

# ADJUSTMENT UNDER FIXED EXCHANGE RATES: APPLICATION TO THE EUROPEAN MONETARY UNION

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## I. OVERVIEW

The Maastricht Treaty enshrined monetary union as a goal of member countries within the European community (EC). To achieve this goal, countries adhering to the exchange-rate mechanism (ERM) of the European Monetary System (EMS) have sought to maintain exchange-rate fluctuations between their currencies within agreed limits. From the mid-1980s till mid-1992 parity changes became less frequent, while the number of countries participating both formally and informally in the ERM increased, raising the hope that increasingly stable exchange rates would mesh smoothly into a single currency as the target date for European Monetary Union (EMU) approached. However, exchange market turbulence in late 1992 forced some currencies to devalue and others to suspend their membership in the ERM, while some remaining countries were forced to maintain high interest rate premia over Germany as a way of defending the exchange-value of their currencies. Even after acute pressures on some currencies eased, high interest rate premia were required to stabilise parities.

Despite the instability in exchange markets since mid-1992, over the long term the move to a common currency is intended to complement the move to a single market in goods and services, and contribute to attaining the long-run efficiencies associated with such a market. These efficiencies are both micro- and macroeconomic: permanently fixed exchange rates (and *a fortiori*, a common currency) would reduce costs of foreign exchange transactions and enable investors in different countries to pursue real economies of scale and specialisation unencumbered by long-run concerns about the impact of exchange rates on relative input costs and output prices; disinflation could be speeded up and made less costly, if high-inflation countries credibly tied their exchange rates to that of a low-inflation country; fixed exchange rates could limit the use of exchange-rates in beggar-thy-neighbour policies, if co-ordination of macroeconomic policies could not be achieved. **All** of these arguments seem particularly relevant to countries that are increasingly tied by both supply and demand links.<sup>1</sup>

Such efficiencies come at the cost to member countries of giving up monetary policy independence. The sources of potential costs are described in more detail in Englander and Egebo (1992). Egebo and Englander (1992) survey the literature on credibility effects from membership in the ERM and presents empirical work on the extent to which credible exchange rate commitments have lowered the cost of disinflation. Consistent with most other studies, they find little evidence that credible exchange rate commitments have greatly lowered the costs of disinflation, even after using a variety of forward-looking indicators and accounting for possible increases in structural unemployment. The success of ERM countries in reducing inflation and achieving some measure of convergence appears more due to adherence to tight

macroeconomic policies rather than any improvement in the inflation-output tradeoff from credibility effects of ERM membership.

The finding of limited credibility effects is a key result that underpins the analysis in this paper of the role of labour market flexibility in contributing to macroeconomic adjustment in a fixed exchange-rate system. With exchange rates fixed, the option of changing relative prices quickly via nominal exchange rate changes is not available. Hence, real exchange-rate adjustments, when needed, must be achieved through changes in relative costs and prices. However, if wages and prices are not flexible internally and credibility effects do not greatly affect wage and price decisions, such adjustment may require large shifts in capacity utilisation and employment. In general, the greater the degree of wage and price rigidity, the more the output and employment response that would be needed to alter relative prices. The ultimate success of a fixed exchange-rate system depends upon whether required adjustments can take place without placing undue strain on economic activity or nominal exchange rates.

Flexibility in wages and price formation is important in both the transition to €MU and after its implementation because member countries will undoubtedly continue to experience economic disturbances that affect a single country or small subset of countries. Such country-specific supply and demand disturbances are likely to be major sources of tension within any fixed-exchange-rate regime. Monetary policy in a large single-currency region has to target aggregate goals, but the impact on different regions may not correspond to the need for local adjustment. Differences among member countries in industrial structure, trading patterns and wage/price flexibility, as well as unanticipated disturbances to wages, prices, productivity and demand, will create some need for differentiated local adjustment on top of the common policy response. A clear, if extreme, example is the divergent macroeconomic policy needs of Germany and other ERM countries following German unification.

The loss of monetary policy independence means that localised supply-side disturbances, in particular, are likely to have disruptive effects on income and employment unless labour-market flexibility and/or regional factor mobility increase significantly. At present, labour is not particularly mobile across ERM countries. Fiscal policy cannot provide a substitute mechanism when adjustment of relative prices is needed. Moreover, its use is likely to be constrained in countries where government deficits and indebtedness are undesirably high. In general, because of problems in timing and in reversing expansionary fiscal policy in periods of expansion, many countries are reluctant to use discretionary fiscal policy as a countercyclical tool. In effect, policy-makers may find that neither fiscal nor monetary policy is available to offset negative localised supply shocks. To the extent that adjustment is needed in individual countries, they may well have to rely on added flexibility of wages and prices, highlighting the need for structural policies. Without more flexibility, restoring competitiveness could impose very high output costs, and the credibility of inflation and exchange-rate policy will be damaged if there is a perception that such high costs are ultimately unacceptable.

Despite the loss of monetary policy independence, ERM economies should become more resilient over the medium to long-term to demand disturbances because of their increasing integration and the consequent quicker dissipation of localised demand shocks. A demand shock in any one member country will fall to a greater extent on imports than in the past, reducing the impact on production in the country experiencing the shock. One consequence, however, is that governments may become more reluctant to engage in activist fiscal policy. From the perspective of any single

country, the boost to output provided by a given amount of fiscal stimulus may fall, as more of the stimulus spills over to neighbours. Furthermore, policy-makers may be more reluctant to stimulate aggregate demand when they are uncertain whether the disturbance is to demand or to supply, because mistaken expansion in the face of a supply shock will increase the degree of misalignment and raise the ultimate cost of restoring competitiveness.

In the transition to EMU, prospective members have committed themselves to converging to low inflation rates and modest fiscal deficits. These goals would be worthwhile also in the absence of EMU, but become even more important once monetary union guarantees permanently fixed exchange rates. Residual differences in price levels and inflation rates could leave some countries in EMU starting from a substantial competitive disadvantage. With no prospect of exchange rate realignments, countries with overvalued currencies might experience outflows of savings and capital and persistent stagnation, if the necessary flexibility of domestic wages and prices is lacking.

The convergence requirements themselves impose a need for substantial adjustment of government budget deficits in some countries over the medium term. This paper argues that larger reductions in fiscal deficits are most feasible when some of the demand contraction is crowded back in by lower interest rates. The ease with which deficit reduction can be accomplished thus depends both on policy actions within individual countries and on the stance of monetary policy in Germany. Should deficits and interest rates remain high in Germany, markets may question whether required deficit reduction elsewhere in the ERM is compatible with acceptable macroeconomic performance, and impose risk premia on those countries' interest rates as a consequence.

Although this paper focuses primarily on the role of wage and price flexibility in enhancing the probability of a successful commitment to fixed exchange rates over the medium term, the analysis also has some relevance for understanding the exchange market turbulence since mid-1992. In part, this turbulence emerged in anticipation of, and following, referenda on the Maastricht treaty in various countries, which led to uncertainty as to whether the projected path to monetary union would be followed. However, in large part the exchange market pressures seemed tied to doubts that current exchange parities were sustainable in light of the prospective costs of adhering to them. The high prospective cost of the exchange commitment eroded credibility in several ways. First, it made markets doubt governments' abilities to stick to medium-term inflation and deficit reduction targets as output fell and unemployment mounted over the short run. Second, even in countries where inflation and deficit objectives had been largely achieved by the early 1990s, labour market rigidities had made the disinflation of the 1980s costly in terms of high and persistent unemployment. With German inflation and interest rates remaining high for longer than expected, markets became increasingly worried that the additional output costs of maintaining exchange parities might prove unacceptable. As a generalisation, policy credibility is incomplete if the potential costs of the policy commitment are viewed as excessive.

Section II below discusses whether ERM countries meet the criteria of an optimal currency area in terms of a high degree of factor mobility and predominance of common disturbances. In Section III, the role of increasing product-market integration as a factor likely to inhibit the use of fiscal policy by individual countries is then considered. Estimates of the costs of responding to supply disturbances, as well as estimates of the potential benefits from a more flexible response of wages are provided in Section IV.

Section V discusses the importance of a low interest rate environment in facilitating convergence, while Section VI deals with some policy implications emerging from the analysis in the preceding sections.

Throughout this paper, a distinction is made between fixed exchange rates in the ERM and a single-currency EMU. Under the ERM Germany is assumed to target its domestic money supply, while other ERM countries are assumed to target their exchange rate *vis-à-vis* the Deutschemark. Under EMU, there are EMU-wide monetary policy and inflation targets. By and large, however, there seems to be relatively little difference in adjustment under EMU and ERM, except in the case of local disturbances in Germany. Also, Italy and the United Kingdom are treated as members of the ERM throughout this paper, despite their suspension of membership in late 1992.

## II. THE ERM AS AN OPTIMAL CURRENCY AREA

An optimal currency area (OCA) is one in which member countries largely share shocks in common, so that policies that are generally appropriate in one country are also appropriate for other member countries. Alternatively, an OCA can be viewed as an area in which labour and capital are sufficiently mobile so as to quickly offset any localised shocks. If these conditions hold, the loss of monetary policy independence will not greatly limit macroeconomic adjustment. Whether these conditions are met in the ERM is discussed below.

### *Local versus global disturbances*

One way of evaluating the extent to which ERM countries constitute an optimal currency area is to ask whether the disturbances to which they are subject are primarily localised or are experienced jointly by all ERM countries. When disturbances are primarily localised, the affected country may want to change the exchange rate while other countries may be content with the initial parities. Such divergences of interests can emerge from three sources: *i*) initial parities that leave some currencies over-valued; *ii*) differences in industrial structure that imply that countries are affected differently by common shocks; and *iii*) tendencies for real wages or other critical economic variables to be subject to local shocks.

Among current ERM members differences in the growth of manufacturing unit labour cost persisted despite the relatively fixed exchange rates of 1987-91, irrespective of whether the costs are measured in local currency or in dollars (Table 1). Of course, such index numbers can not tell whether the high-inflation countries were starting from an under- or over-valued exchange rate. However, the growth in export unit values for the high-inflation countries through 1991 generally was markedly less than the growth in unit labour costs, suggesting that the exchange commitment may have been maintained in these countries at the cost of a squeeze in profit margins in tradeable goods sector.<sup>2</sup>

While ERM membership may have contributed to some convergence of price levels, the degree of convergence is not much greater than is observed among other close trading partners. Recent purchasing power parity data (OECD, 1992a) suggest

Table 1. Manufacturing unit labour costs (ULC) and export unit values

	1991 ULC in local currency (1987 = 100)	1991 export unit values in local currency (1987 = 100)	1991 ULC in deutschemarks (1987 = 100)	1991 export unit values in deutschemarks (1987 = 100)
Germany	107.3	104.6	107.3	104.6
France	102.0	104.1	100.3	102.3
Italy	125.0	119.0	120.6	114.8
United Kingdom	121.3	109.4	120.7	108.9
Belgium	106.1	106.2	107.0	107.1
Denmark	106.8	106.7	105.4	105.3
Netherlands	100.9	104.1	100.9	104.1
Spain	127.4	106.0	139.6	116.2

Source: OECD calculations.

that: *i*) overall price levels converged modestly between 1985 and 1990 in most of the original ERM countries; and *ii*) price levels are much closer among ERM countries than among randomly selected OECD country pairs. However, the range of price-level variation is not much smaller than between other closely linked OECD economies, such as between Canada and the United States or between Norway, Sweden and Finland, that did not have formal exchange-rate links.

The industrial structure of some ERM countries may also give rise to adjustment problems. Any country whose industrial structure or trading pattern differs significantly from the mean among ERM countries faces the risk that changes in demand for its products or changes in the supply of competing products from non-ERM sources will effectively alter its cost competitiveness. For example, European Commission (1990*b*): argued that countries that are specialised in textiles or light industry may find themselves increasingly exposed to competition from non-EC suppliers. In its macro-economic effects, such weak competitiveness is virtually identical to the results of a series of wage or supply shocks. Similarly, ERM countries with idiosyncratic trade patterns, possibly simply because of geography, may find that the common exchange rate with the rest of the world yields a less-than-optimal pattern of fluctuations with respect to its own particular markets and suppliers. Walsh (1993), for example, provides a strong case that the extensive Irish trade and labour market links with the United Kingdom have made the Irish punt's ERM parity very sensitive to changes in the value of sterling, despite Ireland's increasing economic links with the rest of the EC.

Moreover, as suggested by Krugman (1991) and DeGrauwe and Vanhaverbeke (1991), the single market may lead to *greater*, rather than less, industrial specialisation across regions, making the effect of industry specific disturbances more likely to be concentrated in single countries. In part the analysis is motivated by the observation that large countries, such as the United States or Canada, tend to be more regionally specialised than European countries. Such regional specialisation may emerge in a large single market, where industry-level scale economies are significant.

In the second half of the 1980s, the ERM was successful in bringing about a clear reduction in exchange-rate variability and inflation differentials relative to the 1970s or

the first half of the 1980s. However, the significance of this partial convergence is difficult to assess, even abstracting from the subsequent exchange-market turbulence, as other important economic variables continued to diverge during this period.<sup>3</sup> Broadly speaking, unemployment rates, current-account positions and growth in retail sales, government spending and real wages appear negatively or only weakly positively correlated across most ERM countries. The statistical approach cannot reveal, however, whether such correlations are due to the independence of disturbances that affect ERM economies or to the implementation of policies to achieve convergence of inflation rates and stabilise exchange rates.

### *Labour mobility*

In an optimal currency area factor mobility and/or flexibility of regional relative wages act as an adjustment mechanism in the event of regional imbalances. With limited exceptions (for example between Ireland and the United Kingdom and perhaps in border regions), labour mobility in ERM countries does not match the standards for OCAs and is unlikely to do so in the medium term.<sup>4</sup> Although it is difficult to define exactly equivalent regions within countries and regions across which to compare migratory flows, it appears that there is much greater migration between states of the United States or between provinces of Canada than among ERM countries and subregions, with the possible exception of Belgium whose patterns reflect its size and the location there of the headquarters of several international organisations (Table 2).

Taken together, the potential for localised shocks, when combined with low labour mobility suggest that ERM countries will require significant internal adjustment to deal with localised shocks. The next sections address how these adjustments may occur under a fixed exchange-rate regime.

**Table 2. Labour migration within selected ERM countries**

<b>A. Sum of emigrants from each country plus immigrants into the country from other ERM countries as a percentage of 1984 population</b>	
Belgium	1.59
Germany (West)	0.57
France	0.41
Italy	0.72
Netherlands	0.64
Memorandum: 1987 Migration Flows in Canada (12 regions)	1.5
<b>Source: De Grauwe and Venhaverbeke (1990), OECD (1991a).</b>	
<b>B. Regional net migration in the EC, USA (average annual rates 1980-1985, percent of population)</b>	
EC (64 regions)	0.2
US (50 states + Washington D.C.)	0.7
<b>Source: European Commission (1990a).</b>	

### III. INCREASED RESILIENCE TO DEMAND SHOCKS

#### A. Openness and the effectiveness of fiscal policy

ERM economies will probably become more resilient to localised demand disturbances over time as they become increasingly buffered by the spillovers via income and price effects onto neighbouring economies. Already, most ERM economies are relatively open. Imports of goods and services relative to GDP ranged from just under 20 per cent (France, Spain and Italy) to a high of 70 per cent (Belgium) in 1990. Over time the openness of these economies is likely to increase further.

Simulations of the INTERLINK model were used to analyse the response of ERM economies to demand shocks under current and prospective conditions of openness.<sup>5</sup> Such simulations suggest that at present between 30 and 70 per cent of the final demand increase resulting from an autonomous increase in consumption in ERM economies is likely to be diffused to neighbouring countries within a year through import leakages alone.<sup>6</sup> Income effects yield little additional import demand after the first year, except in the case of Germany. Price effects are weak initially, but strengthen over time. Overall, more than 60 per cent, and in some countries the entire impact, of a domestic demand change is offset by imports within five years. The spillover of demand greatly reduces the intensity of the effects on unemployment, wages and prices, but is mirrored by changes in foreign debt (Figure 1). Such a high degree of spillover also means that fiscal impulses are likely to produce modest output gains relative to the amount of government debt incurred in the country generating the impulse.

Increased economic integration should further reduce the local output effect of localised demand disturbances. With greater openness, wages and prices respond more moderately to demand shocks, the already small local output response declines further, and the deterioration of the current account is somewhat greater. Contractionary fiscal policy may carry a less significant output cost on a country-by-country basis, facilitating fiscal consolidation (Table 3). By contrast, in the reverse case, expansionary fiscal policy may become an increasingly "expensive" method of demand management

Table 3. **Contractionary effects of fiscal consolidation**

Cumulative output loss per unit of government deficit reduction<sup>1</sup> (Sum of output losses as a per cent of GNP over five years when cutting expenditure to reduce deficit by 1 per cent of GNP)

	Current degree of openness	Greater integration
Germany	0.20	0.15
Other large ERM economies	1.65	1.18
Smaller ERM economies <sup>2</sup>	1.08	0.54

1. Weighted average of France, United Kingdom, Italy and Spain.

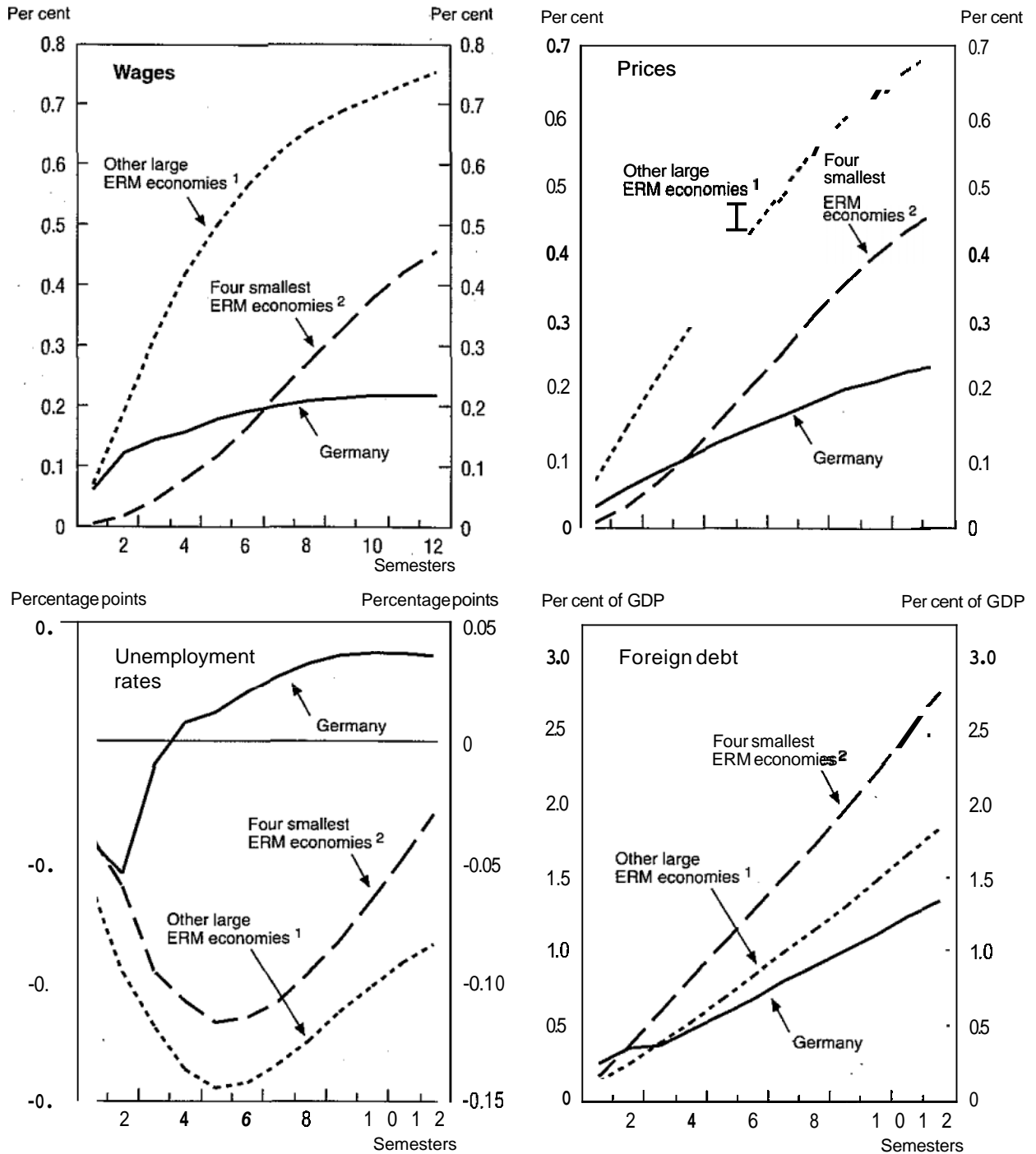
2. Weighted average of Netherlands, Belgium, Denmark and Ireland.

Note: The small value for Germany reflects the rapidity and completeness of crowding out in Germany due to exchange- and interest-rate changes when there is no accommodation of monetary policy.



Figure 1. Domestic effects of localised demand disturbances on ERM economies  
Deviation from baseline

A. Current degree of openness



1. GDP weighted average of France, Italy, United Kingdom and Spain.

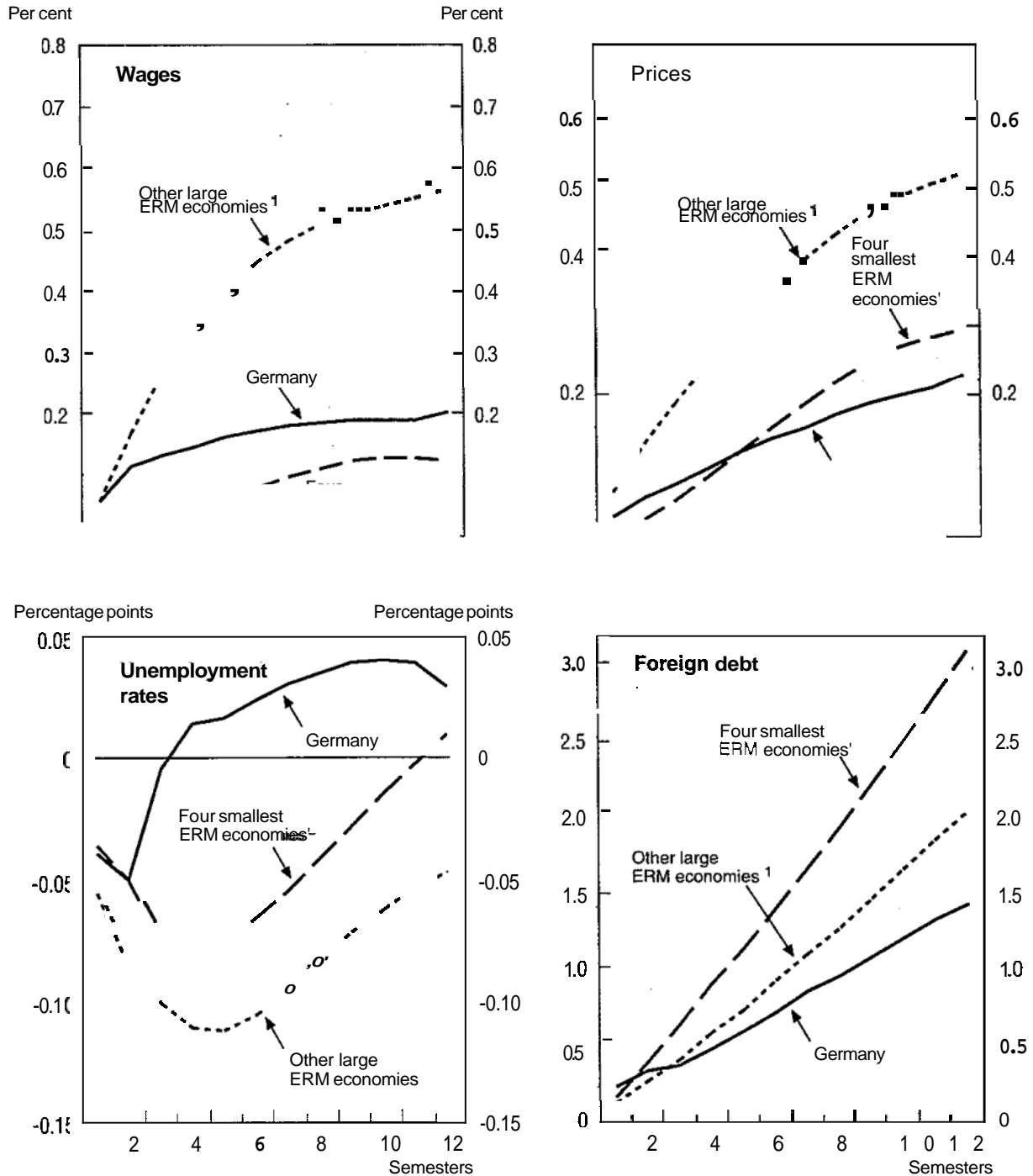
2. GDP weighted average of Belgium, Denmark, Ireland and the Netherlands.

Note: Effects of a permanent one percentage point increase in the average propensity to consume. Individual simulations are run for localised shocks in each country. In B. income and price elasticities of foreign trade are increased by 25 per cent. In part because of the spillover effects on other countries of exchange-rate and interest-rate changes, demand disturbances in Germany are crowded out very quickly if there is no accommodation of monetary policy.

Source: OECD, INTERLINK model simulations.

Figure 1. (contd.) **Domestic effects of localised demand disturbances on ERM economies**  
Deviation from baseline

**B. Increased openness**



1. GDP weighted average of France, Italy, United Kingdom and Spain.

2. GDP weighted average of Belgium, Denmark, Ireland and the Netherlands.

Note: Effects of a permanent one percentage point increase in the average propensity to consume. Individual simulations are run for localised shocks in each country. In B, income and price elasticities of foreign trade are increased by 25 per cent. In part because of the spillover effects on other countries of exchange-rate and interest-rate changes, demand disturbances in Germany are crowded out very quickly if there is no accommodation of monetary policy.

Source: OECD, INTERLINK model simulations.

as compared with domestic relative price adjustment. An analogy could be drawn to the ability of states or provinces within North America to use fiscal policy to offset contractionary demand shocks: beyond the short run, there is little effect on output and employment and a permanent increase in debt. Indeed, tax policy is often used as a way of attracting a large (and wealthy) tax base and rarely as a device to mitigate demand shocks beyond the automatic stabilisers built into state and local tax systems.'

## **B. Spillover effects from German disturbances**

The response of ERM economies to an autonomous shock in Germany differs from the response to (identical) shocks in other countries, apart from the relatively large size of the German economy. The deutschemark is generally viewed as being the anchor currency within the ERM, with the Bundesbank conducting monetary policy primarily with German objectives in mind, and other countries within the ERM setting their interest rates to maintain their exchange-rate target. In addition, markets see little devaluation risk in the DM, so that nominal interest rates in Germany, with modest exceptions, have represented the floor for interest rates in the ERM area. Taking these factors into account, shocks to the German economy and the Bundesbank's monetary policy response have a far greater systemic effect on the ERM than shocks to any other member country.

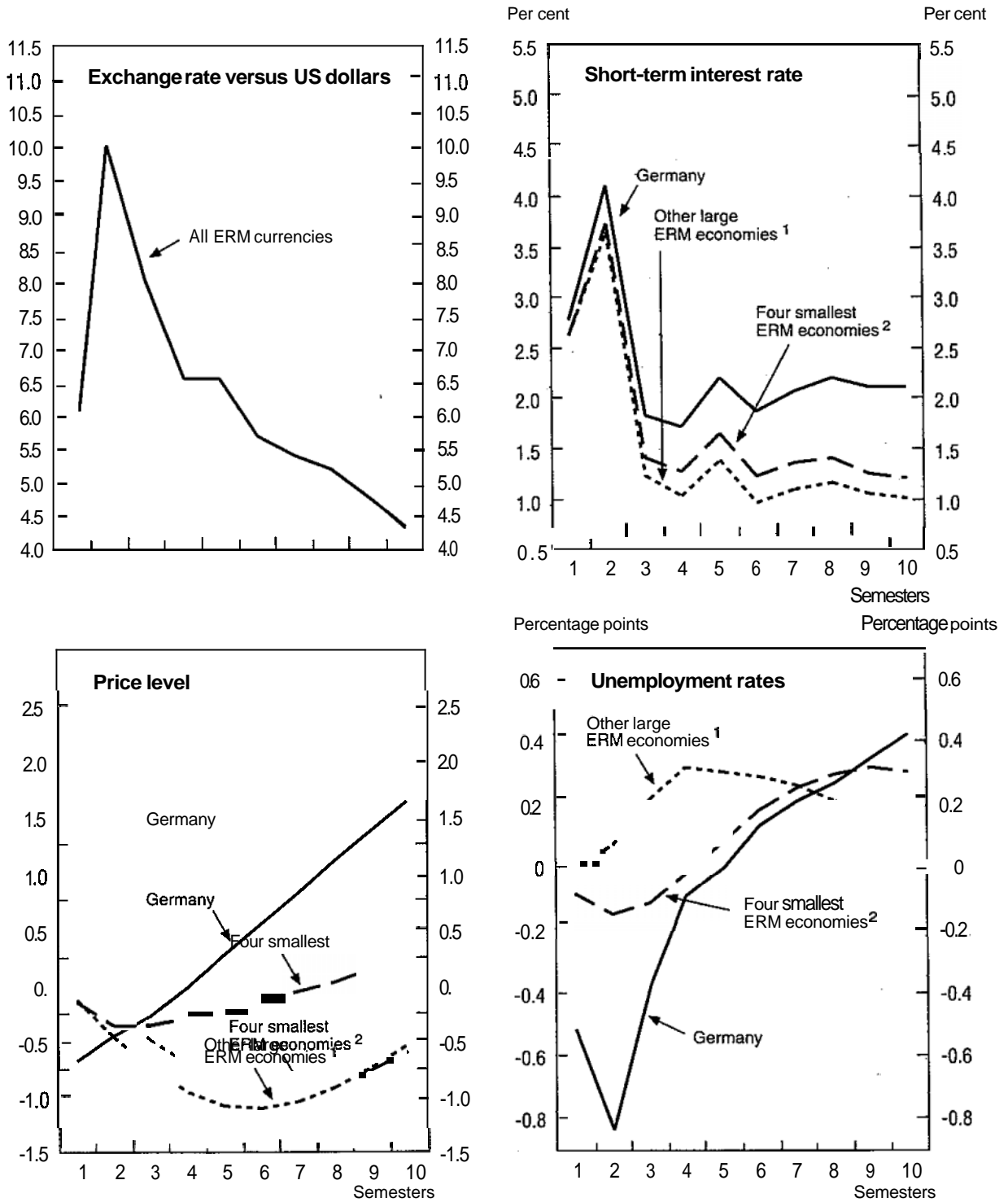
Because of its timeliness, the effects of a German fiscal shock of 5 per cent of GDP are simulated. For analytical clarity, a completely non-accommodating monetary policy response is assumed. As compared to actual events following German unification, this stylised simulation produces sharper and more immediate increases in interest and exchange rates and quicker elimination of the inflation bulge, suggesting that complete non-accommodation is too severe an assumption to capture reality.

In the very short run, such an increase in German demand produces some stimulus for other ERM economies from German import demand. Beyond the short run, however, the consequences of a positive German demand disturbance affect output negatively in other ERM economies, because the sharp response of German interest – and exchange rates *vis-a-vis* non – ERM countries are shared by other ERM countries. The simulation results suggest that a 5 per cent of GDP permanent fiscal shock in western Germany that is not accommodated by an increased money supply pushes up short-term interest rates by about 4.0 percentage points, appreciates the DM by about 10 per cent against the U.S. dollar and lowers real net German exports by about 2.5 per cent of GDP in the first year following a shock (Figure 2).<sup>8</sup> The fiscal stimulus quickly crowds out exports and investment in Germany, and an initial downward spike to unemployment is quickly reversed. In turn, the inflation rate increases by less than 0.6 percentage point following the shock, although the cumulative effects on the wage and price level mount for some time.

Other ERM countries share the exchange-rate appreciation and face interest rates that are about 3.5 percentage points higher in the year following the shock. Although some countries temporarily experience higher net export demand from Germany, by the end of the second year, exports have generally fallen, particularly among the major ERM countries. In turn, unemployment rates begin to rise, leading to modest declines

**Figure 2. Spillover effects of a permanent 5 per cent German fiscal shock on ERM countries**

**Deviation from baseline**



1. GDP weighted average of France, Italy, United Kingdom and Spain.

2. GDP weighted average of Belgium, Denmark, Ireland and the Netherlands.

Note: Effects of a 5 percent of GDP increase in German government purchases of goods services and no change in money targets. Other ERM countries are assumed to target their exchange rates with Germany and no allowance is made for movements within the permissible band. Over time, interest rates in other ERM countries diverge from German rates because of the real appreciation of the Deutschemark and the change in the German net asset position.

Source: OECD, INTERLINK model simulations.

in price inflation. In general, the negative effects on output peak between one and three years after the disturbance and are still present to a moderate extent after 5 years, although most ERM economies are beginning to recover.<sup>9</sup>

From the viewpoint of other ERM countries, once the initial stimulus from German import demand has waned, the net effects of the German demand shock on interest and exchange rates are almost exactly equivalent to that of a monetary tightening – that is, higher interest and exchange rates dominate the higher level of demand from Germany. Moreover, the contractionary effects are likely to emerge more quickly and more sharply, the larger the effective ERM area is. The same fiscal shock to Germany in a case where only one or two other countries have linked their exchange rates to the deutschemark will raise interest rates only in those one or two countries. Other countries, if they maintain lower rates, will experience stronger growth as well as some depreciation of their currencies. (The exchange rate changes, viewed as changes in relative prices across countries, will have offsetting output effects on appreciating and depreciating economies, to a first approximation). Hence, the very success of the ERM in helping to lower inflation and stabilise exchange rates, and its consequent attractiveness to new members and even countries outside the EC, may have contributed to the system's vulnerability following the German unification shock.

The problem facing ERM countries is that German monetary policy cannot simultaneously achieve inflation targets in Germany and the rest of the ERM when they are subject to vastly different demand shocks. Given that the ERM ties down monetary policy outside Germany and that expansionary fiscal policy is not a practical option in most ERM countries, the asymmetry as between Germany and other ERM countries means that rapid reversal of the German fiscal thrust is probably the most effective means of relieving the pressures on German monetary policy.

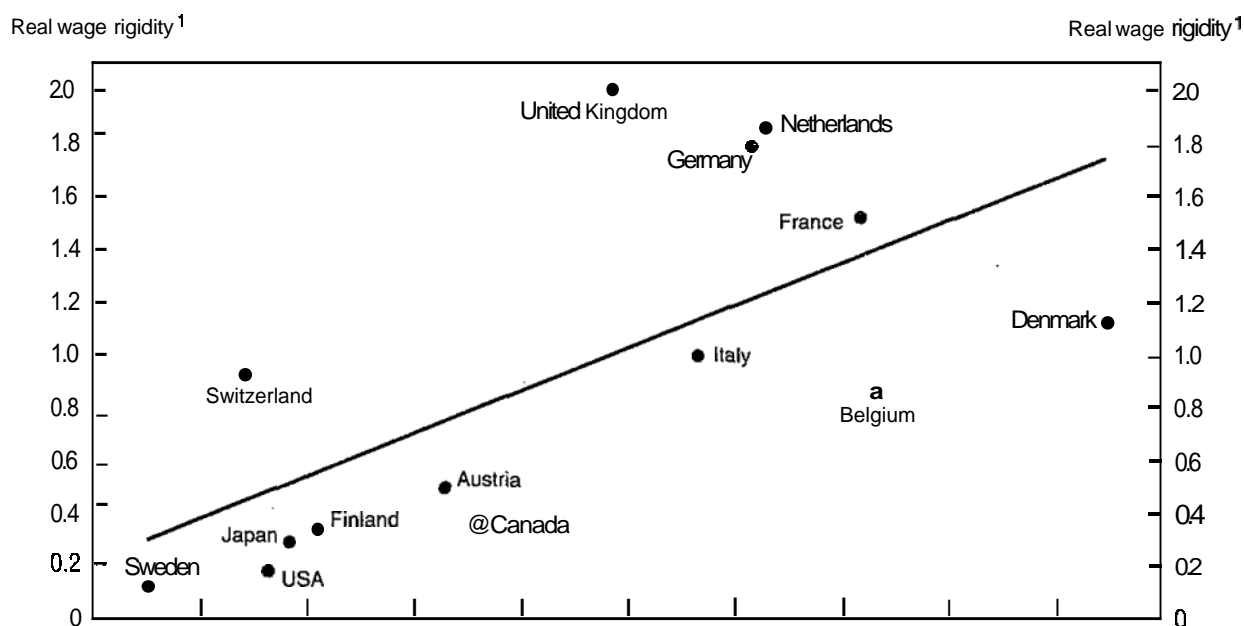
## IV. ADJUSTING TO SUPPLY DISTURBANCES

### A. Current versus increased flexibility

Neither the absence of labour mobility nor asymmetric disturbances across ERM countries would detract from the benefits of fixed exchange rates, if economies responded flexibly to misalignments of costs. However, the mechanisms for adjusting to cost misalignments are not particularly well developed in ERM countries. In addition to low labour market mobility, ERM economies also require a large increase in unemployment in order to quickly offset a given inflation shock (Figure 3). From a long-term perspective, the high proportion of long-term unemployed and the low probabilities of exiting from unemployment even after several years of rapid growth suggest that labour markets in ERM countries rebound poorly from disturbances (Table 4).<sup>10</sup>

Four issues are explored below: *i*) labour market responsiveness in ERM (and EFTA) countries under fixed exchange rates to cost disturbances and the potential gains from increased labour market flexibility and policy credibility; *ii*) the spillover effects of a cost shock in Germany, given the special role of Germany as the ERM

Figure 3. Short-run real wage rigidity and unemployment increase



1 Short-run real wage rigidity is measured by the amount of additional unemployment (in per cent of the initial level) needed to offset the short-term wage impact of a one percentage point price shock.

Source: OECD (1989), updated to reflect unemployment changes (in per cent).

Table 4. Labour market rigidity in ERM countries

	Share of long-term unemployed in total unemployment (in per cent)		Monthly flows out of unemployment (as per cent of unemployed)	
	1983	1990	1983	1988
Germany	39.3	49.0 <sup>1</sup>	6.2	6.3
France	42.2	43.9	3.5	3.7
Italy	57.7	70.4 <sup>1</sup>	1.7	2.3
United Kingdom	47.0	40.8 <sup>1</sup>	7.4	9.5
Spain	52.4	54.0	1.0	1.3
Netherlands	50.5	49.9 <sup>1</sup>	—	—
Belgium	66.3	76.3 <sup>1</sup>	3.0	2.7
Denmark	33.0	25.9 <sup>1</sup>	6.9	8.3
Ireland	36.9	67.3 <sup>1</sup>	5.4	3.2
Memorandum:				
United States	13.3	5.6	37.8	45.7
Japan	13.1	19.1	14.8	17.2
Canada	9.9	5.7	25.2	30.8
Norway	6.3	19.2	27.2	30.3
Sweden	10.3	4.8	27.1	30.4

1. 1989.

Source: OECD (1991a) for data on long-term unemployment; OECD (1990) for data on monthly flows out of unemployment.

anchor; *iii*) the differing implications of cost shocks under ERM (that is, targeting bilateral exchange rates with Germany) and EMU (in which an overall price level or inflation rate is targeted for member countries); and *iv*) the implications of labour market rigidity and social policies for the credibility of fixed exchange rates.

The ease and rapidity with which ERM countries adjust following cost disturbances is of key importance in assessing the pressures that are likely to emerge on exchange parities. These issues are explored below using simulations of the INTERLINK model to assess the current degree of responsiveness and how that responsiveness might change given alternative assumptions about wage flexibility and the credibility of monetary policy. Results of these simulations are summarised in Figures 4A to 4D.

Changes in relative wages and prices work very slowly relative to exchange rate changes to restore competitiveness – and at high output costs. As illustrated by INTERLINK simulations, following a localised wage shock, misaligned wages and prices and higher unemployment persist in significant degree even five years after the initial disturbance, although some movement back towards restored competitiveness tends to begin sooner. In sum, it takes more than 1-2 additional percentage points of unemployment over five years to offset an initial one percentage point disturbance to wages (Figure 4A-4D).

Adjustment is faster in Germany because of changes in the overall ERM exchange rate *vis-a-vis* other currencies and the negative spillover effects on other ERM economies. As compared with a German demand shock, which had positive spillovers initially, a wage disturbance in Germany is contractionary from the start for other ERM countries, when it is not accommodated by the Bundesbank, as it leads to higher interest rates and exchange rates but little demand stimulus for neighbouring countries (Figure 5). Although monetary accommodation by the Bundesbank could ease some of the short-term problems of ERM partners, such a policy would damage the credibility of the Bundesbank and the future EMU central bank. Spillover effects from disturbances in other countries (for example, from a wage shock in France to British wages) are small.

These simulation results may understate the difficulties of restoring the initial level of wages and prices relative to those of competitors following a cost shock. Low growth rates for aggregate nominal wages may imply that some workers must accept nominal wage freezes or cuts to which labour markets have historically been resistant.<sup>11</sup>

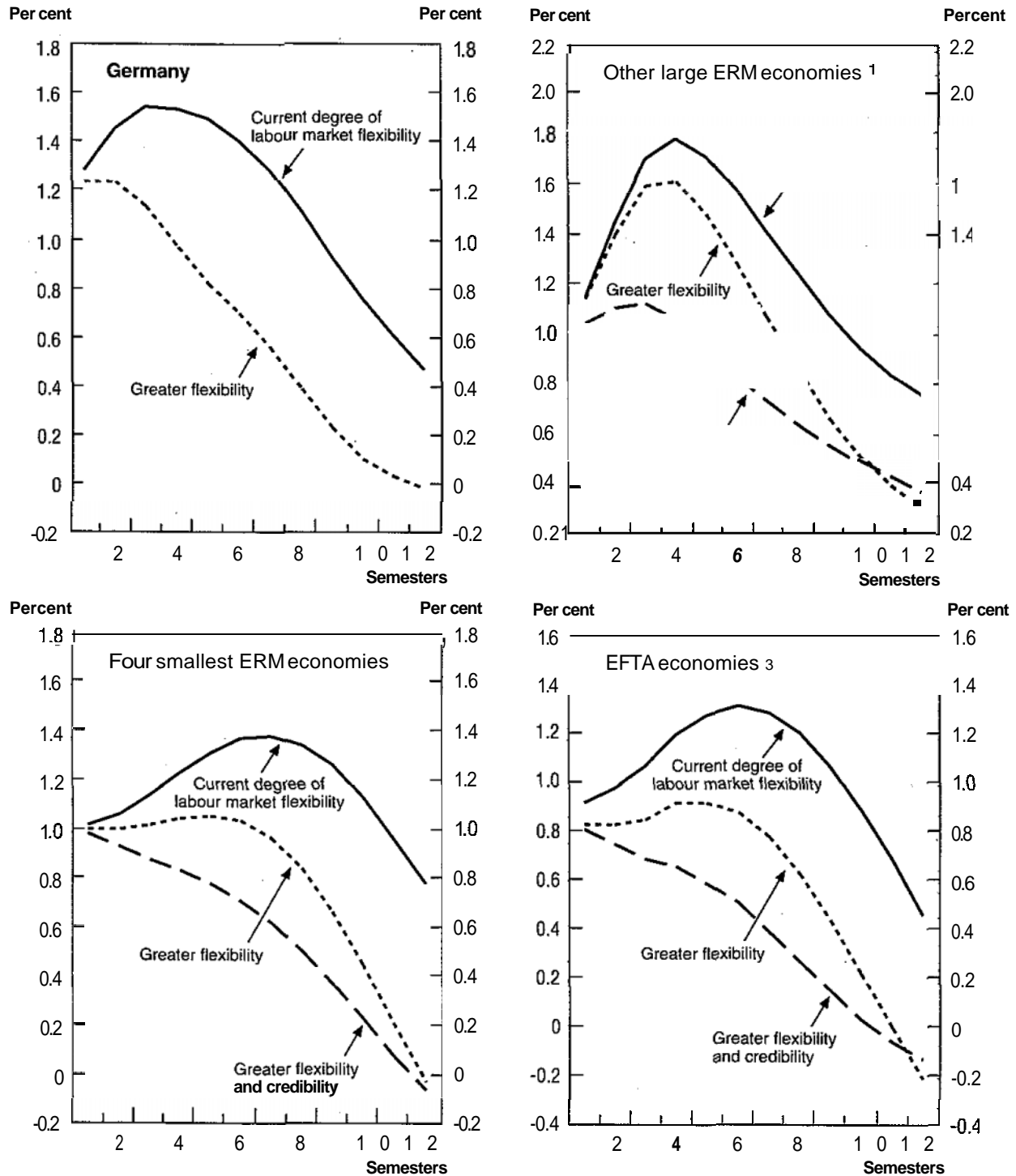
An increase in the openness of individual ERM economies, as might be expected to occur following the completion of the internal market for goods and services, may not greatly accelerate the speed or lower the costs of labour market adjustment, in contrast to the effects on demand disturbances. Simulating the effects of increased openness by raising both the price and income elasticities of import demand by 25 per cent produced virtually no change in the labour market adjustment path.<sup>12</sup> Greater responsiveness of foreign and domestic demand to relative price changes is partially offset by higher income elasticities for import demand, so that more of the demand reduction is shifted onto foreign goods.

Improved labour market flexibility and increased credibility of policy-makers can reduce the costs of adjustment to cost shocks, as is illustrated in two additional sets of simulations. In the first (results of which are presented as the broken line in Figure 4), the responsiveness of aggregate real wages to a change in unemployment is doubled, while holding the natural rate fixed, compared with a baseline case.<sup>13</sup> This change

**Figure 4. Domestic effects of a localised nominal wage increase**

**Deviation from baseline**

**A. Effects on domestic wage levels**



1. GDP weighted average of France, Italy, United Kingdom and Spain.

2. GDP weighted average of Belgium, Denmark, Ireland and the Netherlands.

3. GDP weighted average of Austria, Finland, Norway, Sweden and Switzerland.

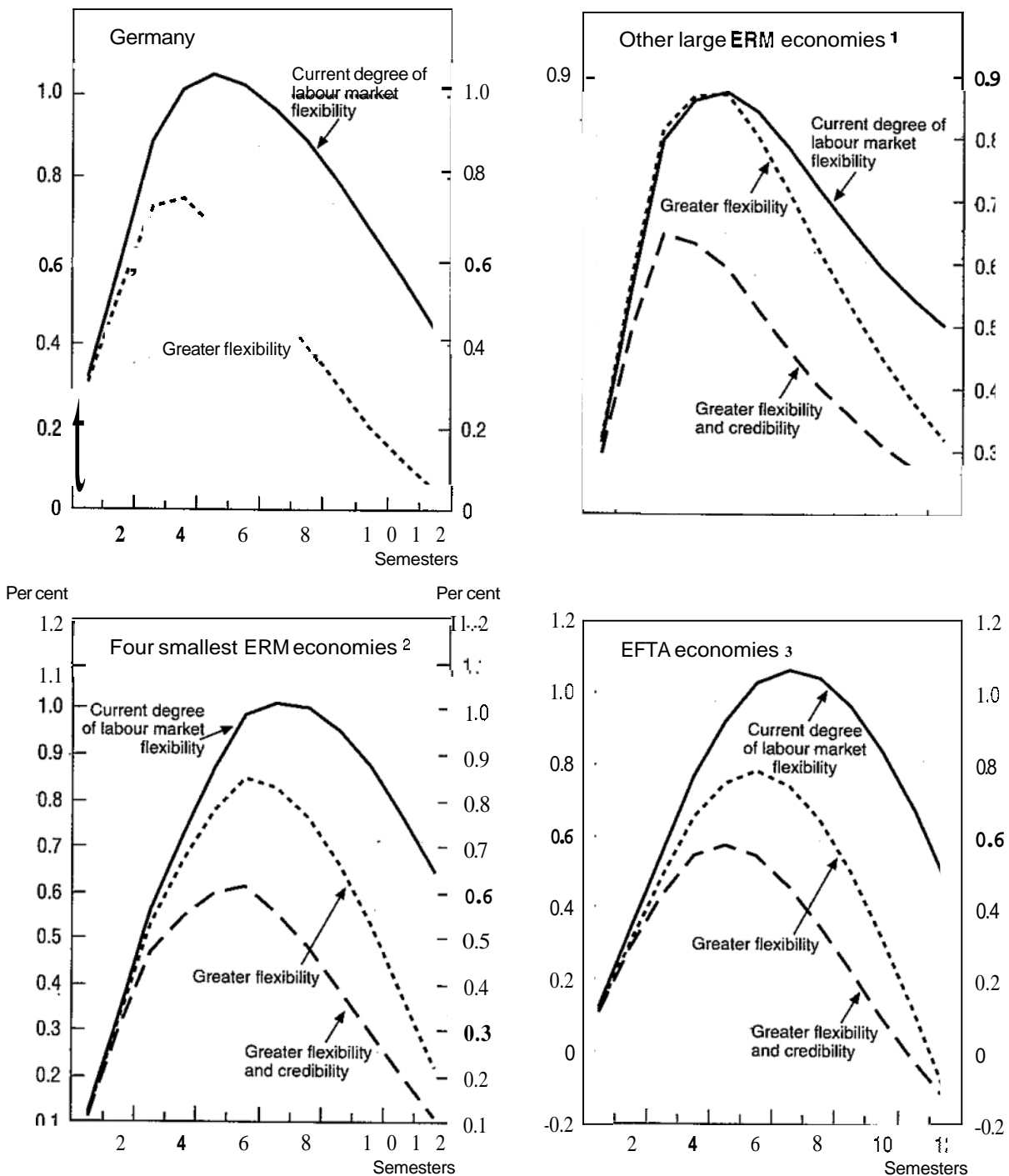
Note: Effects of a one percent increase in nominal wage levels. A separate simulation is run for a wage disturbance in each country. Labour market flexibility is increased by doubling the responsiveness of wage changes to cyclical disturbances. Credibility is increased by making inflation expectations half depend on German inflation.

Source: OECD, INTERLINK model simulations.



Figure 4. (continued)

B. Effects on consumption deflator

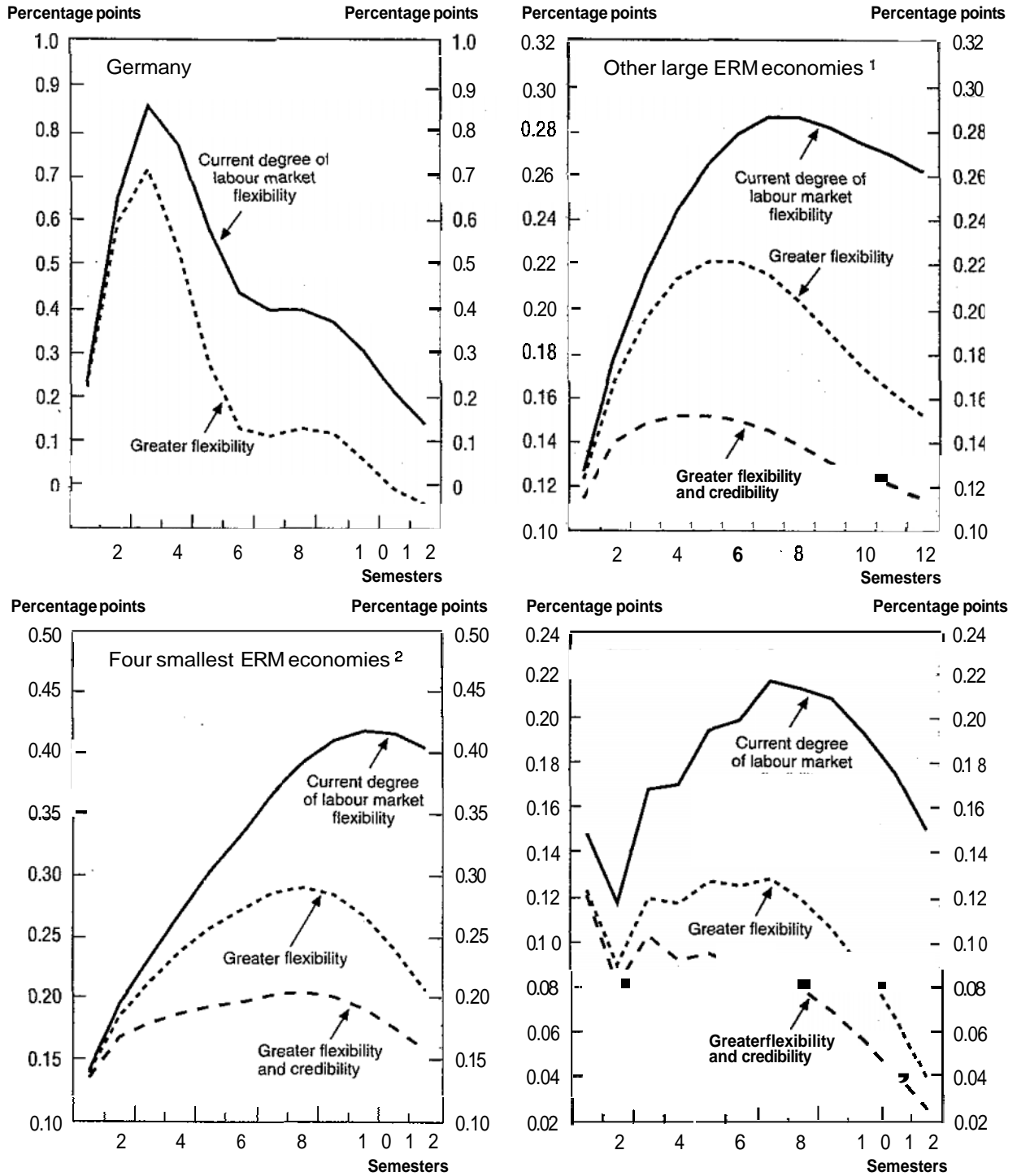


1. GDP weighted average of France, Italy, United Kingdom and Spain.
2. GDP weighted average of Belgium, Denmark, Ireland and the Netherlands.
3. GDP weighted average of Austria, Finland, Norway, Sweden and Switzerland.

Note: Effects of a one percent increase in nominal wage levels. A separate simulation is run for a wage disturbance in each country. Labour market flexibility is increased by doubling the responsiveness of wage changes to cyclical disturbances. Credibility is increased by making inflation expectations half depend on German inflation.  
 Source: OECD, INTERLINK model simulations.

Figure 4. (continued)

C. Effects on unemployment rate



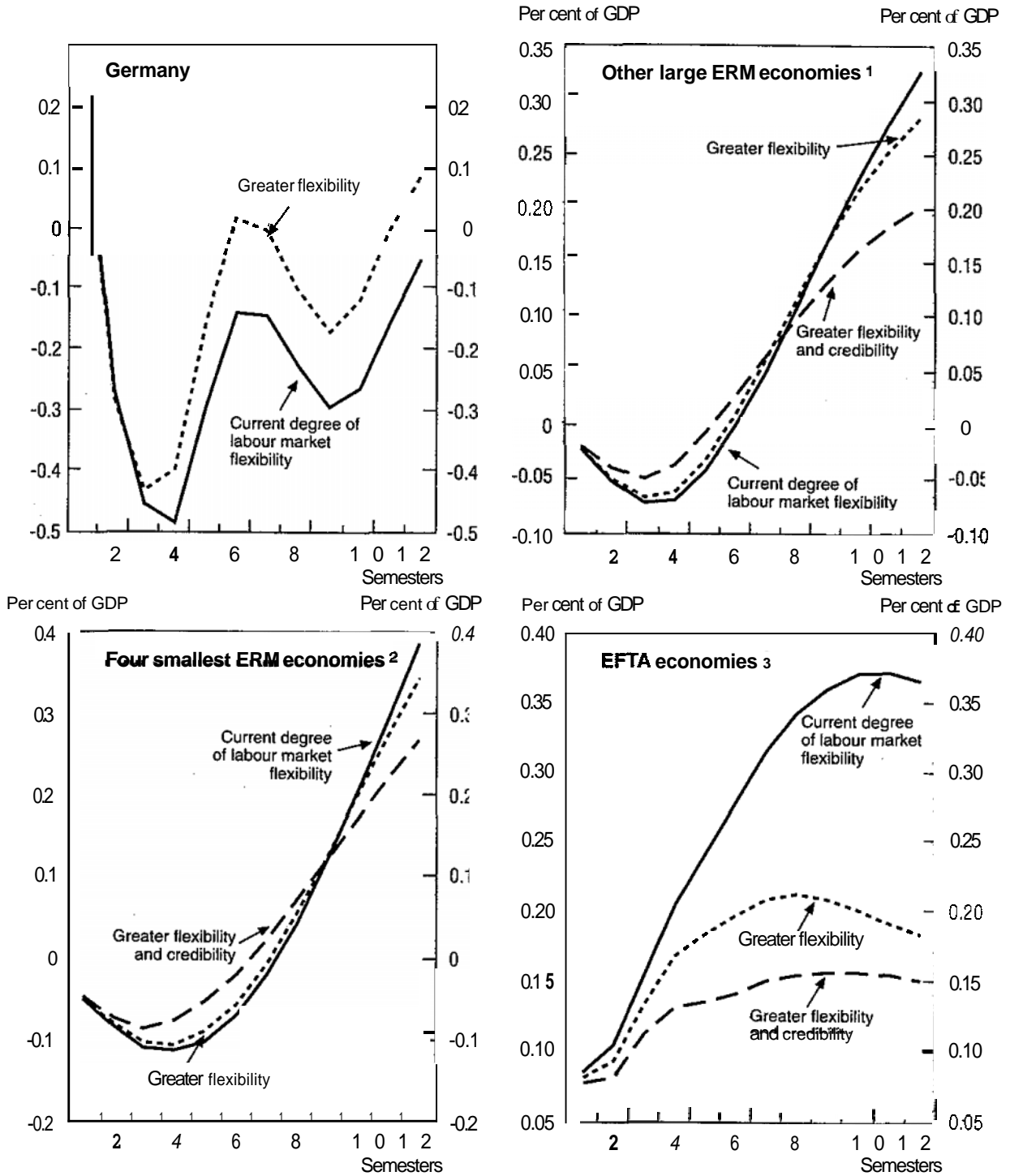
1. GDP weighted average of France, Italy, United Kingdom and Spain.
2. GDP weighted average of Belgium, Denmark, Ireland and Netherlands.
3. GDP weighted average of Austria, Finland, Norway, Sweden and Switzerland.

Note: Effects of a one percent increase in nominal wage levels. A separate simulation is run for a wage disturbance in each country. Labour market flexibility is increased by doubling the responsiveness of wage changes to cyclical disturbances. Credibility is increased by making inflation expectations half depend on German inflation.

Source: OECD, INTERLINK model simulations.

Figure 4. (continued)

D. Effects on foreign debt



1. GDP weighted average of France, Italy, the United Kingdom and West Germany

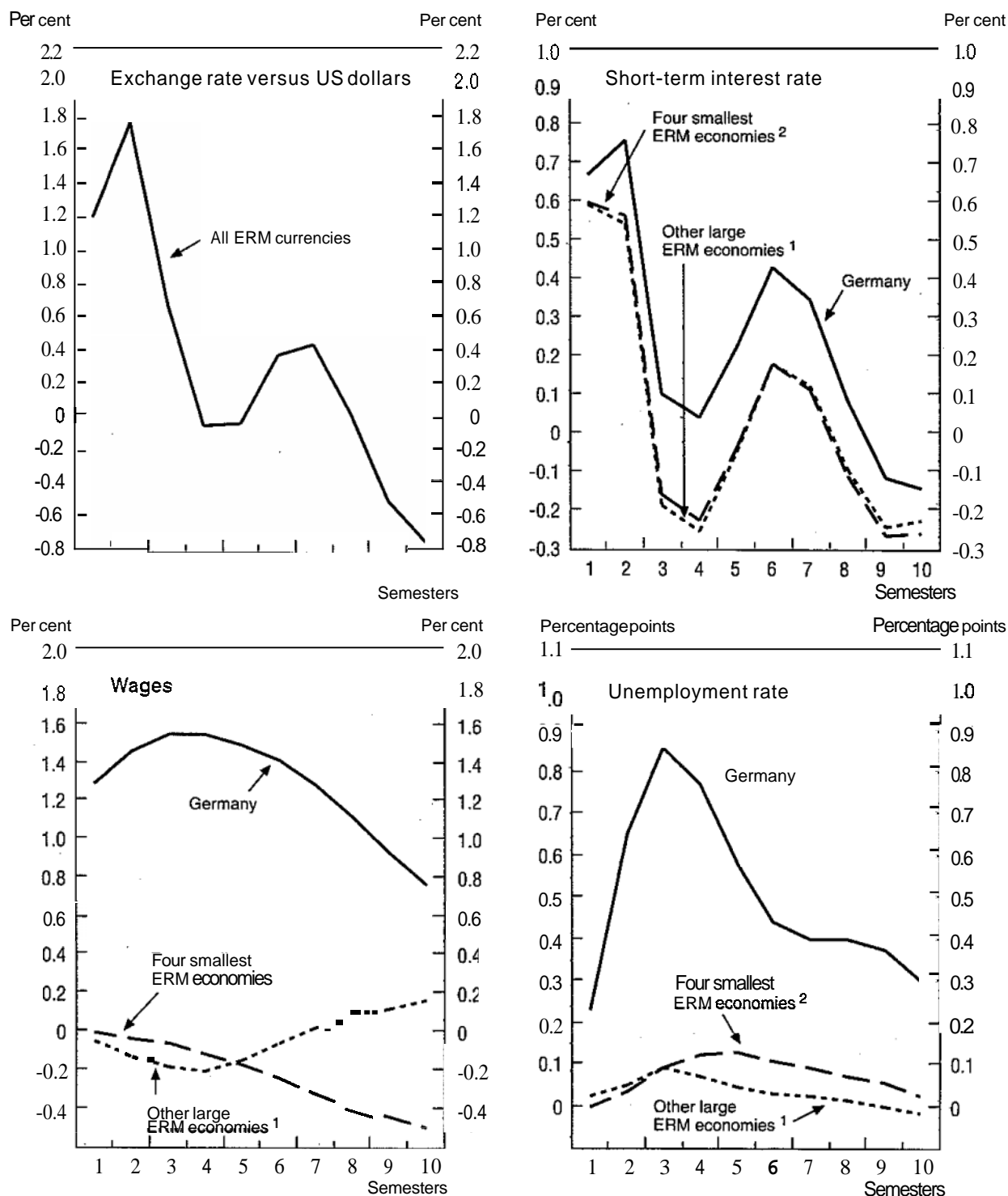
2. GDP weighted average of Belgium, Denmark, Ireland and the Netherlands

3. GDP weighted average of Austria, Finland, Norway, Sweden and Switzerland.

Note: Effects of a one percent increase in nominal wage levels. A separate simulation is run for a wage disturbance in each country. Labour market flexibility is increased by doubling the responsiveness of wage changes to supply and demand disturbances. Credibility is increased by making inflation expectations half as sensitive to German inflation.

Source: OECD, INTERLINK model simulations.

Figure 5. **Spillover effects of a German wage shock on ERM countries**  
Deviation from baseline



1. GDP weighted average of France, Italy, United Kingdom and Spain.

2. GDP weighted average of Belgium, Denmark, Ireland and the Netherlands.

Note: Effects of a one percent increase in the nominal wage level in Germany. Germany targets its domestic money supply and other ERM countries target their exchange rate with Germany. German wage behaviour is assumed to affect wages in other countries only indirectly through effects on interest rates and activity, rather than directly via credibility effects.

Source: OECD, INTERLINK model simulations.

brings the responsiveness of wages to unemployment in ERM countries to roughly U.S. levels. In the second set of simulations (solid-circle line in Figure 4), wage responsiveness is doubled, as in the first simulations, and inflation expectations are determined half by past domestic inflation and half by past inflation in the low-inflation country, corresponding to an increase in credibility on the part of the authorities.<sup>14</sup> Thus, domestic labour markets expect any inflation above that of the low-inflation country to be temporary and quickly eliminated. Such credibility would obviously be quickly lost, however, if policy behaviour tried to exploit the low inflation expectations of labour markets by pursuing unsustainable expansionary policy.

Outside of Germany, the effects of the initial wage disturbance on wages are about 50 per cent less and on unemployment about a third less after five years when wage sensitivity is doubled. Most of the improvement occurs two to five years after the initial disturbance because the greater responsiveness to unemployment prevents the initial shock from becoming entrenched in a wage-price spiral. Greater credibility, in the form of well-anchored inflation expectations, has an additional powerful effect on adjustment. By allowing only a portion of the induced price increases to feed back into wages, credibility diminishes the need for additional unemployment. However, the marginal contribution of credibility to accelerating adjustment diminishes as inflation returns to that of the anchor country, so that a combination of additional credibility and flexibility is desirable from the point of view of overall adjustment.

The three Nordic EFTA countries that tied their exchange rates to the ERM in the early 1990s were forced to float their currencies in the second half of 1992. Nevertheless, it is interesting to see how EFTA economies compare with ERM economies in terms of responsiveness. Aggregate real wages in these countries appear fairly flexible on the whole, so that supply/cost disturbances generate moderate second round effects and the unemployment-rate effects are low compared with ERM countries. For these countries, the greater concern may be their susceptibility to localised shocks because of their industrial structure and trading patterns, rather than the ability to adjust. As with ERM countries, additional responsiveness to labour market conditions and credibility drive down the cost of adjustment to disturbances; by the end of five years EFTA countries have virtually completed their adjustment.

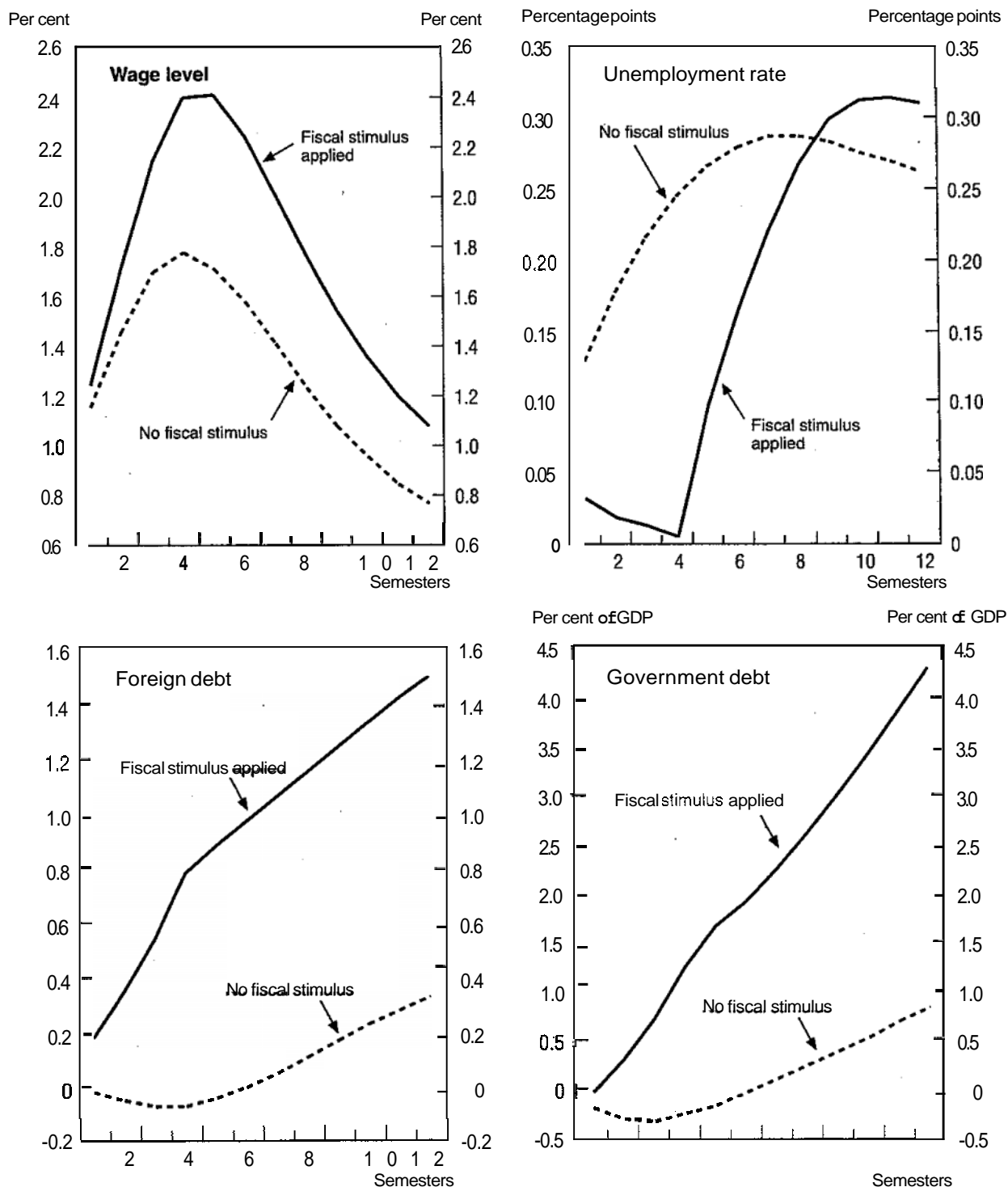
## **B. Supply disturbances and discretionary fiscal policy**

The distinction between supply and demand disturbances is easy to make conceptually, but is difficult in practice. For example, OECD (1991*b*) traces the resurgence of inflation in the United Kingdom in the late 1980s to a mistaken identification of inflationary wage increases with real wage gains justified by increased productivity growth. Similarly, some of the policy errors of the 1970s can be traced to the effort to maintain low unemployment rates in the face of an upward shift in the natural rate of unemployment. With fixed exchange rates, errors by policy-makers in identifying the underlying shock can have particularly damaging effects. The ultimate adjustment costs can be greatly increased, if a demand decrease due to a cost misalignment is mistakenly identified as an exogenous aggregate demand shortfall that requires offsetting fiscal policy action. If implemented, fiscal stimulus exacerbates the emerging misalignment

Figure 6. **Effects of fiscal stimulus attempting to offset the employment consequences of a wage disturbance**

Deviation from baseline

A. Large non-German ERM economies I

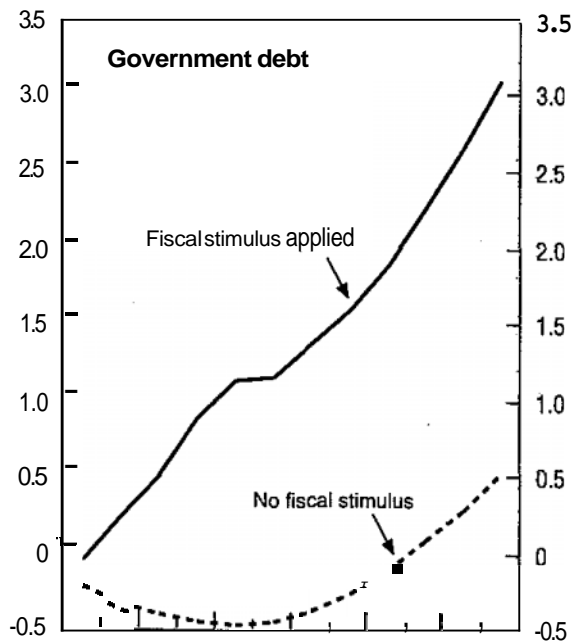
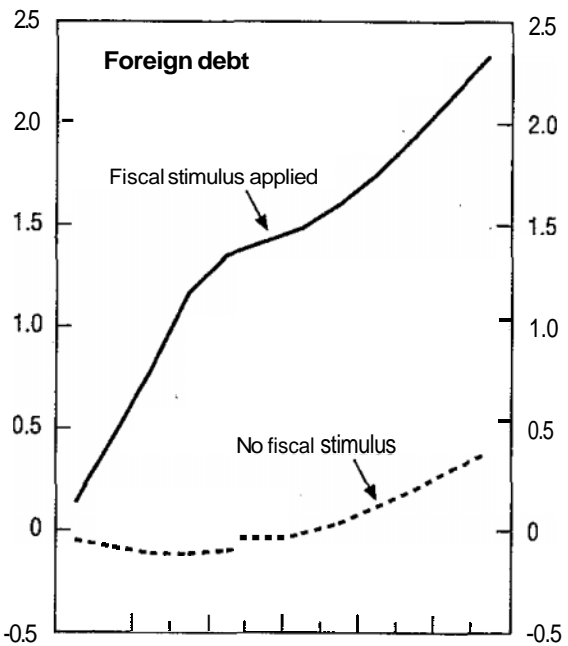
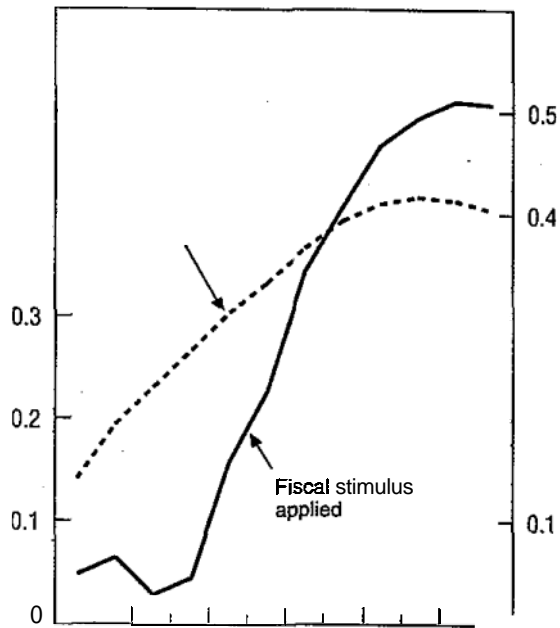
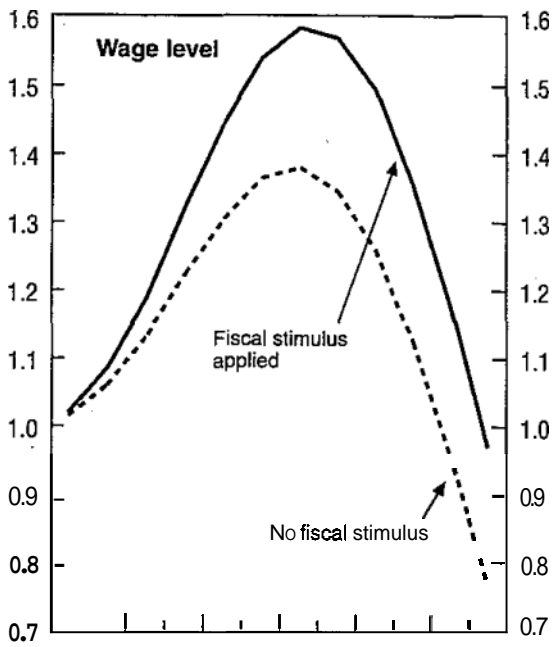


1. GDP weighted average of France, Italy, United Kingdom and Spain.

2. GDP weighted average of Belgium, Denmark, Ireland and the Netherlands

*Note:* The no fiscal stimulus case is the same as presented in Chart 4. In the fiscal stimulus case, the authorities try to offset increasing unemployment through a temporary increase in the level of government spending equal to one per cent of GDP for two years. Although not shown, the simulated responses in Germany are qualitatively the same.

Source: OECD, INTERLINK model simulations.



by maintaining growth of aggregate demand, wages and prices when some moderation is required.

The magnitude of potential losses from misapplied fiscal stimulus can be obtained by simulating the effects of a 1 percentage point increase in wages whose employment consequences are muted in the first two years by a temporary fiscal stimulus equal to 1 per cent of GDP. The stimulus almost completely offsets the incipient increase in unemployment from the wage increase, but at the cost of an ultimate misalignment of prices and wages that is about a one-half percentage point higher than in the case where no stimulus is applied (Figure 6). The increases in foreign and government debt are about one to two percentage points higher relative to GDP than if no demand stimulus had been applied. Similar prudence would be mandated both in intervention by national authorities and supra-national authorities. While mistaken demand stimulus by a supra-national authority has benign effects on the fiscal debt situation of the country experiencing the shock, the negative effects on competitiveness from delaying adjustment remain.

### **C. Fixed exchange rates versus monetary union: internal and external effects**

Moving from a fixed exchange-rate target for non-German ERM members to an explicit EMU-wide monetary policy (in the form of targeting EMU-wide money) has the effect of ending the asymmetry between Germany and other ERM countries. Under the ERM, interest and exchange rates for all ERM countries are determined by conditions in Germany, while shocks to other ERM countries have relatively little impacts outside their borders. Under EMU, each country will have an effect on EMU-wide monetary policy roughly proportionate to its size.

In the case of a cost shock in Germany, EMU differs from ERM by the more muted effect on German interest rates and the smaller change in the exchange rate relative to non-ERM countries. For equivalent initial shocks, German wages increase more, and the unemployment rate profile is flatter under EMU than ERM. Non-German EMU countries face a smaller effective exchange-rate appreciation, but the differences in response between EMU and ERM seem small in general. The implications of a localised cost shock in other countries are almost entirely domestic under the ERM. By contrast, the EMU-wide money target means that cost disturbances in any country will affect overall EMU exchange and interest rates. For a large country, such as France, this implies a slightly bigger EMU-wide effect on interest and exchange rates from a domestic cost disturbance under EMU, but a smaller domestic interest-rate effect. Outside of France, the effects from a French cost shock under EMU are slightly, but unambiguously negative, as the exchange-rate effects dominate. For a small country, such as the Netherlands, the adjustments are virtually identical under both ERM and EMU, and the external implications are small.



## V. CONVERGENCE ISSUES

The goals of reducing inflation and budget deficits to low levels prior to EMU are enshrined in the Maastricht treaty. Such policies are highly desirable in order to insure the sustainability of EMU, but are also worthwhile whether or not EMU is on the agenda. Hence, the output costs of such policies, to the extent that they exist, should not be ascribed primarily to EMU, but represent a continuation of the medium-term policies for macroeconomic stabilisation that most governments have pledged to pursue. As discussed above, the accompanying adjustment costs can be seen as partially reflecting the microeconomic rigidities present in many ERM economies.

Specifically, the terms of the Maastricht treaty require that consumer inflation rates be within 1½ percentage points of the three low inflation leaders (although the weights on the three low inflation rates are not spelled out explicitly), that general government budget deficits be less than 3 per cent of GDP and gross general government debt be less than 60 per cent of GDP. While the debt level targets appear unreachable for countries starting off with high debt to GDP ratios, the Maastricht treaty seems to allow for loosening of the debt requirement, if policies are consistent with attaining the ratio over the medium to long term.

Given the uncertainty of any convergence projection, the analytical considerations related to convergence, rather than specific quantitative scenarios, are of greatest interest. As a starting point, the weak growth in 1992 and (prospectively) 1993 may well leave most countries closer on inflation convergence and further away on deficit convergence than was earlier anticipated. Favourable prospects for convergence will require that European interest rates come down sharply, and that countries take advantage of an improved growth outlook to reduce deficits. Conversely, in a high interest rate and low growth environment, it may be difficult to implement the required budget cuts. Indeed, even if the deficit requirement were redefined to apply only to structural deficits, these might be difficult to attain if there was little prospect of crowding-in.

Convergence on inflation is likely to be less of a problem than reducing fiscal deficits to the required 3 per cent. Based on OECD (1992*b*), the low inflation **EMS** countries have inflation rates that average about 2 per cent by late 1994, so the convergence cut-off is about 3.5 per cent, assuming that relative inflation rates remain stable over the ensuing years (Table 5). Sufficient disinflationary momentum appears to be in the pipeline over the next few years to bring most EMS countries within striking distance of inflation convergence. Moreover, unemployment rates in the four countries projected to require further disinflation beyond 1994 – Italy, the United Kingdom, Portugal and Spain – may remain above 1992 levels for some time, imparting continued disinflationary impetus. In the United Kingdom and Spain, unit labour cost growth is expected to be below 3.5 per cent by 1994.

The momentum to lower fiscal deficits is much less well established. Indeed, both actual and structural budget deficits have deteriorated in many EMS countries over the last few years. As of 1992, most EMS countries remained well above the 3 percent deficit cut-off limit, whether deficits are measured in actual terms or corrected for the stage of the business cycle (Table 6). Substantial deficit reduction effort is built into the OECD (1992*b*) projections, but such progress is likely only in the context of lower interest rates and improving growth prospects by the end of 1993. Even with deficits

	Required reduction after 1992 (levels in parenthesis)		Required reduction after 1994 (levels in parenthesis)	
	Percent		points	
Germany	0.8	(4.8)	-	(3.0)
France	-	(2.9)	-	(2.2)
Italy	1.4	(5.4)	1.8	(5.3)
United Kingdom	1.4	(5.4)	0.7	(4.2)
Belgium	-	(2.5)	-	(2.7)
Denmark	-	(2.1)	-	(1.8)
Ireland	-	(3.6)	-	(2.6)
Netherlands	-	(3.3)	-	(2.0)
Portugal	5.2	(9.2)	2.4	(5.9)
Spain	2.5	(6.5)	1.2	(4.7)

1. Inflation is measured as the annual increase in the private consumption deflator.

Note: The required inflation reductions are calculated relative to the average of three low inflation countries.

Source: Inflation projections are from OECD (1992b).

being reduced considerably over 1993-1994, Italy, the United Kingdom, Belgium, the Netherlands, Spain and Portugal still have fiscal deficits that remain above the Maastricht target at the end of 1994.

Lower interest rates make the required fiscal cuts easier in several ways. Most directly, for countries with a high level of government debt such as Italy, Ireland and Belgium, lower interest rates reduce the burden of servicing the debt. Indeed, in these countries the actual and structural budget deficits improve to the tune of more than 1 per cent of GDP per percentage point fall in interest rates. For other countries such as the United Kingdom, Spain and Portugal, the structural deficit component is projected

	1992		1994	
	Actual	Structural	Actual	Structural
Germany	-3.2	-4.2	-2.7	-2.5
France	-2.8	-2.0	-2.9	-1.8
Italy	-11.1	-10.3	-8.9	-6.9
United Kingdom	-6.6	-4.0	-6.7	-3.2
Belgium	-6.1	-7.5	-4.4	-5.4
Denmark	-2.6	-0.7	-1.8	-0.1
Greece	-13.2	-13.4	-9.5	-9.4
Ireland	-2.5	-3.1	-2.8	-2.1
Netherlands	-3.8	-4.8	-3.1	-3.9
Portugal	-5.4	-5.5	-4.2	-2.7
Spain	-4.7	-4.2	-3.8	-1.5

1. Structural balances are shown as a percentage of trend GDP.

Source: OECD (1992b).

to be relatively small by late 1994. Further deficit reduction over the next two years may be easier, if low interest rates and a gradual return to trend output over 1995-1997 impart a cyclical improvement to the budget. Moreover, in both Belgium and the Netherlands, where further action on structural deficits may be needed, experience has shown that deficit cuts in such open economies largely spill over into other countries.

The contractionary effects of deficit reduction in countries, such as Italy, where structural deficits must be cut substantially after 1994, can also be mitigated by smaller interest rate differentials with Germany. In large part, such reduction in differentials depends on the pace of domestic macroeconomic and structural policies. However, the fall in differentials may also be largely contingent on a fall in the overall level of European interest rates, because markets will perceive less risk to exchange rates if the floor to European interest rates, as effectively set in Germany, is low. With the floor rate low, the potential advantage to floating is reduced, while deficit reduction and exchange-rate stability become attractive as the best means to eliminate interest-rate differentials. However, if German rates remain at high levels, markets may question whether large fiscal cuts are feasible when the crowding-in possibilities are limited. There may also be added perceived currency risk, if there is a perception that weaker output prospects could lead to further currency fluctuations.

Some other considerations are important as well. In particular, in a low interest rate environment, confidence effects from a concerted reduction in inflation and budget deficits may lead to faster demand growth than would emerge from normal multiplier/accelerator analysis. This would further increase revenues and lower debt service payments. Similarly, structural reforms, particularly in labour markets, may reduce employment costs in two ways – first, by increasing the responsiveness of real wages to higher unemployment and second, by lowering the natural rate of unemployment. Nevertheless, it is difficult to assess how quickly such policy changes would affect confidence and adjustment costs.

## VI. SOME POLICY IMPLICATIONS

### A. Improved labour market flexibility

It is unlikely that labour mobility will increase greatly within the EC over the next few years. The role of labour mobility could be largely emulated within the ERM by greater sensitivity of real wages to excess demand and supply conditions. Greater wage flexibility would lower the amount of unemployment that is needed to restore equilibrium following real wage misalignments. Additional flexibility in product prices alone, without greater wage flexibility, would still lead to large adjustments in output as profit margins become compressed and firms respond by reducing output and capacity.

On a national level, some progress towards improving labour market performance has been achieved. A number of countries in which the unemployment benefit system has contributed to high structural unemployment have instituted reforms aimed at reducing the generosity of the benefits. The Netherlands is addressing distortions

caused by the ease of accessing disability benefits, while Ireland has instituted a system of centralised bargaining which it hopes will make parties to wage contracts more conscious of the macroeconomic implications of their settlements.

While some harmonisation of labour market regulation may be justified, it is important to avoid establishing structures that will increase labour market rigidities. Programmes that establish legal minima for certain benefits, such as the minimum wage or unemployment payments, are likely to be more binding on poorer countries than on richer ones; hence, they may affect labour market flexibility to a greater degree in poorer countries. To the extent that the source of funding for such transfers will be common EC funds rather than domestic sources, poorer countries face an incentive to argue for higher levels of benefits, despite the possible adverse effects on adjustment. Europe-wide unions or wage negotiations may also have the effect of inhibiting real wage adjustments that are needed on a country-by-country basis.

## **B. Implications for credibility of fixed exchange rates**

Although the simulation results discussed above relate to adjustment to cost disturbances, they also carry implications with respect to the need for convergence of inflation rates and the final setting of exchange-rate parities prior to their permanent fixing. If the starting point is characterised by misaligned exchange rates or lack of convergence in inflation rates, markets may not view fixed exchange rates as a credible long-term proposition, because of the perception that the adjustment costs and, ultimately, domestic political costs may be unacceptable. These doubts may persist even as the authorities successfully maintain parities over the short term.<sup>15</sup> Indeed, financial market doubts may not wane fully, even if governments actually carry out their commitments to maintain parities. If markets retain these doubts, they will differentiate between debt from different countries, raising the risk premium on countries that face a high cost of achieving convergence, and some of the benefits from fixing exchange rates will be delayed.

Measures that lower the costs of convergence or of maintaining the exchange rate commitment will therefore increase market confidence in the sustainability of exchange rate parities. A lowering of adjustment costs may therefore have additional benefits in terms of adding credibility to fixed exchange rates in advance of EMU. Markets will have fewer doubts about the sustainability of macroeconomic and exchange-rate commitments, if they have more confidence in the ability of economies to respond flexibly to disturbances. Credibility will also be enhanced if macroeconomic, structural and social policies are viewed as pulling in the same direction.

In the transition to EMU, the credibility of ERM exchange-rate commitments will also be helped by lower German interest rates. Lower German interest rates would make budgetary consolidation in high deficit countries less contractionary. With less of an output cost, markets may become more confident that deficit reduction and adequate economic performance will be compatible with fixed exchange rates. **As** a result, the risk premium on non-German ERM currencies may fall, reducing interest-rate differentials within the ERM and providing additional stimulus to support the fiscal consolidation.

### **C. The need for fiscal targets**

With increased integration of product markets, the effectiveness of local fiscal policy will be reduced. Even at current levels of integration, domestic multipliers appear to be low. Hence, there is some incentive to focus fiscal policy on provision of public goods and income maintenance and away from demand management.<sup>16</sup> An alternative viewpoint emphasises the incentives towards less fiscal responsibility, arguing that expansionary fiscal policy in any single country will not have a large effect on the common interest rate and hence, will not be crowded out (although beyond a certain point markets may be unwilling to accept obligations of high debt governments without an additional risk premium). In this case individual countries have an incentive for expansionary fiscal policy. The results presented above suggest that the diminishing returns to fiscal thrust may well outweigh the advantages provided by a common interest rate. Also, the unfavourable debt position from which many of the countries are starting may make them reluctant to incur additional obligations until debt burdens have been stabilised or reduced.

The Maastricht treaty forbids monetisation of government deficits. Combined with the considerations discussed above, there appears to be a strong incentive for governments to pursue a prudent fiscal policy path, as long as they expect neither a fiscal nor inflation bailout if debt becomes unmanageable. However, individual countries may perceive that their EMU partners are unwilling to allow the monetary union to fail – that is, to allow a country to default on its official debt or drop out of the union. Failure of a single country to be sustainable in the EMU will cast doubts on other countries, just as bouts of exchange market pressure are contagious in certain circumstances, raising risk premiums and undoing much of the benefits of monetary union. Since this loss of credibility will hurt the remaining countries, it has aspects of a public good, and the other countries within EMU will be perceived as having an incentive to bail out the debtor.

The leverage that the EMU has over individual countries is much greater at the onset of union, however, since membership could possibly be denied or countries relegated to a second tier of membership without harm to the reputations of countries qualifying for EMU entry. If the EMU entry criteria do not induce fiscal consolidation in advance of EMU, doubts may emerge both among the public and policy-makers as to whether the no-bail-out pledge will be enforced subsequently, when the loss potential is more symmetric between countries meeting fiscal targets and countries missing them. Hence, the ability to achieve substantial deficit reduction in advance of EMU is probably a good guide to whether countries will be able to maintain fiscal discipline afterwards.

### **D. Fiscal federalism**

Recent analysis emphasises the role of fiscal federalism in buffering regional demand shocks within countries (Sachs and Sala-i-Martin, 1989; Eichengreen, 1990; and Masson and Taylor, 1992). The evidence seems to suggest that the degree of buffering is high within countries. For example, in the United States about 30-40 per cent and in Canada about 20-30 per cent of the income fluctuation from a regional

shock is offset by increased transfer from the federal level. Indeed, the traditional high cyclicity of budget deficits at the federal level suggests that some such mechanism is at work. This implicit insurance role may be particularly important in light of evidence that, even within large integrated countries such as the United States, the pattern of economic disturbances often seem to follow regional rather than national lines (Tootell, 1990).

Within the ERM such transfers among countries are limited at present. Moreover, in a period of budget consolidation, countries may be reluctant to put into place a mechanism that would increase transfers automatically in the event of adverse shocks. **As** such, adjustment needs are likely to have to be met from internal sources. Governments must also be mindful of potential disincentives to structural adjustment that could emerge from badly constructed transfer programs. To the extent that regions are suffering from supply or cost shocks rather than temporary demand shocks, transfers may slow rather than speed adjustment.

## NOTES

1. European Commission, 1990a, provides an extensive discussion of the envisaged benefits of monetary union.
2. Durand and Giorno (1987) and Lipschitz and McDonald (1991) provide discussions of the uses and problems of competitiveness indicators. The differential growth in the export unit values and overall manufacturing unit labour costs could also result from differential productivity growth as between more or less traded manufactures.
3. Cohen and Wyplosz (1989) were the first to measure the relative importance of symmetric and asymmetric shocks among ERM countries, but they focused on average relationships from the 1960s to the present. Weber (1990) appears more relevant as he distinguishes between the pre- and post-ERM period and carries out the calculations for a broader set of ERM countries with more data for the ERM period. Symmetry (asymmetry) exists if shocks are positively (negatively) correlated between countries. However, weakly symmetric shocks imply only a small average positive correlation and leave open the possibility of large random divergences in shocks across countries.
4. Most analysts are pessimistic about the prospects for greatly increased labour mobility within the EC over the short to medium term. See DeGrauwe and Vanhauerbeke (1991) and Eichengreen (1990). Indeed, even within ERM countries, mobility seems to be limited. OECD (1986) provides some data on and a discussion of possible reasons for limited mobility.
5. All simulations are done with the OECD's INTERLINK model. The Annexes to Englander and Egebo (1992) describe the basic structure of the INTERLINK model and the modifications to the standard INTERLINK model that were implemented for this paper's simulations. The essential linearity of the INTERLINK model means that the responses are not baseline dependent to any great degree. Portugal is not included among ERM countries because the money/financial sector of INTERLINK for Portugal does not contain an explicit link between interest and exchange rates.
6. Indeed, since the model relationships embody an average of past relationships as they existed over the entire period of estimation, the current degree of integration may already exceed that embedded in the model if integration has been growing over time.
7. The ineffectiveness of regional fiscal policy is illustrated by the fact that most U.S. regional models do not have a regional demand lever that affects regional output. Fiscal demand stimulus derives from the Federal budget. See, for example, Hoehn and Balazsy (1985).
8. In the simulations in this paper the INTERLINK model has been adapted to allow for forward-looking expectations in the foreign exchange market, as described in the Annex to Englander and Egebo (1992). Hence, the results are not fully comparable with earlier INTERLINK-based projections of the impact of German unification. With the modifications included, exchange-rates become more responsive to changes in interest-rate differentials. As a result, a demand disturbance in Germany causes a smaller increase in interest rates but a larger initial revaluation of the deutschemark (and other ERM currencies). The impact on wages and prices is somewhat reduced, whereas the effect on unemployment is about the same as in simulations using the standard version of INTERLINK.

9. Somewhat surprisingly, given the very different structures of the models, these results are very similar to those presented in McKibbin and Sachs (1991) for a German fiscal shock.
10. OECD (1991a) provides an extensive discussion and more data on exit rates.
11. In the United States, where labour markets are considered to be relatively flexible, flat or falling nominal wages were generally resisted by labour as a response to purely cyclical downturns, but were accepted only very grudgingly when firms were facing serious long-term problems. See Englander and Chandoha (1984) or Flanagan (1984).
12. It would be preferable to raise elasticities with respect to EC partners only, but this was not possible. About 60 per cent of EC trade is internal.
13. A similar approach to assess the potential effects of greater labour market flexibility in Europe was used by Barbone and Poret (1989).
14. This has been adopted in several empirical studies as a credibility criterion. As credibility is here defined with respect to German inflation, additional credibility on the part of the Bundesbank was not simulated. An even stronger form of credibility implied by fixed exchange rates would imply convergence of absolute price and unit labour cost levels. Real wages that were over- or undervalued relative to competitors would converge in levels as opposed to growth rates. Most studies focus on inflation convergence, which is a weaker form of credibility.
15. Williamson (1991) and Fratianni and von Hagen (1990) also question whether credibility is feasible in the face of high adjustment costs.
16. A large literature has developed on this subject. See, for example, Wyplosz (1991) and Masson and Melitz (1990). For alternative viewpoints, see Persson and Tabellini (1990), and Buiters *et al.* (1992) who provide a vigorous argument against deficit and debt criteria as embodied in the Maastricht treaty.



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