

# DISCUSSION PAPER SERIES

No. 2832

## EMU IN THE EARLY YEARS: DIFFERENCES AND CREDIBILITY

André Sapir and Marco Buti

*INTERNATIONAL MACROECONOMICS*



**C**entre for **E**conomic **P**olicy **R**esearch

[www.cepr.org](http://www.cepr.org)

Available online at:

[www.cepr.org/pubs/dps/DP2832.asp](http://www.cepr.org/pubs/dps/DP2832.asp)

# EMU IN THE EARLY YEARS: DIFFERENCES AND CREDIBILITY

**André Sapir**, ECARES, Université Libre de Bruxelles,  
European Commission and CEPR  
**Marco Buti**, European Commission

Discussion Paper No. 2832  
June 2001

Centre for Economic Policy Research  
90–98 Goswell Rd, London EC1V 7RR, UK  
Tel: (44 20) 7878 2900, Fax: (44 20) 7878 2999  
Email: [cepr@cepr.org](mailto:cepr@cepr.org), Website: [www.cepr.org](http://www.cepr.org)

This Discussion Paper is issued under the auspices of the Centre's research programme in **International Macroeconomics**. Any opinions expressed here are those of the author(s) and not those of the Centre for Economic Policy Research. Research disseminated by CEPR may include views on policy, but the Centre itself takes no institutional policy positions.

The Centre for Economic Policy Research was established in 1983 as a private educational charity, to promote independent analysis and public discussion of open economies and the relations among them. It is pluralist and non-partisan, bringing economic research to bear on the analysis of medium- and long-run policy questions. Institutional (core) finance for the Centre has been provided through major grants from the Economic and Social Research Council, under which an ESRC Resource Centre operates within CEPR; the Esmée Fairbairn Charitable Trust; and the Bank of England. These organizations do not give prior review to the Centre's publications, nor do they necessarily endorse the views expressed therein.

These Discussion Papers often represent preliminary or incomplete work, circulated to encourage discussion and comment. Citation and use of such a paper should take account of its provisional character.

Copyright: André Sapir and Marco Buti

June 2001

## ABSTRACT

### EMU in the Early Years: Differences and Credibility\*

The main issue in the early years of EMU is one of credibility. On one hand, high exposure to asymmetric shocks and low adaptability (be it in terms of stabilization or adjustment) to both symmetric and asymmetric shocks make the early years of EMU potentially problematic. On the other hand, significant economic differences between EMU countries raise questions regarding the objective of price stability. Credibility-enhancing policy choices may, in the short run, conflict with optimal smoothing of shocks, but are essential to 'ferry' EMU towards its 'steady state'. While a number of uncertainties still hang over the new regime, the Paper finds that the experience of EMU so far is heartening. Although economic divergences skewed on the high side made internal monetary misalignments politically less troublesome, the stability-oriented EMU framework fostered broadly appropriate policy behaviour in terms of both efforts to increase adaptability to shocks and of actual response to observed shocks.

JEL Classification: E42, E50, E61 and E63

Keywords: EMU, exposure and adaptability to shocks, fiscal and monetary policy and policy coordination

André Sapir  
ECARES  
Université Libre de Bruxelles  
50 Avenue Roosevelt CP 114  
1050 Brussels  
BELGIUM  
Tel: (32 2) 650 2345/4  
Fax: (32 2) 650 4475  
Email: [asapir@ulb.ac.be](mailto:asapir@ulb.ac.be)

Marco Buti  
Head of Unit  
European Commission  
ECFIN BU1 0/191  
rue de la Loi, 200  
B-1049 Brussels  
BELGIUM  
Tel: (32 2) 296 22 46  
Fax: (32 2) 299 35 05  
Email: [marco.but@cec.eu.int](mailto:marco.but@cec.eu.int)

For further Discussion Papers by this author see:  
[www.cepr.org/pubs/new-dps/dplist.asp?authorid=103387](http://www.cepr.org/pubs/new-dps/dplist.asp?authorid=103387)

For further Discussion Papers by this author see:  
[www.cepr.org/pubs/new-dps/dplist.asp?authorid=136020](http://www.cepr.org/pubs/new-dps/dplist.asp?authorid=136020)

\* Paper prepared for the workshop on 'The Functioning of EMU: Challenges of the Early Years' organized by the Directorate General for Economic and Financial Affairs, European Commission, Brussels, 21/22 March 2001. The Paper will be the initial chapter in a forthcoming book collecting the papers of the workshop. The authors would like to thank the participants, Paul van den Noord for having supplied the OECD data in Table 3, and Carlos Martinez Mongay for useful comments. Maarten van de Stadt and Karel Havik provided excellent research assistance. The opinions expressed in this Paper belong to the authors only and should not be attributed to the European Commission.

Submitted 24 April 2001

## NON-TECHNICAL SUMMARY

Europe's monetary union is unlike any other current or historical example of monetary unification in two fundamental respects. First, there is no instance of a group of countries with a single currency controlled by a single central bank, where each state retains such a large degree of political and fiscal autonomy as in EMU. Second, even in the history of European integration, there is no instance of a common policy based on a sole country's institutional set-up as in the case of monetary policy. With the European Central Bank (ECB), it was clear from the start that the Union's central bank would be like the Bundesbank, with a strong commitment to price stability.

The extraordinary nature of EMU was bound to raise questions about its credibility. There are two facets to the issue. One is about the degree of commitment of the ECB toward price stability, where the question is whether the ECB's commitment is as solid as the Bundesbank's. The other facet concerns the capacity of the system to respond to economic shocks, which brings up two problems: the exposure of EMU countries to shocks, and the availability of appropriate instruments. Clearly, credibility is an issue of special concern during the early years of EMU, when the system still lacks reputation and its member countries display important economic differences.

Had EMU started off with only Germany and the other countries which had kept their currency rigidly pegged to the German mark (DM) throughout the 1990s, economic differences between the members of the monetary union would have been minimal, and the ECB would have automatically inherited most of the Bundesbank's credibility right from the start of its operation. In the event, EMU got under way not only with the 'core' EU countries belonging to the DM-zone, but also with those on the 'periphery', displaying relatively less (or, at least, less established) nominal and real convergence *vis-à-vis* Germany. Hence, at the start of EMU, a large EMU probably makes it more difficult for the ECB to be regarded as a perfect replica of the Bundesbank in terms of price stability commitment.

The other facet of the credibility issue concerns the capacity of EMU countries to respond to economic shocks. The traditional distinction is between symmetric and asymmetric shocks. For symmetric shocks, there are two separate questions. The first concerns demand shocks. Generally, such shocks are not considered as particularly problematic for currency unions. In fact, the single monetary union is assumed not only of being capable of handling these shocks, but is also viewed as a means of solving the potential coordination problem among independent monetary authorities. During the early years of EMU, however, the situation is unlikely to be quite as favourable given the constraints that weigh on the newly established ECB (i.e. the need to ascertain an anti-inflation record), and the lack of room for manoeuvre on

the budgetary side. The second question concerns supply shocks. These are more difficult to handle because they imply a trade-off between inflation and output stabilization. And multiple fiscal authorities acting non-cooperatively (each one caring mainly about domestic output) increase the likelihood of policy conflicts with the single central bank.

The issue of asymmetric shocks has been widely debated in the literature. There are many reasons why countries may face idiosyncratic situations. One is asymmetric exogenous shocks. Another is common exogenous shocks that have asymmetric effects due to different national economic structures. Finally, there are so-called policy-induced asymmetric shocks: national governments may have asymmetric preferences (differences in political ideology), different policy behaviour (due, for instance, to different electoral calendars) and different strategies to implement structural reform. In principle, the exposure of EMU to asymmetric situations is greater in the early years of the monetary union, when economic differences between member countries remain relatively important.

The fact that the euro area differs from the DM-area has an important bearing on what might be termed 'EMU shocks', which are another manifestation of the 'early years problem'. Even if EMU had consisted of only the 'core' countries, the introduction of a common monetary policy on 1 January 1999 was bound to have an important impact on the countries of the DM-area. The changeover from the Bundesbank to the ECB implied the end to 'German dominance', which translated into a shock for Germany: loss of competitiveness due to a mismatch between the common monetary stance and German stabilization needs. A second EMU shock occurred in 'peripheral' countries. Despite impressive nominal convergence towards the 'core' countries prior to the decision on EMU membership in the spring of 1998, several of these countries witnessed significant reductions in interest rates at the time of the launch of the euro, resulting in a boost to domestic demand.

If and when faced with idiosyncratic situations, the countries of the euro area have potentially two devices at their disposal. One is national budgetary policy, including automatic stabilisers and discretionary measures. The other is the panoply of market mechanisms, not only product and labour markets, but also capital and credit markets. In the early years of EMU, however, the one-size-fits-all monetary policy may be somewhat problematic due to the fact that alternative adjustment mechanisms may not be fully operational. During EMU's infancy, budgetary policy is likely to be constrained for some time by the need to achieve the close-to-balance targets of the Stability and Growth Pact. At the same time, a number of markets are likely to remain hampered by a variety of barriers.

The central tenet of the Paper is that the behaviour of economic policy during the early years of EMU must be assessed in light of the credibility problem faced by the authorities during this period. Building credibility requires, above

all, furthering the process of fiscal consolidation and accelerating structural reform, both of which help the ECB to deliver price stability and member countries to cope with exogenous shocks. It also requires curbing politically motivated policies. In the presence of trade-offs, the response to shocks in the initial years of EMU had to privilege credibility-enhancing policy choices. In this complex policy environment, pre-emptive coordination based on effective policy surveillance was, and remains, necessary to ensure a successful completion of the 'second transition'.

Did EMU pass the 'credibility test'? On the basis of the first two years of EMU, our answer is yes. Clearly the fact that national economic cycles were skewed to the high side made misalignments in monetary conditions politically easier to manage. Nevertheless, even discounting for such favourable circumstances, pre-emptive coordination aiming at reducing policy-induced shocks and enhancing adaptability to shocks – be it stabilization or adjustment – has worked fairly well. As to the near future, more homogeneous economic behaviour between euro area members can be expected provided multilateral policy surveillance is effective in fostering further adaptability and reducing exposure to asymmetric disturbances.

# **EMU in the Early Years: Differences and Credibility**

**Marco Buti and André Sapir**

## **1. Introduction**

Europe's monetary union is unlike any other current or historical example of monetary unification in two fundamental respects. First, there is no instance of a group of countries with a single currency controlled by a single central bank, where each state retains such large degree of political and fiscal autonomy as in Economic and Monetary Union (EMU). Second, even in the history of European integration, there is no instance of a common policy based on a sole country's institutional set up as in the case of monetary policy. When relatively protectionist France and Italy had to forge the EC's Common External Tariff with relatively liberal Benelux and Germany, the solution was simple: use the average tariff. With the European Central Bank (ECB), there was never a question of adopting the average policy of the member states; it was clear from the start that the union's central bank would be like the Bundesbank, with a strong commitment to price stability.

The extraordinary nature of EMU was bound to raise questions about its credibility. There are two facets to the issue. One is about the degree of commitment of the ECB toward price stability, where the question is whether the ECB's commitment is as solid as the Bundesbank's. The other facet concerns the capacity of the system to respond to economic shocks, which brings up two problems: the exposure of EMU countries to shocks, and the availability of appropriate instruments. Clearly, credibility is an issue of special concern during the early years of EMU, when the system still lacks reputation and its member countries display important economic differences.

Concerning the commitment of the central bank to price stability, the credibility argument runs as follows. True the Maastricht Treaty confers to the ECB all the attributes, and more, of the Bundesbank in terms of independence and price stability objective, but the governments and citizens of EMU may not share the same degree of aversion to inflation as those of Germany. The Maastricht nominal convergence criteria



and the Stability and Growth Pact (SGP) are clearly devices meant to impart Germany's stability culture to its EMU partners, and thereby to reinforce the anti-inflationary credibility of the ECB.

Had EMU started off with only Germany and the other countries which had kept their currency rigidly pegged to the German mark (DM) throughout the 1990s, economic differences between the members of the monetary union would have been minimal, and the ECB would have automatically inherited most of the Bundesbank's credibility right from the start of its operation. In the event, EMU got underway not only with the 'core' EU countries belonging to the DM-zone, but also with those on the 'periphery', displaying relatively less (or, at least, less established) nominal and real convergence vis-à-vis Germany. Admittedly, as argued by some economists, the process of monetary union can be expected, by significantly raising international trade linkages inside the euro-area, to gradually reduce economic differences among EMU countries. In the meantime, however, a large EMU probably makes it more difficult for the ECB to be regarded as a perfect replica of the Bundesbank in terms of price stability commitment. During EMU's infancy, it is likely, therefore, that any economic development threatening price stability in one of the 'peripheral' countries would be regarded as a menace to the stability of the euro-area as a whole - even if it affected only a small country, with no influence on euro-zone monetary conditions.

The other facet of the credibility issue concerns the capacity of EMU countries to respond to economic shocks. The traditional distinction is between symmetric and asymmetric shocks.

As to symmetric shocks, there are two separate questions. The first concerns demand shocks. Generally, such shocks are not considered as particularly problematic for currency unions. In fact, the single monetary is assumed not only of being capable of handling these shocks, but is also viewed as a means of solving the potential co-ordination problem among independent monetary authorities. During the early years of EMU, however, the situation is unlikely to be quite as favourable given the constraints that weigh on the newly-established ECB (i.e. the need to ascertain an anti-inflation track record), and the lack of room for manoeuvre of the budgetary side. The second question concerns supply shocks. These are more difficult to handle because they imply a trade-off between inflation and output stabilisation. And multiple fiscal authorities acting non-

cooperatively (each one caring mainly about domestic output) increase the likelihood of policy conflicts with the single central bank.

The issue of asymmetric shocks has been widely debated in the literature. Since a common currency means a common monetary policy, the problem arises as to whether constituent countries are sufficiently homogeneous to avoid country-specific situations, and if not, whether they possess sufficient mechanisms and instruments to supplement or compensate the “one-size-fits-all” monetary policy.

There are many reasons why countries may face idiosyncratic situations. One is asymmetric exogenous shocks. Another is common exogenous shocks that have asymmetric effects due to different national economic structures. Finally, there are so-called in policy-induced asymmetric shocks: national governments may have asymmetric preferences (differences in political ideology), different policy behaviour (for instance, due to different electoral calendars) and different strategies to implement structural reforms. In principle, the exposure of EMU to asymmetric situations is greater in the early years of the monetary union, when economic differences between member countries remain relatively important.

The fact that the euro-area differs from the DM-area has an important bearing on what might be termed “EMU shocks”, which are another manifestation of the “early years problem”. Even if EMU had consisted of only the ‘core’ countries, the introduction of a common monetary policy on 1 January 1999 was bound to have an important impact on the countries of the DM-area, especially Germany. The reason is that contrary to the Bundesbank monetary policy, which was geared solely to the conditions of the German economy, the ECB policy reflects the conditions in the entire area. This matters in the early years of EMU because, at the start of the euro, the DM-zone was still digesting some of the economic aftermath of German re-unification. Under the Bundesbank hegemony, monetary conditions in the DM-area had been kept tight during much of the 1990s in order to fight off domestic inflationary pressures in Germany, a situation that ill-suited the non-German members of the zone. The changeover from the Bundesbank to the ECB implied the end to “German dominance”, which translated into a shock for Germany: loss of competitiveness due to a mismatch between the common monetary stance and German stabilisation needs. A second EMU shock occurred in ‘peripheral’ countries. Despite impressive nominal converge towards the ‘core’ countries prior to the decision on EMU membership in the Spring of 1998, several of these countries witnessed

significant reductions in interest rates at the time of the launch of the euro, resulting in a boost to domestic demand.

If and when faced with idiosyncratic situations, the countries of Euroland have potentially two devices at their disposal. One is national budgetary policy, including automatic stabilisers and discretionary measures. The other is the panoply of market mechanisms, not only product and labour markets, but also capital and credit markets. In the early years of EMU, however, the one-size-fits-all monetary policy may be somewhat problematic due to the fact that alternative adjustment mechanisms may not be fully operational. During EMU's infancy, budgetary policy is likely to be constrained for some time by the need to achieve the close-to-balance targets of the Stability and Growth Pact. At the same time, a number of markets are likely to remain hampered by a variety of barriers.

In essence, the main task of economic policy in the early years of EMU is to manage economic disturbances while “ferrying” the new regime towards its “steady state” by reducing exposure to asymmetric shocks, increasing the adaptability to symmetric and asymmetric shocks, and ensuring price stability. A specific difficulty here is that, in the event of disturbances requiring policy action, there may be a trade-off between optimal smoothing and credibility-enhancing policy responses.

The purpose of the paper is to analyse the functioning of EMU in the first 2-3 years from the standpoint of credibility. While reference will be made to the recent literature, the paper does not attempt to provide a comprehensive review of the debate. Nor will it cover systematically all the aspects of the EMU experience – a task of other chapters in this volume.

The paper begins by examining the problematic of responding to shocks and strengthening credibility in the early years of EMU. Section 3 analyses the structural and macroeconomic differences between euro-area members at the start of EMU, and examines the efforts made to increase adaptability to shocks. The following section focuses on the first systemic shock in EMU, namely that of relinquishing national monetary independence. Section 5 analyses how the two external shocks which occurred in the first two years of EMU – the Asian crisis and the oil price hike - have been managed and assess the impact of policy responses on EMU credibility. On the basis of the previous analysis, the subsequent section examines some of the possible challenges

that lie ahead in the near future (say, the next three to five years), as EMU gradually moves from the “early years” to the “steady state”. The final section concludes.

## **2. Managing shocks and strengthening credibility in the early years of EMU**

### **2.1. Through the tunnel of the early years**

EMU is designed to function according to the “Maastricht policy assignment”: monetary policy ensures price stability and fiscal policy contributes to stabilise the economy by letting automatic stabilisers play freely, while maintaining budget deficits within the 3% of GDP limit (European Commission, 1998). The rationale for such policy framework – which is much in line with the recent literature on policy norms (see, Taylor, 1997) - is that, under most circumstances, maintaining price stability at the euro area level goes hand in hand with keeping aggregate output close to potential, and that automatic stabilisers are largely immune from the shortcomings of discretionary fiscal policy. While not necessarily denying its potential usefulness, discretionary fiscal policy is relegated to a role of emergency tool to be called in only in rare circumstances (namely in the case of a particularly severe shock). Private stabilisers and market adjustment supplement macroeconomic policies in smoothing cycles and shocks.

However, at the outset of EMU, the conditions to comply fully with the Maastricht assignment were not yet fully established. By definition, the newly-created ECB did not have a “track record” which is considered by many as the main condition for anti-inflationary credibility (Blinder, 1999). On the budgetary side, the closeness to the 3% Maastricht threshold severely curtailed the use of automatic stabilisers in a downturn, and in countries facing the threat of overheating, fiscal policy was hampered by the political temptation to unwind the budgetary surpluses. Even more importantly, markets were still hampered by a host of rigidities.

This implies that EMU, after the Maastricht convergence, had to undergo a “second phase of transition” (European Commission, 1998). During this phase, the response to shocks has to take into account the need to complete this transition.

## 2.2 Problems associated with shocks in early years

In the classical literature on monetary unions, the main policy issue concerns the response to *asymmetric shocks* in the absence of the monetary instrument. While this remains a main concern in EMU, especially in view of the large differences between its members, the issue of *symmetric shocks* also comes to the fore during the early years.

The debate on economic adjustment in a currency union has established that not all asymmetric shocks are “EMU-critical”. The above-mentioned Commission study concluded that the usefulness of the exchange rate as an adjustment instrument – and therefore the need to provide for alternative mechanisms in EMU – is high only in rather narrow circumstances, namely in the event of disturbances which are simultaneously country-specific, real and temporary<sup>1</sup>. In the “steady state” (that is beyond the early years), the probability of such shocks may be expected to be small to the extent that the new economic and policy framework fosters trade integration – which will further reduce the significance of national borders – and the stability-oriented macro-economic framework curtails policy-induced shocks.

During the early years, however, the issue of asymmetric behaviour is likely to be more problematic for several reasons. First of all, stabilisation and adjustment mechanisms at the national level are not yet fully available or highly developed. Second, the issue of asymmetric *situations* (self-reinforcing divergence between high-growth and sluggish countries fuelled by one-size-fits-all monetary policy) is likely to be as important as that of asymmetric shocks. Third, structural reforms aiming at improving adjustment to shocks, may themselves produce asymmetric disturbances via their impact on the single monetary policy.

Symmetric shocks are also a potential source of problems especially during the early years of EMU. Differences between countries and issues of credibility may create problems for a number of reasons:

1. Symmetric shocks can have asymmetric impacts due to economic differences: asymmetric effects may arise due to differences in transmission mechanisms and market structures (e.g. with respect to the degree of flexibility of the labour market or the heterogeneity of industrial structures and trade patterns). Different transmission

---

<sup>1</sup> For a survey of the empirical studies on the typology of shocks likely to affect EMU, see OECD (1999).

mechanisms of monetary policy on output may also lead to asymmetric effects even if shocks are symmetric and the economies of the euro area are cyclically in tune with each other (Corsetti and Pesenti, 1999; Dornbusch, Favero and Giavazzi, 1998; Hughes Hallett and Piscitelli, 1999).

2. In a monetary union - due to uncoordinated responses, strategic behaviour and free riding - even truly symmetric shocks can be problematic both in up- and down-turns. These problems are particularly acute in the event of shocks that generate conflicts between monetary and fiscal authorities. Supply shocks may prove particularly problematic because they tend to push inflation and output in opposite directions, thereby creating a conflict between inflation and output stabilisation (see, Buti, Roeger and in't Veld, 2001). This conflict may be heightened by the possible polarisation of preferences between monetary and political authorities in an institutional framework with a central bank entrusted uniquely with safeguarding price stability (Demertzis, Hughes Hallett and Viegi, 2000)<sup>2</sup>.
3. Monetary stabilisation may be curtailed due to credibility problems. If budgetary policy is also constrained due to closeness to the 3% deficit ceiling or by political difficulties of raising an already large budget surplus, the result may be increased divergence. Even in the case of demand shocks, where, in principle, there is no conflict of objectives between monetary and fiscal policies, the credibility problem in early years may hamper optimal smoothing.
4. Finally, and more generally, setting the appropriate monetary policy in a currency union with many and economically different countries may be problematic. First of all, the signalling effect of the common monetary policy may be blurred due to the high "distance" between the ECB and wage bargainers. This implies a relatively low threat of an interest rate "punishment", resulting in a relatively high likelihood of inappropriate wage setting at the national level (Cuckierman and Lippi, 1999; Soskice and Iversen, 1998). Second, in presence of different degrees of market flexibility across countries, using average euro-area data may lead to a sub-optimal monetary policy. De Grauwe (2000a and b) shows that using a constructed, average Phillips curve to derive the optimal policy for the euro area would lead to too much stabilisation for *both* rigid and flexible countries: "the ECB could do better by taking

the average of the optimal inflation rates derived directly from the national Phillips curves” (De Grauwe, 2000a: 142). Similarly, Benigno (2000) argues that optimal inflation targeting should give a higher weight to the countries with a higher degree of nominal wage rigidity.

All in all, during its early years, the smooth functioning of EMU may be hindered as countries are exposed to asymmetric shocks and the adjustment mechanisms to deal with shocks – both symmetric and asymmetric - are not fully developed or available. The next section looks at these issues in greater detail.

---

<sup>2</sup> However, while this effect may be relevant in the case of a single country, it is less so in the case of a country joining a monetary union where the single central bank is entrusted with maintaining price stability for the currency area as a whole. In such a case, the government remains responsible for national inflation.



### **3. Exposure and adaptability to shocks in early years**

#### **3.1 Exposure to asymmetric shocks**

The purpose of this section is to examine whether EMU members are likely to be prone to asymmetric shocks during the early years of monetary union, taking account the fact that countries may be subject to either exogenous or policy-induced shocks. We examine each in turn.

##### **Exogenous shocks**

There are two kinds of exogenous asymmetric shocks: truly country-specific events; or events that are common to all countries, but with idiosyncratic effects because of structural differences countries. The probability of asymmetric shocks, therefore, depends upon the extent of differences in economic structures among EMU countries.

One of the key issues in this respect is the degree of diversification and specialisation of national economic structures. If countries tend to specialise in production, they are more likely to be prone to exogenous asymmetric shocks than if their economic structures are well diversified. Surprisingly, there has been relatively little work investigating the extent of specialisation in Europe.

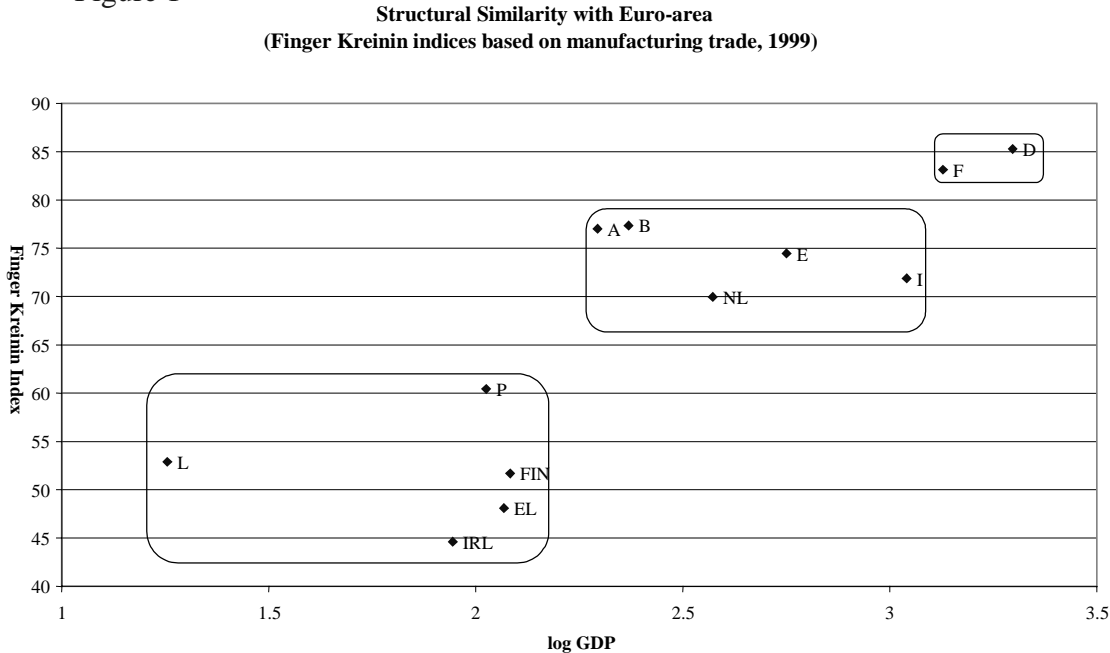
One of the great difficulties in attempting to evaluate the situation is the lack of appropriate production data for EU countries. There is no harmonised data covering all sectors of production at a disaggregate level sufficient for obtaining a meaningful picture of production specialisation in Europe. One solution, used by many researchers, is to rely on the OECD's STAN database, which, in principle, provides production, employment and trade figures for 32 ISIC manufacturing sectors. In reality, however, only employment and trade figures are available for a large number of countries and sectors. The solution adopted here is to use the Commission's VISA database, which provides the same type of figures for 120 NACE manufacturing sectors. Unfortunately, only trade figures are available for all euro area countries.

Since a common currency means a common monetary policy, the problem arises as to whether EMU countries are sufficiently homogeneous to avoid country-specific situations. Put it differently, the question is whether the "one-size-fits-all" monetary policy is likely to prove problematic for EMU countries. What matters, therefore, is the

similarity of specialisation structures between each EMU country and the euro area as a whole, on whose situation the common monetary policy is based.

Figure 1 plots an index of specialisation similarity between a country and the euro area against the logarithm of GDP of that country. The similarity measure used here is the Finger-Kreinin index computed with the 120 sectoral shares in total manufacturing exports.<sup>3</sup> The index varies between zero and one hundred; with a value of one hundred obtaining if the sectoral composition of a country's manufacturing exports is identical to that of the euro-area, and zero indicating perfect dissimilarity.

Figure 1



The figure reveals the existence of three groups of countries: (a) those with very high similarity to the euro-area export structure: France and Germany; (b) those with high similarity: Belgium, Austria, Spain, Italy and the Netherlands; and (c) those with relatively high dissimilarity vis-à-vis the euro-area export structure: Ireland, Greece, Finland, Luxembourg, and, albeit to a lesser extent, Portugal. One should emphasise, however, that this grouping pertains solely to manufacturing activity, which accounts for less than one-third of GDP in the euro area.

The figure also reveals that the “one-size-fits-all” monetary policy is more likely to prove problematic for small than for large EMU countries. The reasons are obvious: small

<sup>3</sup>  $FK = 1 - (1/2) \sum_i |s_{ij} - s_{ik}|$ , where  $s_{ij}$  ( $s_{ik}$ ) is the share of industry  $i$  in country's  $j$  ( $k$ ) exports.

countries tend to be more specialised and have little influence on the euro-area-wide situation. Yet, there are sharp differences between countries of relatively the same size. For instance, Austria and Belgium are not much larger than Finland or Greece, but they exhibit similarity indices that are even larger than those of bigger countries such as Spain or Italy<sup>4</sup>.

Another important difference between EMU countries that could have a bearing on the occurrence of asymmetric shocks is the level of per capita GDP and the extent of catching up. Table 1 indicates that, at the beginning of EMU, there was relatively little dispersion of per capita GDP levels around the group average. Three countries, however, were still significantly lagging behind: Spain, Portugal and Greece. The trend GDP growth rates of these three countries during the late 1990s was above the average for the area, indicating a catching up process. There was significant dispersion in trend growth rates among the other EMU countries, which formed four distinct sub-groups: (a) Ireland, the league's superstar; (b) the Netherlands and Finland, with higher growth rates than the three Southern catching-up countries; (c) Austria, Belgium, France and Germany, with growth rates close to the average; and (d) Italy, the country with the slowest growth.

Table 1 GDP per capita and growth performance of Euro-area members

	GDP per capita, 1999		Potential GDP growth 1995-99
	1000 PPS	Average =100	Average annual rates
Netherlands	24.6	116	3.3
Ireland	23.6	112	7.7
Belgium	23.4	110	2.5
Austria	23.3	110	2.5
Germany	22.5	106	2.0
Italy	21.6	102	1.8
Finland	21.4	101	3.4
<b>Euro-area average</b>	21.2	100	2.4
France	20.8	98	2.2
Spain	17.1	81	3.1
Portugal	15.7	74	2.9
Greece	14.3	68	2.8

<sup>4</sup> The fact that Austria and Belgium have participated in a quasi-monetary union for many years (the so-called DM-area – see below) point to the non-ineluctability of higher specialisation in a single currency area.

All in all, therefore, small euro-area members, especially those on the ‘periphery’, appeared to be relatively vulnerable to exogenous shocks at the start of EMU.

### **Policy-induced shocks**

Economic shocks are not simply exogenous phenomena with which macro-economic authorities are suddenly faced. In reality, shocks generated by fiscal or monetary impulses are probably more common than usually acknowledged by the literature on monetary unions.

There is widespread evidence that governments, in the EU and elsewhere, take into account political considerations, such as the chances of being re-elected or their ideological preferences, when setting macroeconomic policy. Such behaviour tends to induce economic shocks prior or after elections, which generate political business cycles (see, for instance, Alesina, Roubini and Cohen, 1997). In addition, there is evidence that *domestic* elections in large EU countries (such as Germany) generate not only *domestic* political cycles, but also cycles in other EU members (see Sapir and Sekkat, 2001).

If monetary policy were the sole instrument ever used by EU governments to generate politically-motivated economic outcomes, the introduction of the euro would have relegated political cycles to the dustbin of history since the ECB is fiercely independent from governments. In reality, however, EU governments have traditionally manipulated fiscal policy for political motives (see the above two references for evidence).

The crucial question, therefore, is what the introduction of the euro means for the ability of national governments to use their fiscal policy for political motives. During the second half of the 1990s, in the run-up to EMU, the Maastricht criteria certainly reduced the faculty of national governments to engage in deficit spending for political grounds. There was widespread expectation that the Stability and Growth Pact would continue to curtail the ability of governments to pursue discretionary fiscal policy during the early years of EMU, when the budgetary objective of positions ‘close to balance or in surplus’ remains paramount. Some, however, voiced the possibility that the very success of the Pact, designed to re-create room for budgetary manoeuvre and the smooth functioning of automatic stabilisers (that EU countries had lost as a result of massive public debt

accumulation), would in fact rebuild the capacity of governments to pursue politically-motivated fiscal actions<sup>5</sup>.

Once again, both views are equally reasonable on theoretical grounds. A quick look at the calendar of national elections in the euro-area during the early years of EMU indicates that there will soon be plenty of empirical evidence to choose between the two hypotheses. Table 2 shows the timing of parliamentary and presidential (when meaningful) elections in euro-area countries for the first five years of EMU (1999-2003). It indicates that national elections are held every year in at least two countries, which demonstrates the importance of the issue.

Table 2    The timing of national elections in euro-area members, 1999-2003

	<b>Parliamentary elections</b>	<b>Presidential elections</b>
Belgium	1999 and 2003	None
Germany	2002	Not relevant
Greece	2000	Not relevant
Spain	2000	None
France	2002	2002
Ireland	2001 or 2002	Not relevant
Italy	2001	Not relevant
Netherlands	2002	None
Austria	1999 and 2003	Not relevant
Portugal	1999 and 2003	2001
Finland	1999 and 2003	Not relevant

### 3.2 Adaptability to exogenous shocks

The appropriate response to exogenous shocks depends on their nature. An important distinction in analysing the adaptability to shocks is that between temporary and permanent shocks. Cyclical stabilisation is the appropriate response in the case of temporary shocks, while structural adjustment is required if shocks are long-lasting. Clearly, stabilisation policy is not called for in response to permanent disturbances. However, it may be helpful in the transitory phase, provided that it does not delay the inevitable structural adjustment (Mélitz, 1997a).

---

<sup>5</sup> The recently observed tendency on the part of fiscal authorities to rely on overly cautious budgetary projections that are systematically improved upon by actual data (Artis and Buti, 2000) adds a further

At the outset of EMU, member countries showed sizeable differences as regards to both stabilisation and adjustment capability.

### **Fiscal stabilisation capability**

The capability to smoothen cyclical fluctuations via fiscal policy in EMU depends on the size and effectiveness of automatic stabilisers, and the room for manoeuvre of fiscal authorities.

According to estimates by the OECD and the European Commission, the budget sensitivity to the output gap is around 0.5 in the euro area. This implies that if the output gap changes by 1% point, the budget balance as a share of GDP is expected to change by ½ point. There are, however, noticeable differences between euro area members: from 0.3 in Austria and Portugal to 0.7-0.8 in Belgium, Finland and the Netherlands<sup>6</sup>.

These estimates of automatic stabilisers are by no means uncontroversial. A number of recent studies point to substantially smaller swings of the budget balance to changes in economic activity. Mélitz (1997b and 2001) finds a response of budgets to economic cycle of only 0.1: while taxes move in a stabilising manner, government expenditure reacts in a destabilising direction, reflecting a sort of bureaucratic behaviour (“spend when the money comes in, cut when it runs out”). Similar results (a cyclical sensitivity of the budget deficit of less than 0.2) are found by Wyplosz (1999) and Barrell and Dury (2001).

However, the findings of these studies are not necessarily in contradiction with the estimates reported above. While there is a wide consensus that the total degree of fiscal stabilisation is relatively low in euro area countries, the main difference between these studies relates to the boundaries between automatic stabilisation and discretionary policy. Analyses relying on mainstream estimates find that discretionary policies have frequently been pro-cyclical in the past two decades<sup>7</sup>.

The size of automatic stabilisers is one of the factors affecting their smoothing power. Table 3 presents the results of analyses with three leading macroeconometric models:

---

margin for politically-driven fiscal policies.

<sup>6</sup> Van den Noord (2000) shows that these estimates imply a certain reduction in the size of automatic stabilisers. This may reflect the reforms in the recent past which trimmed the generosity of the welfare state and lowered the progressivity of tax systems.

<sup>7</sup> See, Buti, Franco and Ongena (1998), European Commission (2000a), and the chapters by Fatàs and Mihov, and Brunila and Martinez Mongay.

QUEST of the European Commission (European Commission, 1998); INTERLINK of the OECD (van den Noord, 2000) and NiGEM of the National Institute of Economic and Social Research (Barrell and Pina, 2000)<sup>8</sup>.

Table 3 Degree of stabilisation provided by automatic stabilisers (%)

	QUEST <sup>(1)</sup>	INTERLINK <sup>(2)</sup>	NiGEM <sup>(3)</sup>
B	26	22	5
D	30	31	12
EL	15	14	-
E	18	17	13
F	23	14	7
IRL	31	10	7
I	26	23	5
NL	30	36	6
A	26	7	12
P	18	-	10
FIN	41	58	7
EU-12	-	-	11
EU	28	-	-

(1) Reduction in output change in the first-year following a 1% increase in private consumption

(2) 1- RMSD (Root mean square deviations) of the output gap in the 1990s

(3) 1- RMSD of GDP growth

The European Commission and the OECD simulations find a smoothing effectiveness of between 25 and 30% for the euro area. Interestingly, France is estimated to achieve a somewhat lower stabilisation impact than Germany in spite of the fact that these countries are similar under many respects<sup>9</sup>. While the ranking is somewhat different, both simulations find that Finland and the Netherlands, with their large budgetary automatic stabilisers, obtain the highest degree of output stabilisation. The degree of stabilisation is, however, significantly lower in the southern countries (Greece, Spain and Portugal).

In line with the findings of Barrell and Dury (2001), the analysis with NiGEM points to considerably smaller effects: in the range of 5 to 18%, with the euro area at 11%. Germany shows the highest damping effects while, surprisingly, Finland features one of the lowest (just 7%). The lower stabilising effect appears to be due to the different typology of shocks analysed: automatic stabilisers are less effective in smoothing shocks

<sup>8</sup> The results presented in the table are not fully comparable. The INTERLINK simulations compare the actual volatility in the output gap over the 1990s with a simulated one, assuming that the budgetary impact of automatic stabilisers is offset by discretionary measures. Instead, the QUEST and NiGEM exercises refer to volatility on a given size and typology of shocks (a shock to private consumption, and multiple stochastic disturbances, respectively).

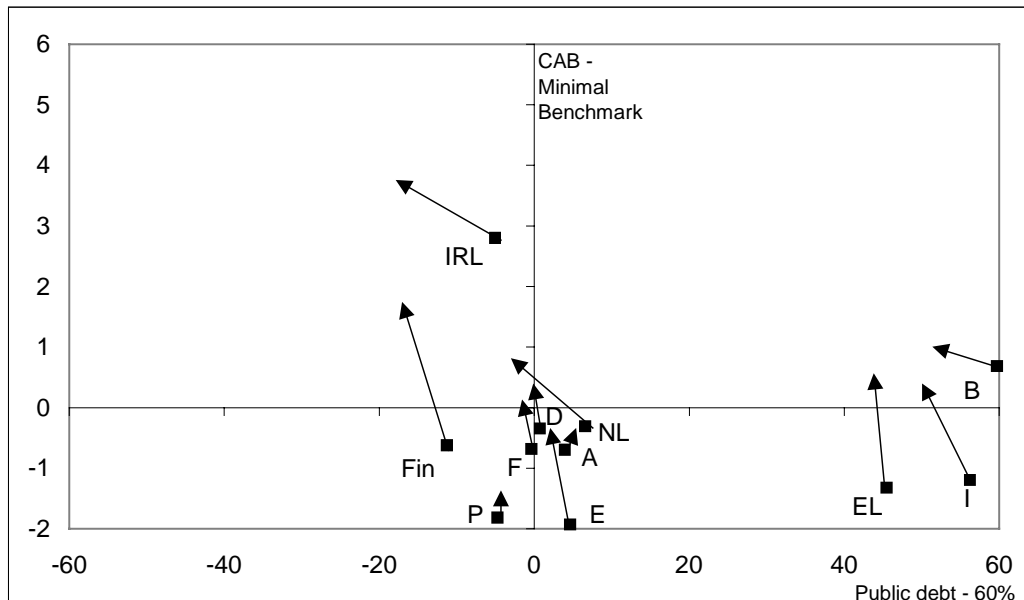
<sup>9</sup> By looking at budgetary behaviour encompassing both automatic and discretionary responses, Roeger and Wijkander (2000) find that the stabilisation efficiency of the German budget is 50% higher than that of the French budget, the main reason being the composition of the “fiscal reaction function”.

others than demand ones, the latter being essentially the type of disturbances considered in the previous two studies.

Another dimension of stabilisation capability is the room for manoeuvre for fiscal policies. Most euro-area countries entered the third phase of EMU with budget deficits close to the 3% threshold. Furthermore, the stock of public debt was above the reference value of 60% of GDP in a majority of euro area members. The combination of high deficits and debt severely curtailed the room for manoeuvre for budgetary policy in the event of a cyclical downturn. The determination of countries to continue the fiscal retrenchment in the early years of EMU was watched by financial markets as a signal of the credibility of the stability-oriented macroeconomic framework of EMU.

Figure 2 shows the progress towards lower public deficits and debts made during the first two years of EMU. It pictures, for each country, on the horizontal axis the difference between the stock of public debt as a share of GDP and the 60% Maastricht reference value, and on the vertical axis the difference between the cyclically-adjusted balance (CAB) and the so-called “minimal benchmark”. The latter is the country-specific level of the budget balance that would allow automatic stabilisers to withstand cyclical swings without breaching the 3% ceiling, calculated on the basis of past business cycles (European Commission, 1999a).

Figure 2 Fiscal policy: room for manoeuvre 1998 and 2000





The fiscal room for manoeuvre increased between 1998 and 2000. Most countries crossed the horizontal axis and public debt, albeit slowly, continued to fall. Therefore, as will be argued in section 4, the Stability and Growth Pact proved an effective device to force further fiscal retrenchment in the first years of EMU.

### Adjustment capability

Labour and product markets have an important role to play in helping EMU countries respond to shocks. Table 4 uses OECD indicators of labour and product market regulations in order to rank the countries of the euro area in terms of market adjustment capability at the start of the monetary union. In order to provide an illustration of functioning of markets, we have added the two indicators to construct a synthetic indicator of market regulation.

As shown in the table, euro-area members differ a great deal with respect to the capability of their labour and product markets to cushion shocks. As established in a recent literature (see, e.g. Nicoletti, Scarpetta and Boylaud, 1999, and Nicoletti et al., 2001), a high degree of correlation exists between the relative rigidity of product and labour market regimes. This suggests that product and labour market regulations tend to be mutually-supportive with the result that the lack of competition in product markets compounds the malfunctioning of labour markets created by rigid job-security provisions. At the start of the euro, the best equipped countries were Ireland, Austria and the Netherlands. At the other extreme, the countries with the most rigid markets were Italy and Greece.

**Table 4 Indicators of labour market (LMR) and product market (PMR) regulation, 1998**

	LMR <sup>a</sup>	PMR <sup>b</sup>	LMR normalised Euro-area = 1.8	Total market regulation	
				LMR+PMR	Euro-area=100
IRL	1.0	0.8	0.6	1.4	39
A	2.4	1.4	1.5	2.9	80
NL	2.4	1.4	1.5	2.9	80
FIN	2.1	1.7	1.3	3.0	83
D	2.8	1.4	1.7	3.1	87
B	2.1	1.9	1.3	3.2	89
E	3.2	1.6	2.0	3.6	100
Euro-area	2.9	1.8	1.8	3.6	100
P	3.7	1.7	2.3	4.0	111
F	3.1	2.1	1.9	4.0	112
I	3.3	2.3	2.0	4.3	121
EL	3.5	2.2	2.2	4.4	121

<sup>a</sup> Overall index of employment protection legislation for 1998. See OECD (2000), Table 9.

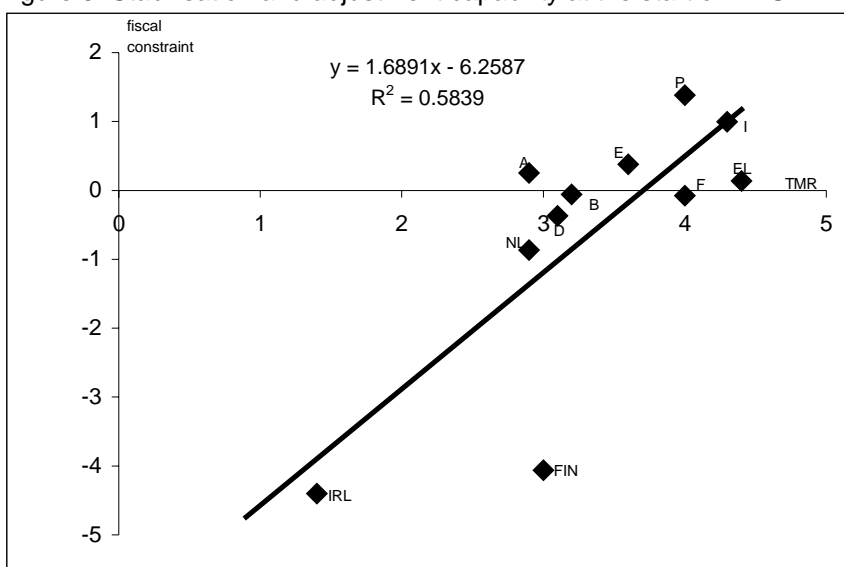
<sup>b</sup> Overall index of product market regulation for 1998. See OECD (2000), Table 10.

### 3.3 Exposure and adaptability to shocks: a summing up

Until now the issues of exposure and adaptability to shocks have been discussed separately. However, the two issues may be interrelated in a way which needs to be considered especially in designing economic reforms.

The evidence presented in section 3.2 suggests that stabilisation and adjustment capability are complements. Figure 3 pictures the indicator of total market regulation (TMR) from Table 3 and an indicator of fiscal constraint based on the information contained in Figure 2<sup>10</sup>. Countries on the far north-east have little stabilisation and adjustment capability, while those on the far south-west have high flexibility on both counts.

Figure 3 Stabilisation and adjustment capability at the start of EMU



At the start of EMU, participating countries fell into three categories<sup>11</sup>. First of all, Ireland and Finland which have ample room for manoeuvre on the fiscal side (high stabilisation capability) and a high degree of market flexibility (high adjustment capability). These countries seem, therefore, relatively well-equipped to withstand

<sup>10</sup> The indicator of fiscal constraint is constructed as follows:

$$[(\text{CAB} - \text{minimal benchmark}) + (\text{public debt} - 60\%)/60\%].$$

<sup>11</sup> In interpreting Figure 3, one has to take into account the different degree of persistency between stabilisation and adjustment constraints. While the degree of TMR can be expected to change only slowly over time, countries can more quickly increase (or lose) fiscal room for manoeuvre. This implies that the country position along the Y axis can change. Hence, what Figure 3 shows is the situation *at the start of EMU* and not generically in the *early years*.

asymmetric shocks, which, given their idiosyncratic industrial structure, may be frequent. Second, at the opposite side of the spectrum, countries with little room for manoeuvre on the fiscal side (low stabilisation capability) and a low degree of market flexibility (low adjustment capability): Italy, Greece and Portugal, which appear, therefore, relatively ill-equipped to withstand shocks. This conclusion may be somewhat worrying because those countries (especially Greece and Portugal) are more exposed to country-specific disturbances. Finally, the other countries – i.e. Germany, France, Austria and the Benelux, plus Spain - tend to fall in between those two groups. While these countries seem to be in a mediocre position to hold up to shocks, those of the former DM-zone can benefit from their high correlation with the euro area average which makes the likelihood of an inappropriate monetary stance considerably lower.

## 4. The “EMU shock”

### 4.1 Relinquishing national monetary independence

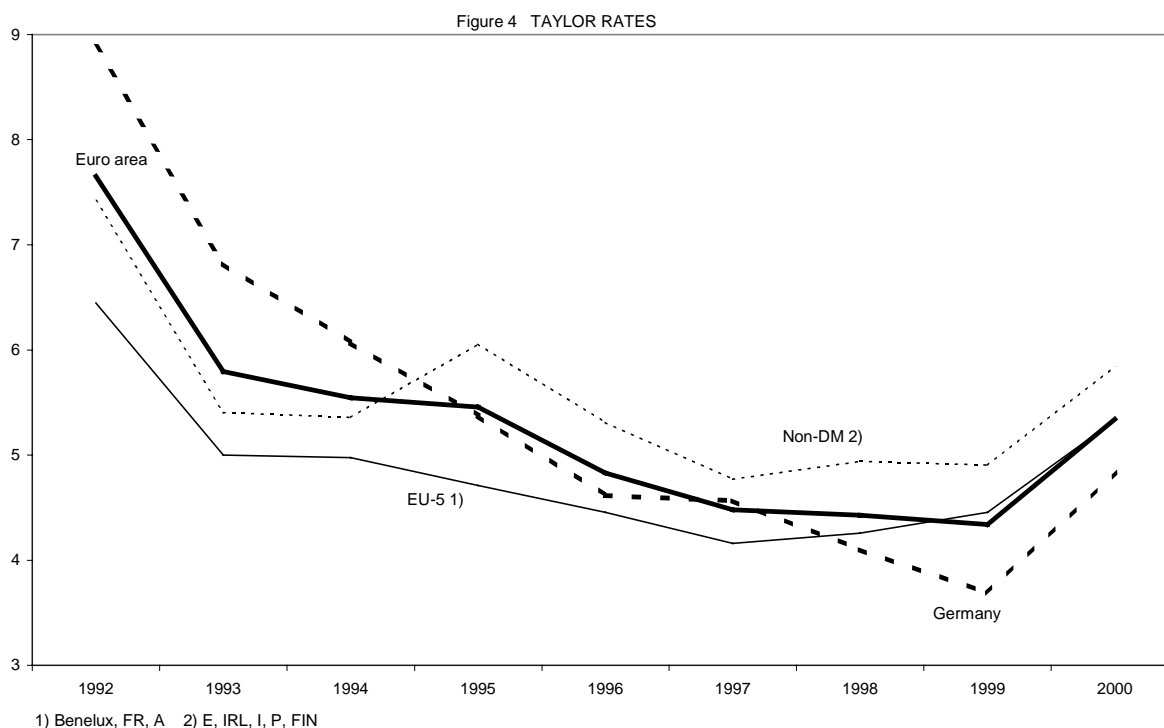
The first shock that affected countries forming the euro area was that of relinquishing national monetary sovereignty. Arguably, the “EMU shock” took a different shape for three separate groups of countries:

- (a) For Germany, it meant the end of “monetary dominance”, according to which the Bundesbank would set interest rates with the objective of maintaining domestic price stability while the other members of the “original” (narrow band) ERM would accept passively the resulting monetary stance. The analysis should take into account that the shift to a different monetary regime took place at a time when the country was still digesting the consequences of the re-unification shock.
- (b) For countries of the so-called “enlarged DM-area” other than Germany (EU-5: France, Benelux and Austria), it meant shifting from importing a German-led monetary policy to facing interest rates set by the ECB with the purpose of ensuring price stability for the euro area as a whole. Compared to the ERM regime, the net benefit for these countries depends on the relative correlation of their business cycle with that of Germany compared to that of the wider euro area.
- (c) For the countries not belonging to the DM-area (non-DM: I, E, IRL, P and FIN), it had a double effect. On the one hand, it meant the loss of a more or less important degree of national monetary independence. On the other, by becoming members of EMU, they joined a community of stability. Clearly this group of countries is highly heterogeneous with slow-growth Italy, on the one hand, and high-growth countries, on the other hand (either in a catching up process or, like Finland, having implemented important reforms after the deep crisis of early 1990s).

In order to capture in a simplified fashion some of the policy implications of the regime change, we compute the familiar Taylor rate for the euro area and for the three above groups of countries identified above. The Taylor rate is specified as follows:

$$i^T = r^* + a(p - p^*) + bG$$

We make the following assumptions:  $r^*=3.5\%$ , as in Gerlach and Schnabel (1999); the target inflation,  $p^*$ , is set at 1.5%, consistent with the inflation objective of the ECB; as in the original Taylor rule (Taylor, 1993), the weights of inflation stabilisation,  $a$ , and output stabilisation,  $b$ , are set at 1.5 and 0.5, respectively. The purpose of the analysis here is not to assess whether national central banks have followed a Taylor rule in the past or whether the ECB should do so now, but to illustrate the stabilisation needs of different EMU participants<sup>12</sup>. The computed Taylor rates are presented in Figure 4.



A cursory examination of the figure provides a number of interesting indications. First of all, in line with actual interest rates, the euro area Taylor rate has come down until 1999 reflecting the process of disinflation<sup>13</sup>. Second, an interest rate set for the euro area as a whole would have been too low for Germany in the first half of the 1990s and too high since 1997, confirming the real exchange rate “dynamics” implied by the reunification shock. Third, the appropriate monetary stance for the non-DM countries is tighter than that for the euro area as whole because of their higher growth and/or inflation rates. Clearly, the fall in interest rates resulting from entering the euro area

<sup>12</sup> For a similar graph for individual EU countries, see Gramlich and Wood (2000). On the relevance of various versions of the Taylor rule to describe the behaviour of the ECB in the first two years of EMU, see the chapter by Galí.

<sup>13</sup> As pointed out already by OECD (1999), the actual interest rate remained higher than the computed Taylor rate for most of the 1990s. Therefore, while monetary policy became progressively looser

produced an expansionary “EMU shock” for these countries. Finally, the smallest gap between the various groups occurred in 1997, consistent with the Maastricht calendar for joining EMU. Since then the gap has re-opened, highlighting the potential difficulties with a situation in which a one-size-fits-all monetary policy goes hand in hand with less-than-optimal alternative adjustment mechanisms.

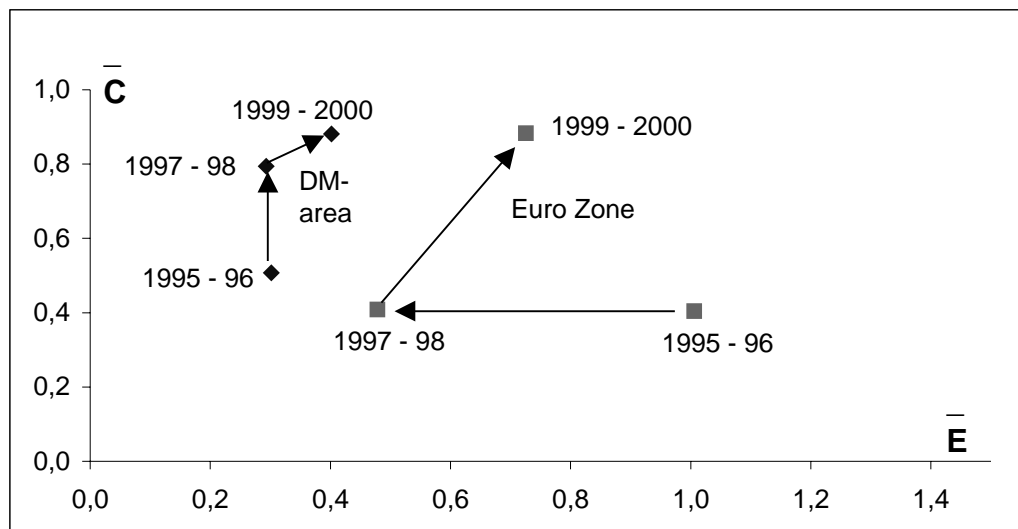
#### 4.2 The impact of the “EMU shock” on inflation convergence

The above analysis begs the question of the implications of the “EMU shock” for the process of nominal convergence within the euro area. In order to provide an answer, we look at the behaviour of inflation for the DM-area and the euro area since 1995, by focusing on three sub-periods: 1995-96, 1997-98 and 1999-2000. We first look at the distance of the inflation rate in the countries belonging to each group from the group average. The average of the absolute value of this distance is presented on the horizontal axis of Figure 5. It provides an indication of the degree of convergence of the inflation “level”. Another dimension of the behaviour of inflation is the way in which inflation rates change across the different countries. This is captured on the vertical axis by the average correlation of inflation within the two groups of countries. Hence a position high and to the left in the figure indicates that the inflation rate in these countries is not only very similar, but tends to go up or down in parallel. At the opposite side of the spectrum, a position down and to the right indicates that inflation rates are very different and poorly correlated.

---

(European Commission, 2000b), it remained cautious during the past decade, consistently with the disinflation objective of national monetary authorities.

Figure 5 Inflation convergence and correlation



What does the graph tell us? First of all, as implied by the above analysis, there was a strong inflation convergence in the 1990s within the euro area, attaining a minimum in 1997-98<sup>14</sup>. While the differences of inflation rates within the former DM-area did not change appreciably, the horizontal distance between the euro area and the DM-area was the smallest in 1997-98. The fact that the compliance with the Maastricht criteria was made on the basis of 1997 data, may have played a role in the accelerated inflation convergence in that year. Since then the gap has re-opened somewhat. This partial re-opening of nominal economic differences within the euro area is not, however, necessarily “EMU-critical” if this phenomenon reflects Balassa-Samuelson effects or the role of inflation in absorbing asymmetric foreign trade shocks (Alesina et al., 2001). It may also be a temporary phenomenon to the extent that it reflects the limited availability of alternative adjustment instruments in the early years of EMU.

Second, between 1995-96 and 1999-2000, the correlation of inflation rates increased in both groups, reaching identical levels in the latter period. This provides *prima facie* evidence that euro-area countries experienced largely common shocks during the period 1999-2000<sup>15</sup>.

<sup>14</sup> This element was stressed by Corsetti and Pesenti (1999).

<sup>15</sup> On the contrary, the relatively low correlation for the DM-area at the beginning of the period may be linked to the asymmetric implications of the post-German reunification adjustment.

## 5. Policy responses to two common exogenous shocks

Two truly symmetric exogenous shocks affected EMU during its first two years: the Asian crisis at the end of 1998 and beginning of 1999, and the oil price hike in 2000. This section examines the policy responses to these shocks from the point of view of EMU credibility: Were the policy moves at the national and euro area level consistent with the goal of enhancing the credibility of the stability-oriented macroeconomic framework of EMU? And: Would policy decisions have been different if EMU had reached its “steady-state”? In short, our answer to the first question is yes; the answer to the second question is: yes, in the case of the Asian shock; and hopefully not, in the case of the oil price hike.

### 5.1 The Asian crisis

After a prolonged period of subdued growth, countries of the euro area enjoyed a real growth of GDP of 2.8% in 1998. This was the highest rate of growth of the 1990s (well above the average of 1.6% of the period 1991-97) and was widely expected to accelerate and remain above 3% in the following years. Healthy growth was considered instrumental for a successful launch of the euro and to avoid the “Maastricht fatigue” by completing the “fiscal transition” towards close-to-balance budgetary positions as required by the SGP.

The Asian crisis – a typical negative symmetric demand shock<sup>16</sup> - disrupted such favourable scenario. In the Autumn of 1998, the European Commission’s growth forecasts were revised downwards by ½ percentage point of GDP and the ghost of deflation started looming in the economic and policy debate.

Under “normal” circumstances – without credibility problems for the central bank and unconstrained fiscal policies – demand shocks are not particularly problematic: as inflation and output move in the same direction, stabilising one variable results in stabilisation also of the other variable. Faced with a symmetric negative demand shock, monetary policy will ease and fiscal policies will let automatic stabilisers work. If the

---

<sup>16</sup> Clearly, as argued in section 2.2, a symmetric shock in origin, like the Asian crisis, may have country-specific effects due to heterogeneous industrial structures. Indeed, a recent study by the European Commission on Italy’s growth in the 1990s (European Commission, 1999a) found evidence that the recent Asian crisis had a disproportionate effect on Italy because of the net external position vis-à-vis this region and of its exports composition.



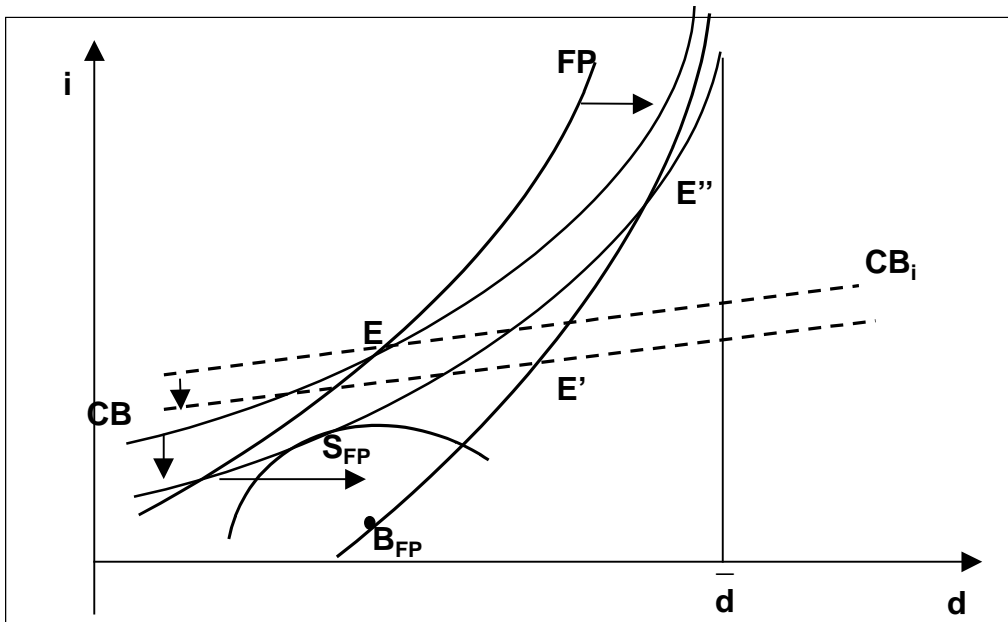
shock is particularly severe, fiscal authorities may consider some discretionary relaxation.

“Normal” policy responses, however, may have resulted in perverse outcomes at the outset of EMU when credibility problems still hanged over the new institutional framework.

We illustrate the effects of different responses by the interest rate and the budget deficit to a negative demand shock through a simple game theoretic framework<sup>17</sup>. Figure 6 pictures the reaction functions of fiscal and monetary authorities. The upward-sloping curve  $FP$  depicts the reaction of the budget deficit to the interest rate.  $CB_e$  and  $CB_i$  represent the central bank’ reaction function: the first vis-à-vis the aggregate budget deficit of the euro area and the second – much flatter - as perceived by each individual government to its own actions.

The two reaction functions are assumed to become steeper as the budget deficit approaches the upward ceiling,  $\bar{d}$ . This captures the reputational costs for the fiscal authority of risking to infringe the SGP and, in the case of the central bank, the response to threat of calling into question the stability-oriented policy framework of EMU<sup>18</sup>.

Figure 6 Negative demand shock



<sup>17</sup> The underlying model is developed in Buti, Roeger and in't Veld (2001). The present discussion adapts the reasoning therein to capture features of the early years of EMU.

Following a negative demand shock, fiscal policy turns expansionary and FP moves to the right. Monetary policy would react to the extent that the shock affects the average inflation of the currency area. If the shock is country-specific and the country is relatively small the new equilibrium is  $E'$ . However, in the case of a symmetric shock things are different. As a direct response to the shock, monetary policy would relax ( $CB_{\epsilon}$  shifts down). However, if the initial budgetary position was too close to the deficit ceiling, an expansionary fiscal policy, by shifting the deficit in the “credibility danger” zone, would result in a sharp increase in the interest rate. The Nash equilibrium,  $E''$ , is characterised by substantially higher budget deficit and interest rate, that is a very unbalanced policy mix.

Barring *ex ante* co-operation between monetary and fiscal authorities – arguably, not consistent with the spirit of the Treaty -, a better outcome could be achieved if fiscal authorities played Stackelberg leaders<sup>19</sup>. Given  $B_{FP}$  as the bliss point for the budgetary authorities, the Stackelberg equilibrium would be the  $S_{FP}$ , i.e. the point on the reaction function of the central bank that maximises the utility of budgetary authorities. In the example in Figure 5, this implies a fall in interest rates and a slight tightening of fiscal policy.

Clearly, as EMU encompasses multiple fiscal authorities, a Stackelberg fiscal leadership vis-à-vis the ECB would imply co-ordination between national governments to bring about a common budgetary restraint.

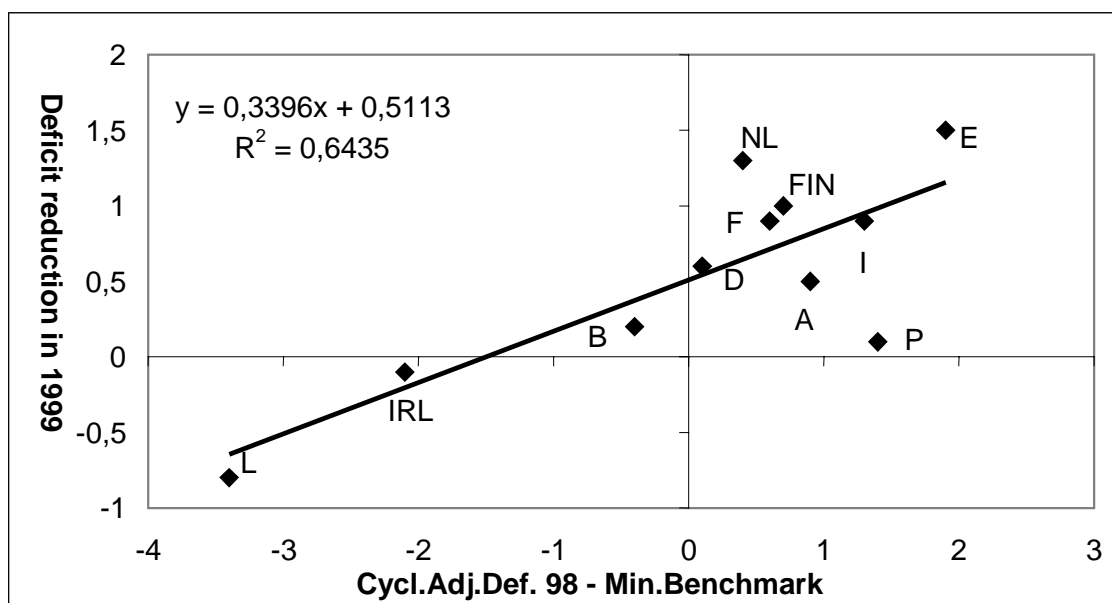
While being highly simplified, the above model appears to capture well the policy reactions to the Asian shock. The national fiscal strategies in the first year of the euro are illustrated in Figure 7 by plotting the fiscal consolidation in 1999 against the remaining adjustment effort to attain the “minimal benchmarks” (see section 3.2). There is clearly a positive correlation between the deficit reduction and the initial gap between the cyclically-adjusted deficit and the benchmark, indicating that *prima facie* the adjustment still to be accomplished to comply with the SGP may have been a factor shaping the fiscal strategies in the first year of EMU.

---

<sup>18</sup> In the definition by von Hagen and Mundschenk, EMU’s macroeconomic stability can be considered a “club good”.

<sup>19</sup> Stackelberg games between monetary and fiscal authorities are discussed by Bennet and Loayza (2000) and Leitmo (2000).

**Figure 7. Required and actual budgetary adjustment**



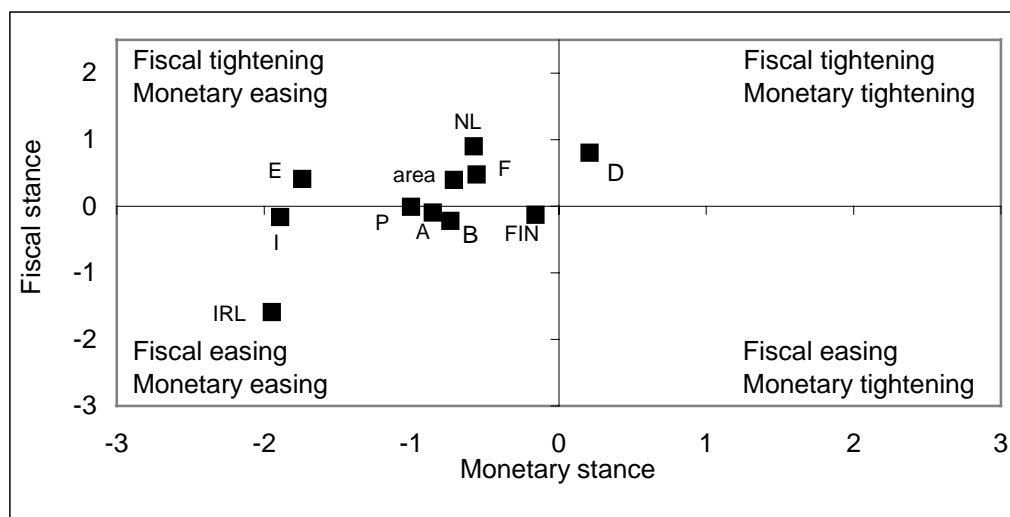
The potential usefulness of the SGP as a co-ordination device to bring about a balanced policy mix at the outset of EMU was first highlighted by Allsopp and Vines (1996, 1998) who stressed that a common drive towards further fiscal adjustment would create the conditions to allow the European Central Bank to deliver the desirable offsetting monetary response: “only if all (countries) act together will the monetary offset to fiscal tightening be likely to eventuate. Thus, participating governments will not only want to commit themselves, they will want to impose commitment on others as well” (Allsopp and Vines, 1996: 99). Without such common undertaking, the likelihood of an over-restrictive monetary stance would increase, also in view of the credibility-building strategy of the newly-created ECB.

Figure 8 illustrates the policy mix in the first year of the euro. The graph pictures the fiscal stance - as measured by the change in the cyclically-adjusted primary balance - and the change in the monetary stance - captured by the change in the short term interest rates.

The graph shows that the euro area and most countries fall in the top-left quadrant, where a fiscal tightening is accompanied by easier monetary conditions<sup>20</sup>.

<sup>20</sup> However, the export-driven growth slowdown reduced the size of the cyclical component of the budget. Hence the estimated change in the cyclically-adjusted primary balance may overstate the extent of the “true” discretionary tightening. See, European Commission (2000a).

**Figure 8. Policy mix in EMU countries, 1999**



In conclusion, contrary to the fears of many observers during the political controversies in early 1999, the cyclical slowdown brought about by the Asian crisis did not trigger a general move towards expansionary fiscal policies. Had the line defended by Oscar Lafontaine, the then German Finance Minister, prevailed, there could have been a loss of credibility of the commitment to budgetary discipline. In the event, this line was rejected, thereby contributing to the credibility of the whole EMU stability-oriented policy framework. As a result, monetary policy was eased so as to support growth with no danger for the price stability objective.

## 5.2. The oil price hike

As pointed out earlier, supply shocks are particularly problematic because they tend to push output and inflation in opposite directions. A negative supply shock (such as a wage cost push or a rise in energy prices) drives inflation up and economic growth down, thereby creating a policy conflict between an inflation-conservative central banker and a fiscal authority keen to stabilise income<sup>21</sup>.

<sup>21</sup> The analysis in this section implies that the response to a supply shock by a conservative central banker is output destabilising. However, it has been pointed out (see, e.g. Smets, 2000) that, in the event of permanent shocks affecting potential output, inflation stabilisation implies output stabilisation around the “new” level of potential output. In such a case, a fiscal behaviour which aims at smoothing the path of actual output may lead to a rise in the “true” output gap. Nevertheless, whatever the underlying justification for central bank behaviour, that does not affect our assessment on the higher likelihood of policy conflicts in the case of supply shocks.

In a monetary union, independent fiscal authorities acting in a non-cooperative fashion, will anticipate only a small reaction by the single central bank to individual fiscal expansions. Hence, the “temptation” to adopt an expansionary fiscal policy and, consequently, the likelihood of a policy conflict with the monetary authority.

Euro-area countries were faced with such policy dilemma in 2000 when, the price of Brent reached \$31.5, up from \$13 in 1998, an increase of 130%. In euro, the rise was an even more dramatic 175%.

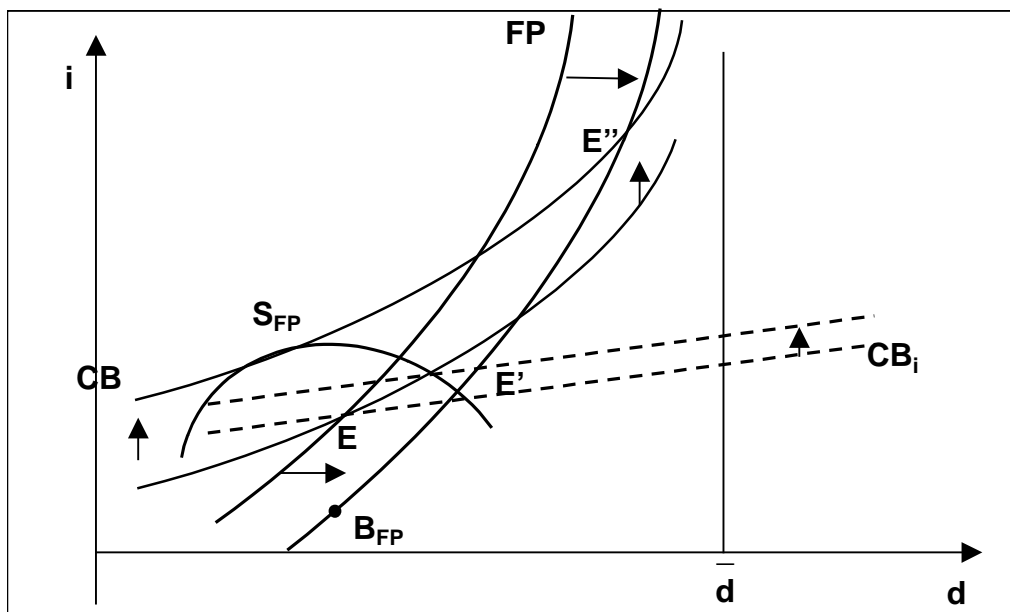
The impact of a sustained rise in the oil price was simulated with the Commission Services macro-econometric model, QUEST. To illustrate the direct effect on inflation, monetary policy is assumed to be accommodative, i.e. interest rates are not changed in the short run. Thus the underlying assumption is that the ECB would not react to the rise in inflation that follows. As reported in European Commission (2000b), faced with a sustained increase of \$12 per barrel, real GDP would decelerate by 0.2% points the first year and 0.4% the year after. As this simulation assumes the oil price hike persists for the length of the forecast horizon and this is anticipated by economic agents, the price adjustment is large and relatively fast. In terms of inflation, it implies a rise in inflation of 0.7% points the first year and 0.4% the second year.

These simulations assume no policy reaction on the part of monetary or fiscal authorities. Although several factors pointed to a smaller impact of the price hike on the real economy nowadays than in the 1970s and 1980s, the shock was serious enough to beg the question of the ensuing policy responses.

The simple analytical framework used to discuss the Asian shock is also useful to analyse the policy response to a negative supply shock such a rise in the oil price (see Figure 9). As pointed out above, supply shocks potentially create serious policy conflicts because they give rise to a trade-off between output and inflation stabilisation. If fiscal authorities care more about the former and the central bank is “hard nosed”, the result of a non-cooperative game is a rise of both budget deficits and the interest rate (point E’). Notice that part of the policy response of each authority is prompted by the attempt to offset the move in the opposite direction by the other policy. Had euro-area fiscal authorities reacted with a non-cooperative expansion, the policy mix could have ended up in the “credibility danger” zone characterised by high deficits and interest rates. Again, as in the previous case, a Stackelberg fiscal leadership, by enacting a common fiscal restraint,

entails a smaller rise in interest rates and a more balanced policy mix (point  $S_{FP}$  in the graph). Notice that, while the benefits of avoiding a policy conflict are higher in the early years (when we are operating on the steeper branch of the reaction functions), such strategy is beneficial also in normal times when the equilibrium is located far from  $\bar{d}$ .

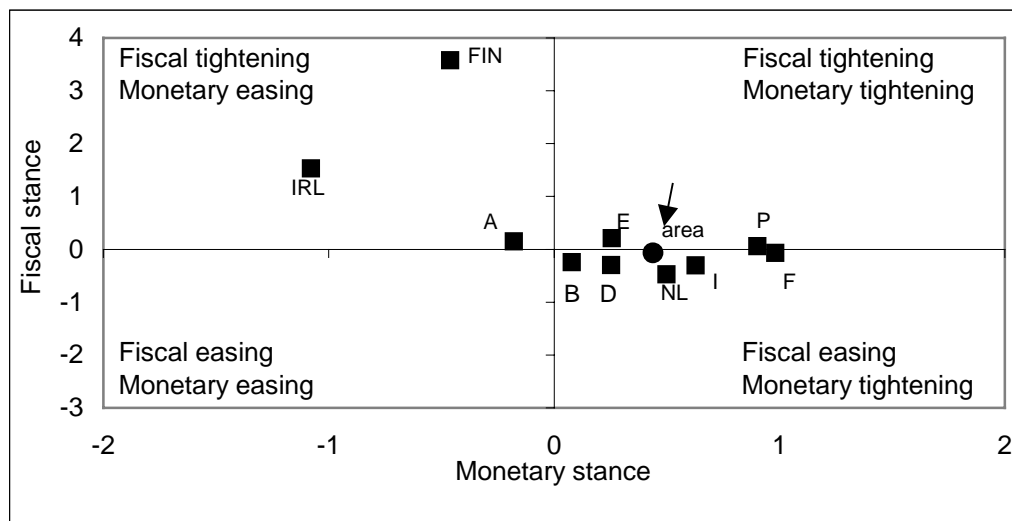
Figure 9 Negative supply shock



As shown in Figure 9, in 2000, the fiscal stance (measured by the change in the cyclically-adjusted primary balance) in the euro area was broadly neutral. Hence the commitment to fiscal discipline reiterated by Eurogroup ministers was upheld. Even the one-off UMTS receipts (estimated at almost 1% of GDP in 2000) were largely allocated to deficit and debt reduction. Although, contrary to the agreement at the EU level, some governments bent to pressure to offset the impact of the higher oil prices onto specific categories, the budgetary implications of such moves were of no macroeconomic relevance<sup>22</sup>.

These policy responses helped to “make life easier” for the ECB which, in a situation when the output gap in the euro area was turning positive, raised interest rates only moderately. Taking into account the depreciation of the euro, monetary conditions remained growth-supportive. As argued above, such policy mix would be the right one also in a situation in which the budget balance met the close-to-balance rule of the Pact.

Figure 9. Policy mix in EMU countries, 2000



Obviously, the above *ex post* rationalisation of the responses to these two exogenous shocks has to be taken with a pinch of salt as it may paint too favourable a picture of policy interactions in EMU. For instance, the fact that the Asian shock was not very “tax-intensive” or that the oil price hike proved temporary certainly helped the authorities to deliver the appropriate policy response.<sup>23</sup> On the other hand, adequate policy responses contributed to limit the negative impact of the shocks. All in all, even taking into account some favourable circumstances, our assessment is that “pre-emptive co-ordination” between euro-area governments designed to maintain budgetary restraint worked well during the first two years of EMU, thereby helping to strengthen the credibility of the stability-oriented EMU framework<sup>24</sup>.

<sup>22</sup> This favourable assessment, however, does not dispel the doubts raised on the asymmetric nature of the Pact which may prove inadequate in preventing a pro-cyclical fiscal loosening in good times. For a discussion, see Buti and Martinot (2000) and the chapter by Brunila and Martinez Mongay.

<sup>23</sup> For a less optimistic view on the temporary nature of the oil shock and on the response of monetary authorities, see Oswald (2001).

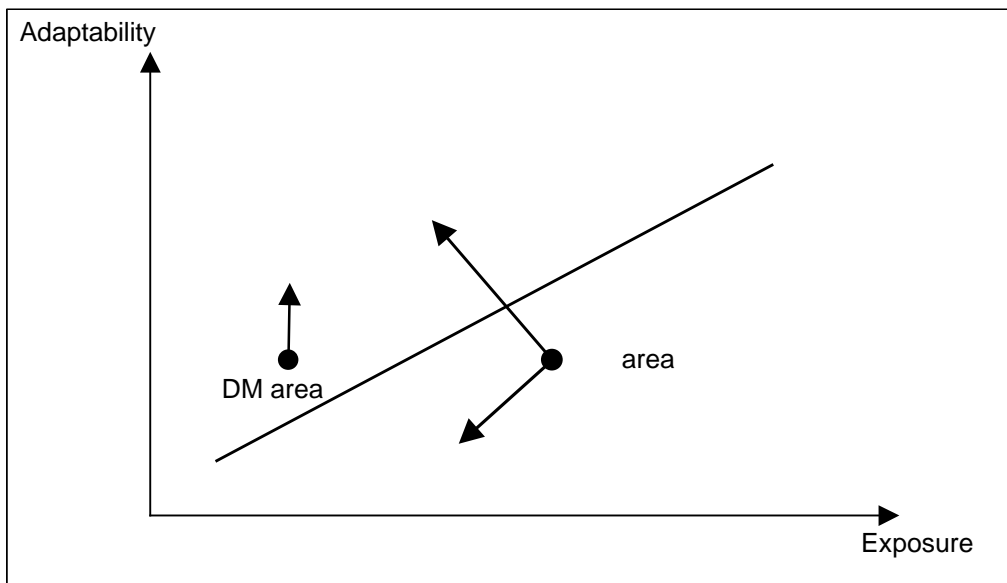
<sup>24</sup> The term “pre-emptive coordination”, suggested to us by Giuseppe Bertola, captures well the character of EU policy surveillance in EMU. Another term sometimes used is “negative coordination” by analogy to the terms “negative integration” as opposed to “positive integration”) originally coined by Jan Tinbergen.

## 6. From the “early years” to the “steady-state”

As argued above, heterogeneity and limited availability of adjustment instruments may have contributed to heightened economic divergence in the initial years of EMU. Are credibility-enhancing policies going to deliver more symmetry in economic behaviour between current euro area members during the next few years? Our tentative answer is, again, yes.

Figure 10 (adapted from De Grauwe, 1996) may be helpful in providing some speculative answers to this question. The graph pictures on the horizontal axis the exposure to asymmetric shocks, including policy-induced shocks, and on the vertical axis the macroeconomic and market adaptability to shocks. Clearly, the more countries are exposed to shocks, the higher the degree of adaptability required to tackle country-specific disturbances. A group of countries laying on the upwards sloping line will feel no substantial difference when moving to EMU. In order to speculate on the possible effects of EMU on economic divergence, it is useful to differentiate between the DM-area and the whole euro area.

Figure 10 Symmetry and asymmetry in EMU



The DM-area is traditionally viewed as characterised by a relatively low market flexibility, but also low exposure to country-specific shocks. Having been in a “quasi monetary union” for the last 15 years, these countries share a common culture of stability (hence are less prone to policy-induced shocks) and, as shown in section 3, have largely



diversified and similar economic structures. Therefore, at first sight, one would not expect major consequences from moving to EMU for these countries. We nevertheless tend to put the DM-area on the left hand-side, of the no-change line – that is we expect higher convergence in the years to come - on the basis of three considerations.

First, compared to a German-dominated ERM, a centralised monetary policy is likely to produce more cyclical convergence in the event of country-specific shocks. In the context of a simple IS-LM model<sup>25</sup>, the divergence is higher under EMU if the dominant country in the ERM is larger than the follower. The reason is that, following a shock in Germany, in order to maintain a constant output for the currency area as a whole, the output in the rest of the currency area has to decrease a lot in relative terms to compensate for the rise in output in Germany. The opposite result holds if the shock takes place outside Germany. However, as is the case in EMU, the conclusions are reversed if Germany - the leading country in the ERM - is smaller than the rest of the currency area. This argument rationalises the popular view that had the German reunification taken place once in EMU, the “monetary hardship” for the rest of Europe would have been smaller.

Second, to the extent that the SGP induces these countries to reduce budget deficits towards a close- to-balance position, their ability to respond to shocks via fiscal policy will be enhanced, at least compared to the 1990s. Indeed, after many years in which they had symbolised budgetary prudence, Germany and France entered EMU with budget deficits very close to the 3% of GDP threshold. Since then, the room for manoeuvre has increased somewhat (see Figure 2), but further efforts remain to be accomplished to bring the budget towards balance. Provided that the room for manoeuvre does not result in a higher policy-induced shocks, the outcome would be a more symmetric behaviour.

Third, a single currency will contribute strongly to the creation of a single financial space which, in turn, will foster adaptability to shocks of euro area countries – including those of the former DM-area - by allowing consumption smoothing via portfolio diversification and access to a larger pool of resources (see, e.g. Asdrubali, Sorensen and Yosha, 1996, Sorensen and Yosha, 1998, Mélitz and Zumer, 1999). While there are clear signs of financial market deepening, the chapter by Huizinga shows that that there is still a long way to go before achieving a truly single financial space;

---

<sup>25</sup> See, Buti and Suardi (2000).

What about, the euro area? Given its much larger heterogeneity, this group of countries definitely lies to the right hand-side of the previous group. As argued above, the loss of monetary independence – which for a number of these countries, unlike those belonging to the DM-area, was real – implies that the euro area may be positioned initially to the right of the no-change line, i.e. experience higher divergence compared to the pre-EMU period. This position is however not fixed.

In terms of **exposure** to shocks, a recent literature has concentrated on conjectures regarding how EMU will affect specialisation. There are two opposing views. One holds that EMU will reinforce trade linkages between participating countries and make their economic structures more similar. In other words, EMU will endogenously become an optimum currency area even if it is not currently so (see, Frankel and Rose, 1997). The opposite view argues that, in a world characterised by increasing returns to scale and knowledge spillovers, EMU is bound to encourage geographical concentration of industries and greater specialisation (see Krugman, 1993). On theoretical grounds, both views are equally reasonable. The empirical evidence on the link between economic integration and specialisation in Europe is equally inconclusive. For instance, a recent study of specialisation trends, in 32 manufacturing industries across 13 European countries over the period 1972-96, finds that specialisation has increased in employment terms, but decreased in terms of export (see Brülhart, 2001)<sup>26</sup>.

However, whatever the effects of the single currency on industrial specialisation, it is unlikely that these will dominate in the next three to five years. More relevant in this time horizon are other factors which tend to reduce exposure to country-specific disturbances (hence move the position of euro-area towards the left in Figure 10): policy surveillance will reduce policy-induced shocks and a single central bank will avoid monetary co-ordination failures in responding to symmetric shocks.

In terms of **adaptability** to shocks, the arguments put forward above on fiscal flexibility and financial market deepening hold even more strongly for the euro area than for the DM-area.

As to labour market reforms, arguably one of the most contentious issues in EMU, two opposite views have been voiced in the debate (for a survey of the arguments, see Calmfors, 1998 and 2000; and Bentolila and Saint-Paul, 2000).

According to “pessimists”, EMU will have a perverse impact on labour market functioning (hence the arrow pointing down in Figure 10). The incentives for making the labour market more flexible may be lower in EMU because one of the gains arising from higher flexibility - namely a lower inflation bias - is already attained via delegation of monetary policy to an independent, conservative central banker. Furthermore, the lack of co-ordination between (national) structural reforms and the (supra-national) monetary policy may make politically-costly reforms less likely. “Optimists”, however, stress that EMU members will have no choice but to reform their labour markets to gain a competitive edge (the so-called “there-is-no-alternative”, or TINA, argument). Furthermore, higher product market competition brought about by EMU should, eventually, result in more flexible labour markets. Another argument suggesting more incentive for reform in EMU is a precautionary motive linked to the increased risks of output variability, especially for peripheral countries, which raises the cost of high unemployment.

The evidence provided in the chapter by Bertola and Boeri invite to moderate optimism. Increasing attention is being paid by governments to the need for reforms, and, where reforms have been implemented, labour markets are showing tangible signs of improvement.

All in all, to the extent that multilateral policy surveillance is effective in preserving the stability-oriented character of EMU one can be reasonably confident that the euro area countries will eventually “cross the line”, i.e. achieve a more homogeneous economic behaviour. The speed at which this would occur remains, however, uncertain. Furthermore, beyond the early years, the accession of new members – especially those of Central and Eastern Europe – will increase dramatically the heterogeneity of the euro area. This, as argued by Eichengreen and Ghironi, will pose new challenges for economic policy making in EMU.

---

<sup>26</sup> Moreover, even if higher regional concentration occurs, it would not necessarily imply higher national specialisation (see, e.g. Fatàs, 1997).

## 7. Conclusions

This paper has reviewed a number of features of the functioning of EMU in its early years and presented evidence on policy behaviour in response to observed shocks. One of the main difficulties in managing EMU in its infancy is related to differences between euro area members and the still-incomplete adjustment mechanisms for tackling asymmetric and symmetric disturbances.

The central tenet of the paper is that the behaviour of economic policy during the early years of EMU must be assessed in light of the credibility problem faced by the authorities during this period. Building credibility requires, above all, furthering the process of fiscal consolidation and accelerating structural reforms, both of which help the ECB to deliver price stability and member countries to cope with exogenous shocks. It also requires curbing politically-motivated policies. In the presence of trade-offs, the response to shocks in the initial years of EMU had to privilege credibility-enhancing policy choices. In this complex policy environment, pre-emptive coordination based on effective policy surveillance was, and remains, necessary to ensure a successful completion of the “second transition”.

Did EMU pass the “credibility test”? On the basis of the first two years of EMU, our answer is yes. Clearly the fact that national economic cycles were skewed to the high side made misalignments in monetary conditions politically easier to manage. Nevertheless, even discounting for such favourable circumstances, pre-emptive coordination aiming at reducing policy-induced shocks and enhancing adaptability to shocks – be it stabilisation or adjustment – has worked fairly well.

As to the near future, a more homogeneous economic behaviour can be expected provided multilateral policy surveillance is effective in fostering further adaptability and reducing exposure to asymmetric disturbances. EMU’s “steady state”, however, is not yet in sight.

## References

- Alesina, A., Blanchard, O., Galí, J., Giavazzi, F. and H. Uhlig (2001), "Defining a Macroeconomic Framework for Euroland", Monitoring the European Central Bank, CEPR.
- Alesina, A., Roubini, N. and G.D. Cohen, *Political Cycles and the Macroeconomy*, Cambridge: MIT Press.
- Allsopp, C. and D. Vines (1996), "Fiscal Policy and EMU", *National Institute Economic Review*, 158: 91-107.
- Allsopp, C. and D. Vines (1998), "Macroeconomic Policy after EMU: The Assessment", *Oxford Review of Economic Policy*, 14(3): 1-23.
- Artis, M.J. and M. Buti (2000), "'Close to Balance or In Surplus' - A Policy Maker's Guide to the Implementation of the Stability and Growth Pact", *Journal of Common Market Studies*, 38(4): 563-92.
- Asdrubali, P., Sorensen, B.E. and O. Yosha (1996), "Channels of Interstate Risk Sharing: United States 1963-1990", *Quarterly Journal of Economics*, 111: 1081-110.
- Barrell, R. and A. Pina (2000), "How Important are Automatic Stabilisers in Europe?", *EUI Working Papers*, ECO. No 2000/2
- Barrell, R. and K. Dury (2001), "The Stability and Growth Pact: Will It Ever Be Breached?" in A. Brunila, M. Buti and D. Franco, eds., *The Stability and Growth Pact – The Fiscal Architecture of EMU*, Palgrave, forthcoming.
- Bennet, H. and N. Loayza (2000), "Policy Biases when the Monetary and Fiscal Authorities Have Different Objectives", Central Bank of Chile, W.P. 66.
- Blinder, A.S. (1999), "Central Bank Credibility: Why Do We Care? How Do We Build It?" NBER W.P. 7161.
- Brühlhart, M. (2001), "Growing Alike or Growing Apart? Industrial Specialisation of EU Countries", in C. Wyplosz, ed., *EMU and its Impact on Europe and Developing Countries*, Oxford University Press, forthcoming.
- Brunila, A., M. Buti and D. Franco (2001), "Introduction" in A. Brunila, M. Buti and D. Franco, eds., *The Stability and Growth Pact – The Fiscal Architecture of EMU*, Palgrave, forthcoming.
- Buti, M., Franco D. and H. Ongena (1998), "Fiscal Discipline and Flexibility in EMU: the Implementation of the Stability and Growth Pact", *Oxford Review of Economic Policy*, 14(3): 81-97.
- Buti, M. and B. Martinot (2000), "Open Issues in the Implementation of the Stability and Growth Pact", *National Institute Economic Review*, 174: 92-104.

- Buti, M., W. Roeger and J. in't Veld (2001), "Monetary and Fiscal Policy Interactions under a Stability Pact", ECFIN Economic Papers, forthcoming.
- Buti, M. and M. Suardi (2000), "Cyclical Convergence or Differentiation? Insights from the First Year of EMU", *Revue de la Banque*, 2-3: 164-72.
- Calmfors, L. (1998), "Macroeconomic Policy, Wage Setting, and Employment - What Difference Does the EMU Make?", *Oxford Review of Economic Policy*, 14(3): 125-51.
- Calmfors, L. (2000), "Wages and Wage-bargaining Institutions in the EMU – A Survey of the Issues", mimeo.
- Corsetti, G. and P. Pesenti (1999), "Stability, Asymmetry and Discontinuity: The Launch of European Monetary Union", *Brooking Papers on Economic Activity*, 2.
- Cuckierman, A. and F. Lippi (1997), "Central Bank Independence, Centralisation of Wage Bargaining, Inflation and Unemployment - Theory and Some Evidence", *European Economic Review*, 43(7): 1395-1434.
- De Grauwe, P. (1996), "The Economics of Convergence Towards Monetary Union in Europe", *Weltwirtschaftliches Archiv*, 132(1): 1-27.
- De Grauwe, P. (1999), "Monetary Policy in Euroland", in H., Ooghe, F. Heylen and R. vander Vennet, eds. (2000), *EMU, Dé Uitdaging*, VvE..
- De Grauwe, P. (2000), "Monetary Policy in the Presence of Asymmetries", *Journal of Common Market Studies*, 38(4): 593-612.
- Demertzis, M., Hughes Hallett, A.J. and N. Viegi (1999), "An Independent Central Bank Faced with Elected Governments", CEPR D.P. 2219.
- Dornbusch, R., Favero, C. and F. Giavazzi (1998), "Immediate Challenges for the ECB", *Economic Policy*, 26: 15-64.
- European Commission (1998), *Economic Policy in EMU – A Study by the European Commission Services*, edited by M. Buti and A. Sapir, Oxford University Press.
- European Commission (1999a), "Budgetary Surveillance in EMU: the New Stability and Convergence Programmes", *European Economy*, Supplement A, no 2/3.
- European Commission (1999b), "Italy's Slow Growth in the 1990s: Facts, Explanations and Prospects", *European Economy-Reports and Studies*, 5.
- European Commission (2000a), "Public Finances in EMU- 2000", *European Economy - Reports and Studies*, 3.
- European Commission (2000b), *The EU Economy – 2000 Review*, European Economy.
- Fatàs, A. (1997), "EMU: Countries or Regions? Lessons from the EMS Experience", *European Economic Review*, 41: 743-775.
- Frankel, J. and A. K. Rose (1997), "The Endogeneity of Optimum Currency Area Criteria", NBER W.P. 5700.

- Gerlach, S. and G. Schnabel (1999), "The Taylor Rule and Interest Rates in the EMU Area: A Note", BIS W.P. 73.
- Gramlich, E.M. and P.R. Wood (2000), "Fiscal Federalism and European Integration: Implications for Fiscal and Monetary Policies", mimeo.
- Hughes Hallett, A.J and L. Piscitelli (1999), "EMU in Reality: The Effect of a Common Monetary Policy on Economies with Different Transmission Mechanisms", CEPR D.P. 2068.
- Krugman, P.R. (1993), "Lessons of Massachusetts for EMU", in F. Torres and F. Giavazzi (eds.), *Adjustment and Growth in the European Monetary Union*, Cambridge University Press: Cambridge.
- Leitmo, K. (2000), "Strategic Interactions between the Fiscal and Monetary Authorities under Inflation Targeting", mimeo, September.
- Maclennan, D., Muellbauer, J., and M. Stephens (1998), "Asymmetries in Housing and Financial Market Institutions and EMU", *Oxford Review of Economic Policy*, 14(3):54-80.
- Méltiz, J. (1997a), "The Evidence About Costs and Benefits of EMU", *Swedish Economic Policy Review*, Autumn: 359-410.
- Méltiz, J. (1997b), "Some Cross-country Evidence about Debt, Deficits, and the Behaviour of Monetary and Fiscal Authorities", CEPR D.P. 1653.
- Méltiz, J. (2001), "Some Cross-Country Evidence about Fiscal Policy Behaviour and Consequences for EMU", *European Economy – Reports and Studies*.
- Méltiz, J. and F. Zumer (1999), "Interregional and International Risk sharing and Lessons for EMU", CEPR D.P. 2154.
- Nicoletti, G., Haffner, R.C.G., Nickell, S., Scarpetta, S. and G. Zoega (2001), "European Integration, Liberalization, and Labor-Market Performance", in G. Bertola, T. Boeri and G. Nicoletti, eds., *Welfare and Employment in a United Europe*, MIT Press.
- Nicoletti, G., Scarpetta, S. and O. Boylaud (1999), "Summary Indicators of Product Market Regulation with an Extension to Employment Protection Legislation" OECD Economics Department Working Paper, 226.
- Noord, P. van den (2000), "The Size and Role of Automatic Fiscal Stabilisers in the 1990s and Beyond", OECD Economics Department Working Papers, no. 230.
- OECD (1999), *EMU - Facts, Challenges and Policies*, Paris.
- OECD (2000), *EMU - One Year On*, Paris.
- Oswald, A. (2001), "Can the 'New Economy' Really Survive Expensive Oil?", University of Warwick, mimeo.
- Saint-Paul, G. and S. Bentolila (2000), "Will EMU Increase Eurosclerosis?" CEPR D.P. 2423

- Sapir, A. and K. Sekkat (2001), "Political Cycles, Fiscal Deficits, and Output Spillovers in Europe", *Public Choice* (forthcoming).
- Smets, F. (2000), "The First Year of the Eurosystem", in H., Ooghe, F. Heylen and R. vander Vennet, eds. (2000), *EMU, Dé Uitdaging*, VvE.
- Sorensen, B.E. and O. Yosha (1998), "International Risk Sharing and European Monetary Unification", *Journal of International Economics*, 45: 211-38.
- Soskice, D. and T. Iversen (1998), "Multiple Wage-Bargaining Systems in the Single European Currency Area", *Oxford Review of Economic Policy*, 14(3): 110-24.
- Taylor, J.B. (1993), "Discretion versus Policy Rules in Practice", *Carnegie-Rochester Conference Series on Public Policy*, 39: 195-214.
- Taylor, J.B. (1997), "The Policy Mix Rule: A Macroeconomic Policy Evaluation", mimeo.
- Wyplosz, C. (1999), "Economic Policy Coordination in EMU: Strategies and Institutions", *ZEI Policy Paper*, B11.