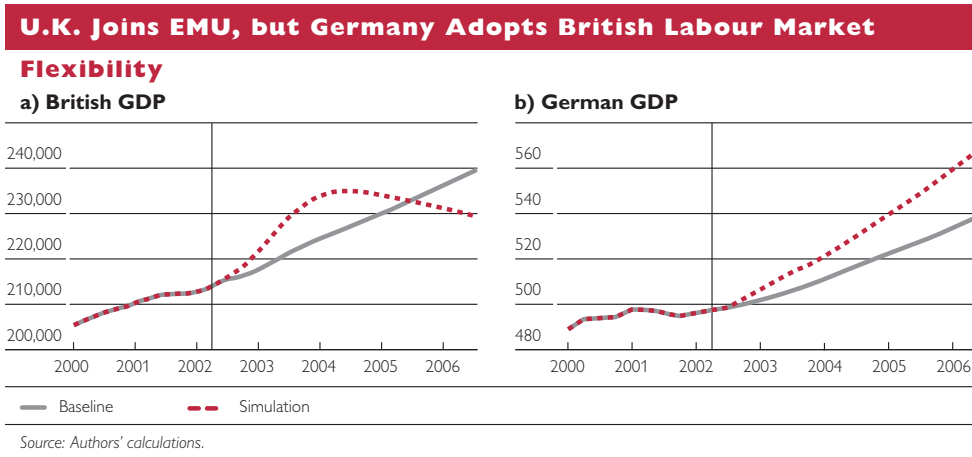
and a falling currency widen the wedge via the price terms in (6), then long run unemployment will be higher and GDP lower. This is what happens to the U.K. in charts 2 and 3. That effect can be offset if average tax rates fall with growth, or if increasing wage competition lowers unit labour costs and raises aggregate incomes. Since the U.K. labour market does both, the U.K.'s losses eventually stabilise.

Outside the labour markets, if market rigidities cause deflation in the short term, government revenues will fall and expenditures rise. The deficit then widens as we have shown; with the result that debt and interest payments increase. In that case, Ricardian equivalence, even if imperfect, means that consumption and investment expenditures must fall in anticipation of tax increases – which means those aggregate demand components will remain “below trend” so long as the deficit persists.

#### 5.4 The Rigid Economy Case: Germany Reforms

Would the story be modified if Germany adopted British flexibilities? Here we assume that Germany has the same average earnings equation as the United Kingdom. As before, the United Kingdom joins the EMU at an exchange rate of EUR 1.4316/£ 1 in 2005. This lowers British interest rates, which benefits growth. Moreover, since German labour markets are now more competitive than before, German demand is higher than before (despite the euro appreciation). That produces a new positive trade effect for the United Kingdom. However, when the exchange rate is ultimately fixed in 2005, a negative effect kicks in. By fixing to the euro, the United Kingdom faces an appreciation against the dollar. This appreciation reduces British competitiveness in the U.S.A. and elsewhere and, given that 50% of British exports go to the U.S.A. or dollar based currencies, that has a significant negative effect on the British current account. This, in

Chart 4



turn, reduces British employment and British demand (chart 4a). British GDP therefore rises more at the start in this simulation, but ends up in the same place. As we noted, the exchange rate path itself affects performance but not the comparison between more flexibility and less flexibility.

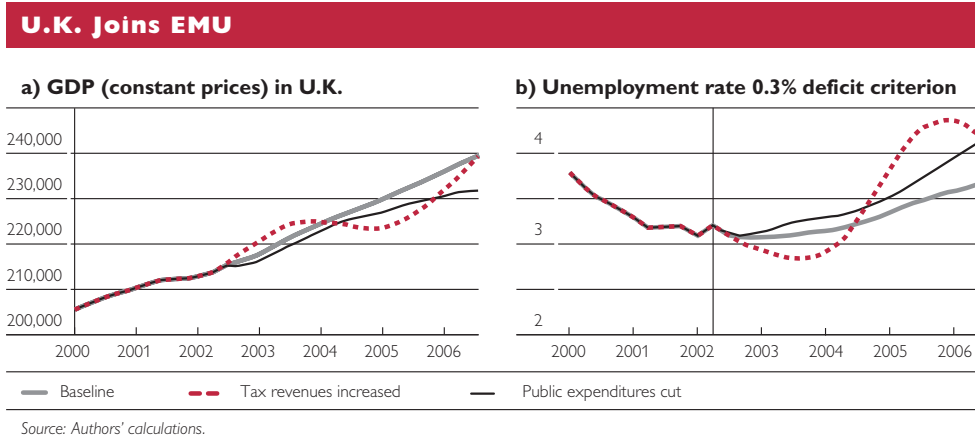
A more interesting question is what happens to Germany in this case? As chart 4b demonstrates, by making German wages as flexible as the British ones, Germany is made much better off than before. It should be mentioned that we are comparing two deterministic solutions here. There is no shock affecting Germany: everything else has stayed the same. So we can conclude that the results of this scenario are indeed driven by making the German labour market more flexible, not by the value of the euro. This suggests that one condition for the United Kingdom joining the euro might be that Germany (and others) should reform their labour markets. The issue then is whether increased competition in the euro area would produce sufficient incentives to undertake such reforms.

Finally, an examination of euro area inflation shows that introducing British flexibilities into the German labour market has led to a lower inflation rate. Again, flexibility matters. The adjustment burden previously placed on the United Kingdom has now been transferred back to Germany.

## 6 The Link between Fiscal Constraints and Structural Reform

### Case 1: Fiscal constraints through tax increases.

We now investigate the impact of fiscal policy on the incentives for structural reform. We assume that the British government decides that it needs to prevent public sector debt from rising. As a unilateral action the British government limits its fiscal deficit to 0.3% of GDP. Although this is not strictly a representation of the SGP, it is in line with the SGP's requirement that countries should remain "close to balance or in surplus". It also corresponds to the official target for the United Kingdom's cyclically adjusted budget, as set out in her Stability and Convergence Programme. However,



we assume public expenditures are to be kept at the same level as before, so that the government has to increase taxes.

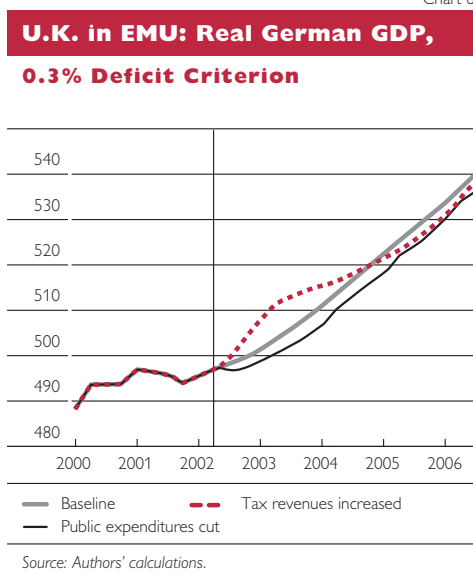
As chart 5 shows, a clearer business cycle now emerges. Compared to charts 2 and 3, the United Kingdom is better off joining EMU in the short term (schedule B).<sup>12</sup> But towards the end of the sample she is worse off. These are standard results for an expansionary fiscal contraction: in the short term the economy appears to improve, but performance begins to deteriorate again in the longer term as unemployment increases (Barry and Devereux, 1995). Indeed, chart 5 shows that unemployment is behaving exactly as an analogue of GDP, without discernible effects on the inflation rate. In this case, because joining the euro generates a short-term increase in growth in the U.K., taxes start to rise which eases the deficit at the start. However the combination of the natural tendency for growth to slow in 2005 (as we saw in chart 2), and of the need to impose tax increases at that point to prevent the

deficit increasing as new unemployment appears, puts the economy into a relative recession. However, since expenditures held constant, and hence become a rising proportion of output, growth is eventually restored – and with it the tax revenues to balance the budget. Hence the cyclical pattern in simulation B.

Interestingly, the effects on Germany are also much stronger in this simulation (chart 6, schedule B). Fiscal prudence in the United Kingdom evidently has an impact on Germany. Therefore, contrary to conventional wisdom, fiscal spillovers do matter. Germany is now better off in the short run than she is worse off in the long run. Again we have a short-run versus long-run conflict – but this time in terms of larger short-run benefits versus smaller long-run costs. That shows the advantage of having a more flexible partner. Evidently, fiscal restrictions without expenditure cuts throw more of the adjustment burden onto the more flexible partner – the U.K. in this case.

<sup>12</sup> In charts 5 and 6, “schedule A” shows the baseline; “schedule B” the outcomes when taxes are increased; and “schedule C” the outcomes when expenditures are cut.

Chart 6



**Case 2: Fiscal consolidation is achieved through expenditure cuts.**

Next, we investigate the impact of expenditure cuts in the United Kingdom. We assume that the British government reduces the deficit to 0.3% of GDP and reduces expenditures to do so. This offsets and removes the growth increase on joining the euro. That unbalances the budget further, causing further cuts. There is no restoration of previous income levels as expenditures increase in proportion to output. Instead, the economy grows much as before, but at a lower level of income. The result, reported in chart 5 (schedule C), is that the United Kingdom is now considerably worse off, at least in comparison to the baseline.

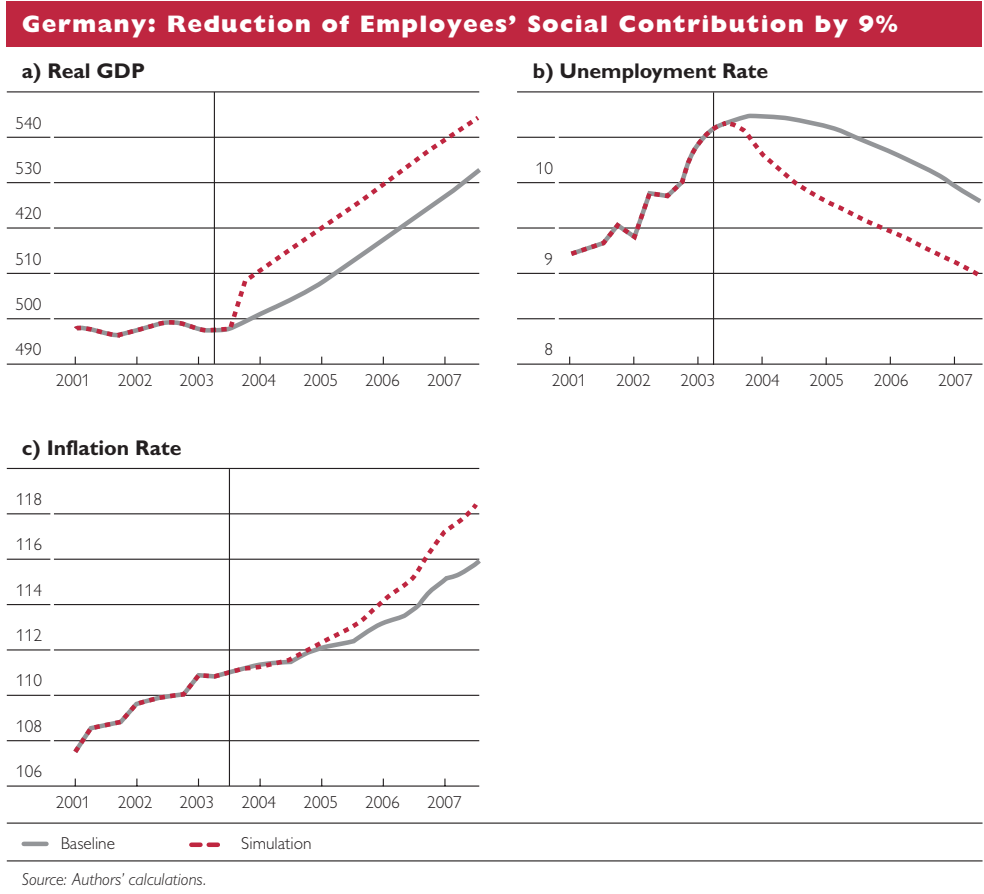
Note that, in this scenario (schedule C), the unemployment rate is higher than in the baseline (schedule A), or in the first simulation (schedule B), for the first three years. But the unemployment rate in the first simulation does converge towards the baseline at the end of the simulation period, whilst that in

the current simulation continues to move away from the baseline at that point. So fiscal restraint has had ambiguous effects, depending on the form it takes. Unemployment is unambiguously worse in the short term, but may become better again if tax revenues can increase with growth gradually so that the higher taxes do not become an additional burden on the extra growth created by the consolidation of the budget. Expenditure cuts, however, by worsening the growth prospects in the short term, cannot avoid becoming an extra burden in later years because lower revenues earlier on reduce revenues and make further expenditure cuts necessary.

Moreover, fiscal restraint based on expenditure cuts in the United Kingdom clearly has a damaging impact on Germany (chart 6, schedule C). In the first two scenarios (schedules A and B), Germany was helped by the United Kingdom joining the euro. In this scenario (schedule C), Germany is worse off over the entire period. That implies expenditure spillovers matter. Germany would not want the United Kingdom to apply the SGP rules, or have them enforced by others, if that should lead to significant cuts in expenditure. It is unlikely that the SGP would survive if no-one has an incentive to demand that it be honoured by others, let alone themselves.

**7 Structural Reform in Practice**

Finally we turn to an example of a programme of structural reforms in the context of the Lisbon agenda. The aim is to get an idea of what results we might expect in practice; to see if they are important empiri-



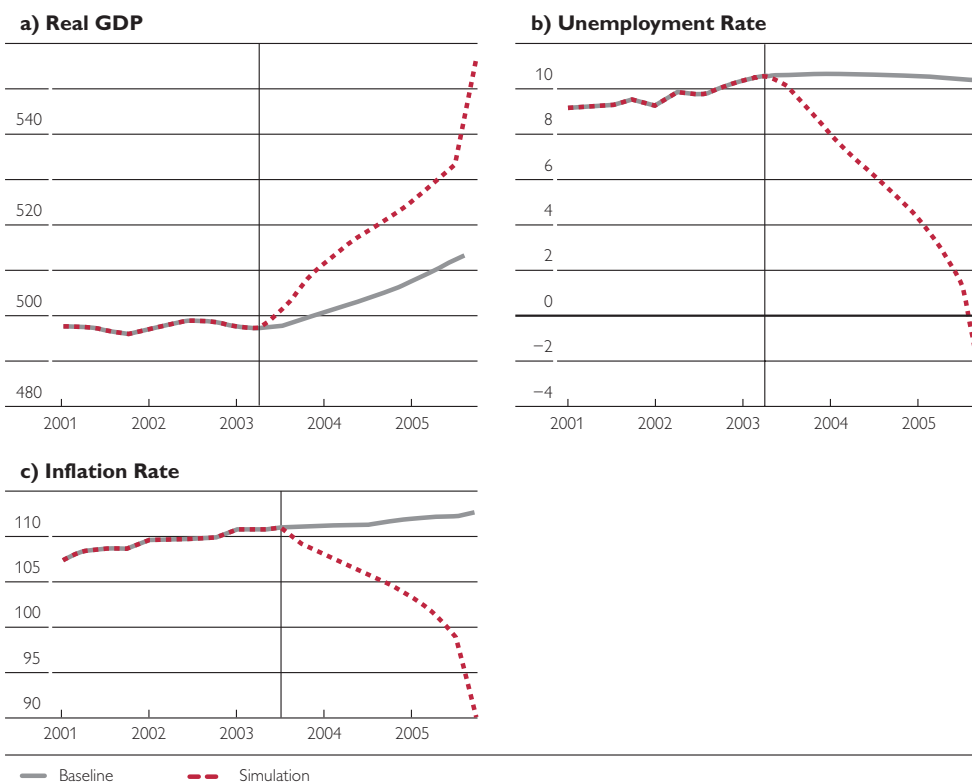
cally, and whether they are in line with the analytic reasoning set out earlier. The example we have taken is the German government's Agenda 2010. The German economy is an important candidate for reform, and "Agenda 2010" is a good example of a portfolio of measures currently in the process of being implemented. Indeed, Chancellor Schröder had staked his own career on these measures being adopted by the end of 2003.

The measures themselves fall into five broad categories:

- Employment generation with training
  - increasing the number of apprenticeships, and liberalising the training laws;
  - an apprentice preparation scheme;
  - training schemes at the Länder or local level (human capital);
  - subsidies for those in apprenticeship schemes (Jump Plus).
- Investment creation through subsidies and infrastructure
  - subsidised loans for capital to employ newly engaged employees;
  - subsidised loans for those who provide apprentice places.
- Direct demand measures of the Keynesian kind
  - loan subsidies to those who employ new people in the backward regions or from the pool of long-term unemployed;

Chart 8

**Germany: Reduction of Employers' Social Contribution by 10%**



Source: Authors' calculations.

- wage subsidies for the newly self employed.
- Tax cuts to increase labour supply
  - raising income tax thresholds, lowering the basic rate;
  - subsidies to contributions to private pension schemes;
  - reductions in pension (social security) contributions paid by employees.
- Labour costs and supply-side measures
  - deregulation of the master craftsman market;
  - discounts/tax breaks on social security contributions;
  - suspension of some hiring/firing costs;

- reduction in compensation for redundancy, in unemployment benefits, and a requirement that the unemployed accept job offers even if at a lower wage.

These measures are all designed to affect the supply or demand for labour directly, without affecting the costs of employment or the flexibility of markets to excess supply or excess demand. The exception of course is the last group of measures. We have therefore simulated a representative measure from each group in the German component of the OEF model.<sup>13</sup> Charts 7 to 10 display the results.

<sup>13</sup> We have ignored the conventional direct demand measures (the third group) as being of little interest in this context.

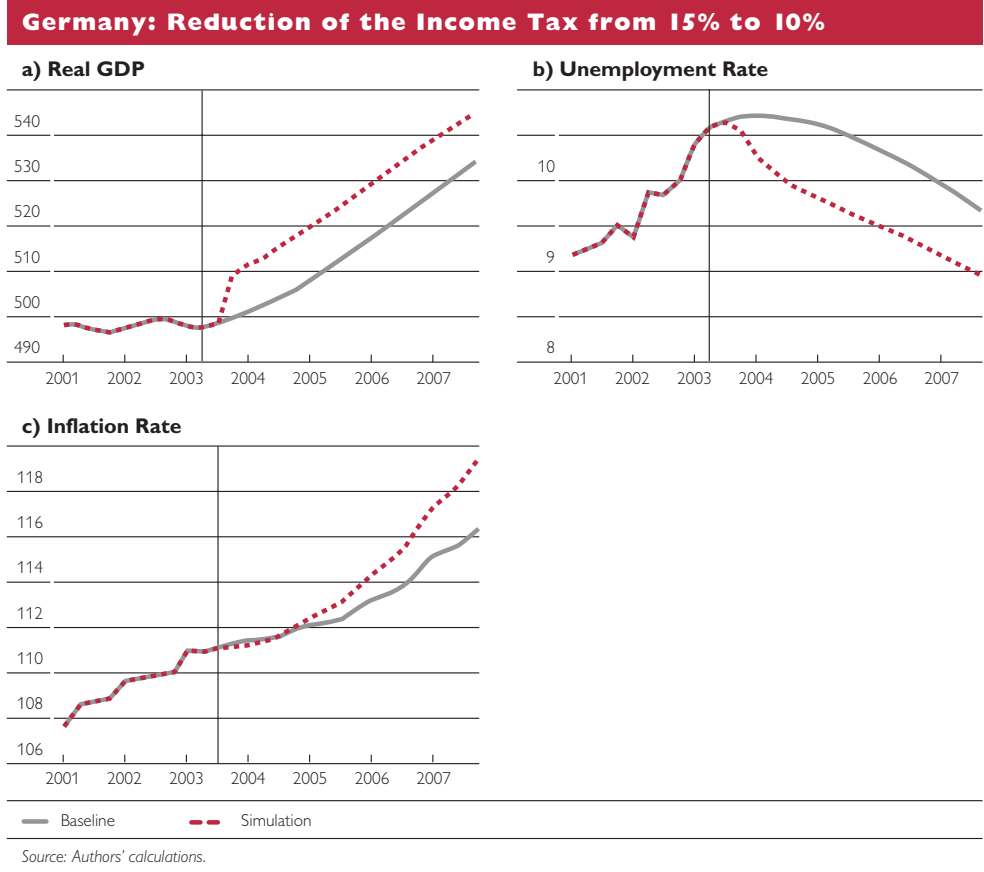


Chart 7 shows the income, employment and inflation consequences to be expected from a reduction in the employees' social security contributions of 9%. The change is introduced in early 2003, and we report five years of results. It is clear that such a change would lead to a small improvement in national income: up 2.5% over five years, but no long-term increase in the growth rate. Unemployment drops from 10% to 9%, and the inflation rate is slightly higher (0.5 percentage point) over a five-year period. These may be considered welcome changes perhaps, but they are small.

Chart 8 shows the effect of reducing the employers' social security contributions (non-wage costs) by 10%. The simulated outcomes are clearly unsatisfactory after three years

because the change is too large for the behaviour modelled to be a reliable guide. But the first three years provide an indication of the likely direction of that change. Here GDP has risen 7% within three years, unemployment has dropped markedly, and prices have fallen by about 6% each year. Significant changes therefore, and in the right direction.

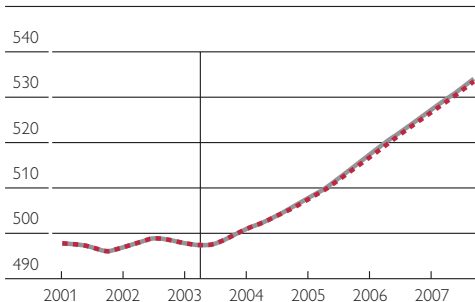
Chart 9 provides a third simulation, in which average tax rates on income fall from 15% to 10% (as foreseen in Agenda 2010). The results are almost identical to chart 7, which is hardly surprising. Small improvements therefore, except for inflation which now rises.

Chart 10 finally shows the effect of Jump Plus which extends the availability of apprenticeship schemes (200,000 extra places). The effects

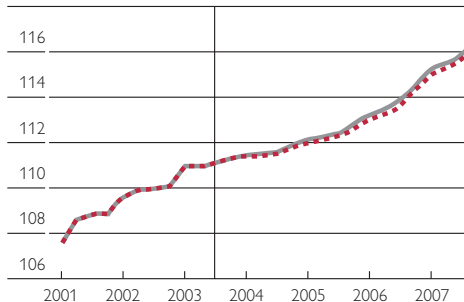
Chart 10

**Germany: Permanent Increase of Employment by 200,000 (JUMP PLUS)**

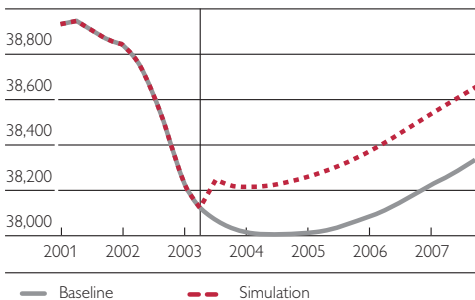
**a) Real GDP**



**b) Employment**



**c) Inflation Rate**



— Baseline      - - - Simulation

Source: Authors' calculations.

are again very small. GDP rises by 0.5% (growth is unaffected); employment rises by 350,000, or by 0.8 percentage point off the unemployment rate, and there is a tiny reduction in inflation (0.1 percentage point).

What stands out very clearly from these simulations is that it is only reductions in non-wage costs for the employers that make any appreciable difference to the performance of the German economy. Improving incentives for the employees, or manipulating demand levels directly brings small employment gains at a cost of a little extra inflation. But the effects remain small. In short, the results say that traditional measures directed at increasing labour supply, are necessary perhaps but not sufficient for regenerating growth in Europe. One has to work on labour demand in order to

generate, not Keynesian expansions, but cost flexibility and hence new jobs. These are the changes that would generate the gains that were foreseen in the Lisbon agenda. ■

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