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Ezoneplus Working Paper No. 17F:
Regional Input on Monetary and Fiscal Policies
Supplement to Working Paper No. 17

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Abstract

The coexistence in EMU of one common monetary policy and several domestic fiscal policies raises a number of problems of both academic and political interest. First, there are reasons to assess a hypothetical need to also centralise fiscal policies in such circumstances, according to what prevails in federal states. Second, given that this hypothesis has not reached consensus in the EU, nor is it expected to do so in the near future, the issue of how to co-ordinate monetary and fiscal policies, in order to achieve the desired outcomes in both global and individual terms, arises. Third, the fact that policy spill-overs are enhanced in the EMU, the need to avoid free riding behaviour on the part of member states and the apparent non-reliance on financial markets to discipline sovereign debtors led to the option of restricting the autonomy of domestic fiscal policies by setting up constraints upon the relative levels of deficits and debts.

Due to these restrictions, it is important to investigate the existence of alternative options in case of economic shocks that are specific to an economic area, or that do not equally affect all EMU members. Theory suggests that financial markets, when integrated, can provide relief by supplying the means to finance recovery. However, the lack of integration, uncovered by empirical analyses especially in peripheral EU areas, indicates that financial markets cannot be fully relied upon as mechanisms of adjustment.

The current study analyses these topics of interest for monetary and fiscal policies in EMU.

Keywords : Regional Input, Monetary and Fiscal Policies, EMU

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1 Introduction

The European Union (EU) is an unparalleled example in the current and past processes of international integration. Along with the plans of enlargement to Central and Eastern European countries (CEEC), which will soon be concluded for ten candidates, in 1999 eleven member states entered what was designated as the third phase of the Economic and Monetary Union (EMU). EMU members significantly intensified existing economic links by implementing a monetary union on top of an already established common market. To this end, a voluntary substitution of domestic currencies by a common one took place and authority over monetary policies was formally transferred to a supranational institution, the European Central Bank (ECB). In spite of this decision, member states kept their political autonomy and maintained responsibility over the remaining macroeconomic policies.

The common monetary policy, announced at the end of the 90s, is based on a 2 per cent target for inflation. Such a restrictive policy stance, which is believed to be a way of assuring monetary stability in the integrated area, may in fact lead EU economies to deflation, with all the negative consequences that the situation involves.

The monetary union was implemented in a space not completely homogeneous in economic terms, where a number of disparities are still evident. The improvements in terms of economic integration and the previous completion of the single market program did not fully abolish the gap between the rich core and the poor peripheral countries. Furthermore, the EU is also a heterogeneous space in social, cultural and political terms and such heterogeneity will be enhanced by the imminent Eastern enlargement. As a result, the probability of asymmetric disturbances has not diminished, as previously expected following an intensification of economic integration, and is still high, especially in the periphery of EMU.

Having given up the ability to use instruments such as interest rates or exchange rates, which are capable of providing at least a short-term relief to areas hit by economic shocks, and without the possibility of relying on labour markets to this end, attention turns to alternative mechanisms capable of providing the stabilisation and adjustment of economies hit by specific

disturbances. In spite of possible market adjustments, the focus is on domestic fiscal policies, given that monetary integration was not accompanied by fiscal centralisation, thus leaving budgetary instruments under the responsibility of individual member sates.

However, the coexistence in EMU of one common monetary policy and several domestic fiscal policies raises a number of problems of both academic and political interest. First, there are reasons to assess a hypothetical need to also centralise fiscal policies in such circumstances, according to what prevails in federal states. Second, given that this hypothesis has not reached consensus in the EU, nor is it expected to do so in the near future, the issue of how to co-ordinate monetary and fiscal policies, in order to achieve the desired outcomes in both global and individual terms, arises. Third, the fact that policy spill-overs are enhanced in the EMU, the need to avoid free riding behaviour on the part of member states and the apparent non-reliance on financial markets to discipline sovereign debtors led to the option of restricting the autonomy of domestic fiscal policies by setting up constraints upon the relative levels of deficits and debts.

Due to these restrictions, it is important to investigate the existence of alternative options in case of economic shocks that are specific to an economic area, or that do not equally affect all EMU members. Theory suggests that financial markets, when integrated, can provide relief by supplying the means to finance recovery. However, the lack of integration, uncovered by empirical analyses especially in peripheral EU areas, indicates that financial markets cannot be fully relied upon as mechanisms of adjustment.

The current study analyses these topics of interest for monetary and fiscal policies in EMU and is organised as follows. Section 2 examines the common monetary policy, assessing the risks that it may imply for the involved economies. Section 3 deals with the interaction between monetary and fiscal policies, and assesses economic arguments for and against fiscal centralisation, the need to co-ordinate independent fiscal policies, and the role of financial markets as alternative sources of stabilisation. Given the still prevalent fragmentation of EU financial markets, and therefore their

inability to fully cope with the burden of adjustment and stabilisation, such tasks will also have to be performed with resource to national fiscal instruments if tensions that may jeopardise the future of the Community are to be avoided. For this reason it is of vital importance to assess whether domestic fiscal policies are sustainable for, if this is not the case, the stability, and eventually the survival, of EU are severely threatened. Such assessment is performed in section 4 with an empirical analysis of the sustainability of fiscal policies in both current and perspective EU members.

2 The risk of deflation

There is a general consensus that EMU has successfully managed to keep inflation rates, and inflation expectations, at a very low level, by recent historical standards. Inflation has receded in most EU countries since the early 1990s (Figure 1). The question now is whether this monetary policy path can prevent the threat of deflation and how it deals with it in case it occurs.

> *"In the US, where the FED has made clear its concerns and has the freedom to act if it needs to, the risk of deflation seems relatively small. Countries that are explicitly committed through inflation targets to fighting deflation, such as Britain, Australia and New Zealand, are also likely to be less at risk. In Germany, where monetary policy is set by the ECB with reference to the eurozone economy as a whole and policymakers are more concerned about inflation than deflation, the risk looks greater"*
>
> *Financial Times, 03.01.2003*

[Figure 1 about here]

2.1 The optimal inflation rate

The question of what is the optimal level of inflation has been discussed for a long time, but no definite answers have been found. To Friedman (1969), for example, the expected inflation rate should be negative on average and equal, in absolute value, to the real interest rate. Only then would the price, or opportunity cost, of money, the nominal interest rate, equal the marginal cost of producing money, in practice almost negligible. This is the microeconomic theory's long run condition of producer optimum in perfect

competition. To Feldstein (1996), for example, the monetary authorities' objective should be to achieve zero inflation.

In reality, all central banks presently agree with the objective of price stability for monetary policy. However, this objective has been differently quantified, implicitly assuming that price stability does not necessarily mean a traditionally measured inflation rate of zero.

The European Central Bank, for example, explicitly aims at an inflation rate below 2%. The Fed, although it does not indicate a precise quantitative objective, seems to accept slightly higher values. Other countries, such as Australia, New Zealand, Sweden and the UK, have set inflation targets, either as a point or an interval, between 0 and 3 per cent.

Why is the objective of price stability quantified in practice as a small but positive value? The problem is that the consumer price indices usually computed tend to over-estimate the real inflation rate, namely for failing to consider in some cases the quality bias, i.e., an increase in quality which increases prices, to pay for that extra quality, but should not be considered inflation.

2.2 The deflation problem

Most economic agents have persistent expectations that the normal state of the economy is of constant price increases, and consequently spending decisions are based on the assumption that prices can only go up. The possibility of a generalized price level reduction is not considered by most as a natural fact. The observation that prices in some sectors have dropped occasionally in the last few years comes as a surprise for most people. And in fact, for most living persons, price increases have been the norm during all their lives. In general, prices have been continuously increasing since the Second World War, although in the XIX century, and until the end of the gold standard, deflation episodes were frequent. In Portugal, for example, prices have always been growing during the last fifty years. Since 1953, prices have grown by more than 8000 per cent, an average inflation rate slightly above 9 per cent per year, rising to almost 13 per cent since 1970 (Figure 2).

[Figure 2 about here]

Finally, monetary authorities have managed to achieve and maintain low levels of inflation in most developed countries. The main doubt arising now is whether this successful fight against inflation may lead the economy to the opposite, but equally or even more harmful, phenomenon of deflation.

The main problem with deflation is that it may engage countries in a spiral of economic decline. Expectations of deflation induce economic agents to postpone consumption, waiting for lower prices. It also may prevent agents from recurring to credit, fearing an increase in the real burden of debt. Deflation has a significant negative effect on debtors, for example those holding large mortgages. The reduction of demand causes prices to fall even further, namely as firms try to attract more clients. At the same time, deflation increases the real burden of corporate debt, triggering bankruptcies and investment cuts. Weak economic growth and increasing unemployment put pressure on further price cuts.

On the other hand, price stability, *strictu sensu*, places two important problems on economic authorities. First, it becomes very difficult to achieve a reduction in real wages with the objective of, for example, reducing private consumption or unemployment. With a zero inflation rate, the reduction in real wages can only be attained by a reduction in nominal wages, which is more difficult to accept by workers, even in recession, than a comparative rise in nominal wages below inflation if money illusion phenomena persist. If labour markets do not clear, unemployment will rise. Akerloff et al. (1996) claim that with low inflation rates a trade off emerges between inflation and unemployment, the return of the Phillips curve.

Second, price stability entails very low nominal interest rates. Fisher (1930) observed that an asset's interest rate can not drop below zero if that asset can be stored without costs, as is the case of money (he exemplified with gold and wheat). No one will ever lend money at a negative nominal interest rate if it can be kept without loosing nominal value at zero inflation.

There seems to be therefore a zero-bound on interest rates. And so what? Keynes (1936) was perhaps the first author to show some concern on the possible consequences for monetary policy of this zero-bound. With a zero nominal interest rate, money and bonds hold the same real interest rate ($r=i-$

π^e), and therefore economic agents will always prefer to keep their assets as money, more liquid and less risky. In this case, expansionary open-market operations, where the central bank buys public bonds (if there are any remaining, another question analysed above) and increases the monetary base (if there is any, as observed above) will not exert any effect. Economic agents reveal an infinite money demand elasticity and will hold the whole money increase thus turning monetary policy inefficient. This is the academically known phenomenon of the *liquidity trap*.

The problem arises when an economy enters into recession, and monetary policy is not able, as before, to reduce the real interest rate in order to oppose it. With deflation, an increase in the real interest rate ($r=i-\pi^e$) may even have perverse effects on demand and employment.

However, in spite being studied in academic circles for many years, this question has been usually considered a mere curiosity with no applied interest, due to the expected scenario of high inflation and interest rates. Attention has been refocused on this subject in the last few years, as inflation and interest rates steadily diminished during the nineties. In a recent speech before the Economic Club of New York, Greenspan (2002) notes that "*recent experience understandably has stimulated policymakers worldwide to refocus on deflation and its consequences, decades after dismissing it as a possibility so remote that it no longer warranted serious attention*".

Being used to inflation for all their lives, economic agents keep inflation expectations, which prevents inflation from dropping further. Given the existence of persistence in inflation it may take some time for deflation expectations to arise. As those expectations slowly adapt, the possibilities of deflation increase. In Europe, the inflation rate, corrected for the quality bias, is below the already low official values. In China and other Asian countries, prices have fallen in several periods. In Japan (see figure 3), interest rates reached the zero-bound (in January 2003 overnight interest rates fell to negative values), and the Bank of Japan declared itself powerless to avoid the established depression. According to the Bank of Japan, the money stock, narrowly defined, increased 27.6 per cent in 2002 but prices continue to fall. The consequence was a decline in the Japanese average rate

of economic growth from about 3.7 per cent between 1981 and 1992 to 1.4 per cent between 1993 and 1997.

[Figure 3 about here]

2.3 Suggested solutions for the zero-bound

Several solutions have been suggested to this problem of deflation and the zero-bound on interest rates.[1] One possible solution would be to avoid the problem altogether by establishing from the beginning higher long-term objectives for the inflation rate, with symmetrical intervals (Summers (1991 and 1996), Fischer (1996) and Krugman (1996), for example, suggest three per cent). The first objection to this proposal arises from the difficulty in determining the ideal value for the inflation objective, which would depend primarily on the dimension of the economic recession. If the target is set too high, a more vigorous objection would certainly come from the increasingly independent central bankers, who do not renounce the promoted advantages of price stability.

Alternatively, the problem could also be avoided if the inflation objective is replaced by an upward-sloping price level objective (Coulombe (1997), Gaspar and Smets (2000) and Svensson (2001)). Its advantage over an inflation objective is that a decline in prices would be expected to be followed by a rise in prices. The inflation expectations would reduce the *ex ante* real interest rate, allowing demand and employment to increase. With an inflation target, the price level is a nonstationary variable, whereas it becomes trend-stationary with an inflation target. The proponents of this solution claim that credible price level objectives reduce nominal interest rate variability, thereby reducing the probability of reaching the zero lower bound which constrains monetary authorities.

A completely different approach, more imaginative and by many even considered surrealist, would be to impose a tax on money (Goodfriend (2000)). This tax would give back monetary authorities the ability to use

[1] For a survey of some of these and other proposals see, for example, Goodfriend (2000).

open-market operations to produce negative nominal interest rates, thereby reducing the real interest rate and avoiding recession.

This tax could be applied to bank's reserves, but also to coins and notes. To avoid paying the tax, economic agents would be willing to lend even at negative nominal interest rates. In this system, the lower bound of interest rates would be determined by the imposed tax rate. Whenever interest rates approached that limit, monetary authorities could adjust the tax rate to their objective for the interest rate.

Although this idea is not recent, having been mentioned for example by Keynes (1936), it has not been seriously considered mainly due to the enormous administrative costs involved, and also because the question of the zero-bound has only recently re-emerged with the return of price stability. Recent technological developments, namely in payment systems, make this hypothesis less utopian.

The tax on bank reserves would be relatively easy to set and to alter immediately whenever necessary. The tax on currency would have to be charged through a magnetic strip indicating the date of withdrawal from the banking system so that, when deposited, the value of the tax for the period in circulation could be deducted. With an annual tax rate of 3 per cent, for example, a fortnight in circulation would cost around 0.12 centimes for every euro deposited.

Several criticisms have been raised on this tax. First, because it would be a regressive tax, in a system with very high production and administrative costs. However, everyone has been, most times unconsciously, exposed to an also regressive 'tax' on money, the inflation tax, which affects money holders in quite the same manner as the tax presented above would. Furthermore, contrary to the inflation tax, the tax on money would only be imposed during short periods, whenever necessary.

Second, because it would be very difficult for those economic agents highly dependent on capital income to be able to hedge themselves from a long period of negative nominal interest rates. Accordingly, Goodfriend (2000) also suggests using the tax together with open market purchases of long-term securities and monetary transfers, which would not affect interest rates but could stimulate spending by injecting liquidity into the economy. The

problem is that these operations, and especially their reverse, necessary to remove excess liquidity and stabilise inflation after the economy recovers, would have a significant impact on public finances. On the one hand, the author suggests that the monetary transfers could take the form of a monetisation of budget deficits, which is formally forbidden in the EU. On the other hand, the government would have to indemnify the central bank for capital losses incurred for buying long-term securities at low interest rates and afterwards selling them back to the public at a lower price.

The traditional Keynesian answer is to employ fiscal policy to pull economies out of recession. However, this solution is not very well regarded by the economic authorities who, for example in the EU, have even bound themselves to legislation renouncing the discretionary use of fiscal policies (e.g. the Treaty of Amsterdam). Besides, some countries are still facing very high values of public debt and deficits (see section 3), leaving little room for further expansionary fiscal policies. According to the Eurostat (2003) Japan, for example, presented in 2001 a deficit of 7.1 per cent of GDP (fuelled by high real interest rates) and a volume of public debt of above 130 per cent of GDP. The next section explores in more detail the possible interaction between monetary and fiscal policies in EMU.

3 The relationship between monetary and fiscal policies

3.1 Is there a need for fiscal centralisation?

Government budgets are responsible for the functions of resource allocation, income redistribution and economic stabilisation. As a consequence, much of the debate on the need of fiscal integration evolves around the question of whether these functions should be provided by national or by supranational authorities. In the past, most crucial decisions in the shaping of European integration were taken by political, rather than by economic motives. Although there are no reasons to believe that the decision making process will be substantially changed in the future, it is important to ascertain if the rationale for or against fiscal integration can be established in terms of economic efficiency. The researchers' attention has been recurrently drawn to this issue, in the European and in other contexts. As Robson (1998)

refers, theoretical assessments of the appropriate level of responsibility over fiscal instruments essentially consist of analysing the three budgetary functions on the light of three criteria: the existence of significant cross-border spill-overs, of economies of scale and of political homogeneity.

In the EU, and in most other market economies, the allocation function of domestic budgets is mainly directed to the supply of public goods such as defence, health and education, which are usually responsible for the majority of public expenses. Defence activities generate important externalities and economies of scale could be exploited by a provision at the EU level. On the contrary, in relation to health and education, not only are the spill-overs less important, but there also appears to be a lack of homogeneity in preferences across member states, thus suggesting that responsibility over these issues should remain national.

The distribution function contributes to the spatial harmonisation of incomes and to the abolishment of economic disparities. It is particularly important in regions prevented from using some macroeconomic instruments, as is the case of members of a monetary union. In fact, the absence of redistribution mechanisms may submit economic blocs to social, political and economic tensions that may become unbearable if too extended in time. In purely theoretical terms, it is suggested that this function should be performed by the higher tiers of government, which in the case of the EU, would be the Community level. However, in the absence of a common budget, the transfers necessary to assure an efficient distribution function would have to be provided by the richer countries. Such a situation, if prolonged, is also unsustainable as it is not easily defensible upon those countries' public opinion and is therefore prone to political exploitation. As a result, the distribution function is implemented mainly in the context of the EU regional policy.

The existence of considerable externalities deriving from domestic fiscal policy actions is one of the most often cited arguments for the centralisation of fiscal policies in a context of integration. Another justification relates to the benefits of sharing the risks of random symmetric shocks (Goodhart and Smith, 1993). In fact, if such disturbances occur, member states may lack the incentive to take the appropriate measures, as part of their effort will be

reflected in their partners' economies, thus reducing the effectiveness of national fiscal procedures. In such circumstances a more adequate reaction would result from a centralised fiscal policy.

This analysis produces arguments that are mostly in favour of a centralisation of fiscal policies in a context of economic integration. Moreover, such conclusion is reinforced in the particular case of monetary integration given that, in such context, the instruments available to provide economic adjustment and stabilisation following specific disturbances are scarce and the externalities of domestic policy measures are increased. Nevertheless, fiscal centralisation was not an option in EU. It has been considered that, even in cases of evident externalities, scale economies and political homogeneity, fiscal policy centralisation would be a solution only if the alternative hypotheses of policy co-ordination or policy harmonisation could not be envisaged (vide the subsidiarity principle in the Maastricht Treaty). This was the case despite the fact that economic theory suggests that policy co-ordination or harmonisation are valid strategies only when the monitoring by involved parties is possible. If this is not the case, non-compliance could be the rational option, thus making the decision to centralise the most appropriate one.

In spite of the many arguments for fiscal centralisation, it is also possible to find in the economic literature a rationale for the decisions of EU authorities. This is the case, for instance, of the work developed by Alesina, Angeloni and Etro (2001) who model an integrated group of countries and conclude that there appears to be a bias towards centralisation in small size unions, and vice versa. The authors uncover a trade off between the advantages of co-ordinating economic policies and the costs of lost autonomy, and deduce that such trade off determines the nature and the dimension of unions. In the light of these conclusions, it is expected that an already large union such as the EU, which will be further enlarged in the near future, would tend to be less (rather than more) centralised, thus reducing to a minimum the number of policies whose responsibility are to be transferred to a supranational level.

3.2 Coexistence of one monetary policy and many fiscal policies

If a decision to form a monetary union in a group of economically integrated, but heterogeneous, economies is not accompanied by a centralisation of fiscal policies, the need for an independent use of domestic fiscal instruments is enhanced. However, a high degree of fiscal autonomy in a scenario of monetary integration poses a number of problems. It is therefore important to assess how free should governments be to manage fiscal policies according to domestic needs and how the different interests may be harmonised in order to achieve the acceptable results.

Until the 70s it was believed that fiscal and monetary policies could be used to attain short and medium term objectives, such as the promotion of economic growth and the management of aggregate demand. While fiscal policy was considered to be the main responsible for the control of demand, monetary policy was directed to the promotion of growth and employment and, if necessary, also to the support of fiscal policy, for instance via the monetary financing of deficits. It was believed that this could be done without significant costs in terms of inflation and monetary stability.

The reality suggested however that this paradigm was probably not correct and new theories emerged. The new approaches, which took into account the processes of private expectations' formation and the objectives of political agents, indicated that instead of short-term discretionary strategies, directed to the macroeconomic fine tuning, the focus should be on the establishment of rules. These should be capable of providing long-term stability, via a consistent operation of monetary and fiscal policies, thus supplying an anchor for private expectations.

In the EU, the main objective of monetary policy is price stability. The ECB was assigned a status of independence in order to be able to pursue this goal without the burden of political pressures. Since the common monetary policy is devoted to the maintenance of price stability, domestic authorities have fewer incentives to take into account the inflationary impacts of national policies, and also the consequences that such policies may have in terms of global financial stability and external equilibrium. This was considered in the Maastricht Treaty, which states the indispensability of an accurate co-ordination of economic policies on the part of all member states and

describes the institutional procedures recommended to this end. However, such reasoning is strictly applicable to the bigger economies only. In fact, although the common monetary policy is set for the whole of EMU, it is more aligned with the economic conditions of the bigger economies, and do not take into account the needs of smaller members. In turn, economic problems that may occur in the latter will have little or no effect upon the whole of the euro area and thus will not provoke a reaction on the part of the monetary authority (Hoeller, Giorno and Maisonneuve, 2002).

In a macroeconomic model developed by von Hagen and Mundschenk (2002) the need to co-ordinate monetary and fiscal policies in a monetary union exists only in the short run. In the long run, these policies are independent and conflicts arise solely in shorter time spans. Such conflicts may also occur among independent fiscal authorities, whenever fiscal impulses are not costly, even if they pursue common economic objectives. It is also suggested that, in the assumption of central bank's inflexibility in relation to the objective of maintaining price stability, co-ordination between fiscal policies is necessary to avoid excessive deficits. On the other hand, if the monetary authority decides to be less rigid at first, the final model equilibrium involves higher interest rates and larger deficits than in the case of central bank's inflexibility.

According to this study, with the ECB firmly devoted to the objective of price stability, the best common outcome for EMU would be obtained if member states co-ordinate domestic fiscal policies. However, instead of co-ordination, the option was to restrict domestic fiscal autonomy by means of the constraints imposed upon public deficits and debts by the Maastricht Treaty and the Stability and Growth Pact. The penalties that, under the Excessive Deficit Procedure, may be inflicted to the non-compliant members are also in accordance with von Hagen and Mundschenk's conclusions that point to the necessity of making fiscal impulses costly.

As Uhlig (2002) refers, however, there are in the EU political incentives not to impose such penalties for the fear of disrupting 'friendly political relationships'. The author therefore defends that the decision to penalise one country should not result from a discretionary decision, but instead be a consequence of well established automatic rules. The need for such

automatic rules is reflected in the reactions of countries such as Germany and Portugal when warned by EU authorities of the need to correct their fiscal stance and tighten domestic fiscal policies. Whereas German authorities reacted and tried to water down the reprimands, the Portuguese government did its best to reduce the deficit to the recommended values, though with high costs in terms of growth and employment. Yet, the behaviour of the Portuguese authorities was only possible because a new government had just arrived into power and thus was in a position to take unpopular measures with minimum electoral consequences.

Experience on this and on other areas indicates that bigger countries tend to be less responsive to peer pressure than smaller ones. Such conduct is much more hazardous given the fact that it is the actions of bigger countries, rather than those of smaller ones, that are critical to the economic performance of the whole euro area. Therefore, the apparent lack of responsiveness on the part of big member states is a further argument for establishing the automatic punishing procedures defended by Uhlig (2002). These would discipline all EMU members by effectively penalising non-compliance with the restrictions imposed upon fiscal policies.

3.3 Alternative adjustment mechanisms

Although, as mentioned above, there are reasons to defend the reduction of autonomy over national fiscal policies in a monetary union, in the case of EU there is also a greater need for an independent use of domestic fiscal instruments, as member states' economic heterogeneity makes them more prone to the occurrence of asymmetric disturbances. The scarcity of alternative mechanisms capable of promoting economic cushion following such disturbances makes independent fiscal reactions crucial. However, the notion that market forces cannot be relied upon to provide the fiscal discipline that is necessary in a monetary union when domestic fiscal policies are left unconstrained prevailed. Despite the no bail out compromise contained in the Maastricht Treaty, fiscal autonomy was restricted by the limits imposed upon the levels of public deficits and debts. Member states have thus to rely on financial markets to finance the adjustment of

economies in the aftermath of idiosyncratic shocks. Yet, this solution is possible only if financial markets are fully integrated.

The integration of financial markets requires both the absence of obstacles to the free flow of capital across borders and the perfect substitutability of assets issued in different political jurisdictions. A number of empirical analyses reveals the existence of high levels of integration among EU core financial markets, even before the establishment of EMU, but also exposes many deficiencies in terms of capital mobility and assets' substitutability in the EU periphery (see, inter alia, Lemen, 1998).

An assessment of financial integration between Portugal and Spain developed by Vieira (2000) shows that each of the two peripheral countries shares stronger links with Germany than with each other, in spite of the more intense economic relationships between the two. This study involves empirical tests performed with data on short-term assets only. It is nevertheless important to mention that, when the interest of the analysis is on the assessment of financial markets as mechanisms of economic adjustment and stabilisation, the focus should also be on long-term capital. In fact, if short term financial flows are capable of providing immediate relief following a shock, it is long term capital that permits the structural recovery that is need to re-establish economic structures. However, as the empirical literature suggests, signs of financial integration are always stronger in analyses performed with short-term data. Evidence of integration at the longer maturities is not found when it was not previously obtained for the short end of the maturity spectrum.

Empirical analyses appear to suggest that financial markets can be relied upon to the end of stabilisation and adjustment precisely in the EU areas where such a mechanism is in theory less necessary. Given that a higher level of economic integration exists among core countries, these are in principle less prone to the occurrence of asymmetric disturbances. Peripheral regions, on the other hand, may be more in need of using financial markets as alternative mechanisms of adjustment, but they will probably find it more difficult to obtain the funds to recover their economies following a shock. In such conditions, and in spite of the strong limitations imposed upon them, fiscal instruments will probably also have to be used to help recovery. It is

therefore essential that fiscal policies are sustainable for this is a condition to effectively use fiscal instruments to this end.

4 The sustainability of fiscal policies in the EU and the accession countries

The persistently large government deficits, and the resulting accumulation of debt in most developed countries since the mid seventies, raised significant concerns over the existence of long-run constraints on public borrowing, and the economic consequences of fiscal indiscipline. This has been one of the most controversial and discussed economic issues among academics and policymakers during the process towards EMU, and has now been revived with the plans for EU enlargement.

The discussion over these questions is particularly important in a monetary union for several reasons. On the one hand, a deeper degree of economic and financial integration increases the probability that the effects of unsustainable fiscal policies in one country may spill-over to other member states, eventually threatening the stability of the whole union. On the other hand, the complete liberalisation of financial markets, and the elimination of exchange rate risk, increases the internal mobility of goods, services and production factors, raising spending and tax competition and hence restricting national fiscal flexibility. This may be particularly problematic for a highly indebted country, where a significant fraction of public revenues is permanently reserved to debt service, restricting considerably its capacity to implement stabilisation policies and provide sufficient public goods. This could further deteriorate the fiscal situation, by jeopardising growth prospects and diverting the tax base.

Despite recent efforts towards fiscal consolidation in most EU and CEEC countries, complying with the Maastricht's convergence criteria and the Amsterdam's Stability and Growth Pact, expensive welfare programs and unfunded social security systems, together with an ageing population, can exert considerable strain on public finances over the next generations.

The main objective of this section is to investigate whether current fiscal policies are sustainable, that is, able to guarantee the government's solvency. This question is tested, for those countries where data is available, by examining the long-run univariate and multivariate stochastic properties of the fiscal variables, as implied by the intertemporal budget constraint. For the other countries, most CEEC, data restrictions do not allow the application of such methodology, but a careful observation of recent trends may give some insights on the state and prospects for public finances.

4.1 Methodology and data

Sustainable fiscal policies are here defined as those that can remain unchanged into the future without violating the government's intertemporal budget constraint (IBC). This long-run constraint is basically an accounting identity requiring the outstanding stock of debt to be completely offset by the expected, in present value, sum of all future primary surpluses and money creation. This requires the complementary restriction that the discounted value of the debt-GDP ratio must equal zero in the limit. With the variables represented as ratios to GDP:

$$(1) \qquad d_t = \sum_{j=1}^{\infty} \frac{1}{(1+\rho)^j} \left\{ t_{t+j} + \Delta m_{t+j} + m_{t+j-1} \left[1 - \frac{1}{(1+\pi_{t+j})(1+\psi_{t+j})} \right] - g^*_{t+j} \right\},$$

$$(2) \qquad \text{and } lim_{n\to\infty} \left[\frac{d_{t+n}}{(1+\rho)^n} \right] = 0$$

where ρ_t is the real interest rate net of output growth ψ, with mean ρ, and d_t is the interest bearing real public debt outstanding at the end of the period. The variables g_t and t_t represent, respectively, real primary government expenditures, *i.e.,* excluding interest payments on the public debt and real primary government revenues, excluding seigniorage. g_t^* is computed as $g_t+(\rho_t-\rho)d_{t-1}$, and m_t is the monetary base. This presentation in ratios to GDP is consistent with the usual indicators employed to evaluate the performance of fiscal policies, and removes from the tests potential effects of nonstationarity in inflation and real GDP growth

Several distinctive testing procedures have been proposed to investigate this long-term notion of fiscal policy sustainability with a transversality condition. Since the sustainability condition is interpreted as a long run relationship, it suggests the use of methodologies derived from the unit root and cointegration literature to test it empirically. The methodology adopted below follows the approach suggested in Hakkio and Rush (1991).

After some mathematical manipulation of equation (1), the following expression can be obtained

$$(3) \qquad tg_t - tt_t = \sum_{j=1}^{\infty} \frac{1}{(1+\rho)^j} \left(\Delta tt_{t+j} - \Delta g^*_{t+j} \right),$$

where tg_t represents total government expenditures ($g_t + \rho d_{t-1}$) and tt_t stands for total government revenues $\{t_t \text{ and } m_t + m_{t-1}/[(1+\pi)(1+\psi_t)]\}$, as ratios of GDP.

All the variables on the right-hand side of equation (3) are expressed in first differences. If all these series in first differences are stationary, i.e., if all the variables in levels are I(1), the right-hand side of (3) is stationary. This implies that the left-hand side, the global deficit, must also be stationary. Since tg_t and tt_t are, by the previous assumption, integrated of order one, they must therefore be cointegrated.

The unit root tests will employ the widely used augmented Dickey-Fuller (ADF) methodology, with the lag length chosen by the Schwarz Bayesian Criterion (SBC). The hypothesis of cointegration will be tested using the procedure developed by Johansen (1988) and applied in Johansen and Juselius (1990) of maximum likelihood tests, which are based on the multivariate general representation of the vector error-correction model. Both alternative test statistics, known as the 'Trace' and the 'Maximum-eigenvalue' statistics, will be computed. The latter tests the null hypothesis of, at most, r cointegrating vectors against the alternative of exactly $r+1$, while the former tests for, at most, r cointegrating vectors against an alternative of, at least, $r+1$ vectors.

The choice of which and how the deterministic terms are included in the model is a nontrivial issue, and may have considerable influence on the final

conclusions of the tests (Johansen and Juselius, 1990). Given the characteristics of the variables involved, the tests will be predominantly performed in a model with a constant term in the cointegrating vector and no other deterministic elements.

The tests will be performed on all countries for which a sufficient period can be analysed. The data set is taken from the IMF's *International Financial Statistics*, and considers annual data for the central government. Annual data allows the use of a longer time span, more powerful tests, and avoids problems of seasonality.

[Figures 1 and 2 about here]

Observing the data, we find clear signs of fiscal retrenchment in the last few years (Figures 1 and 2) . The problem is that some of these fiscal adjustments may involve only temporary effects on the measures of the deficit and debt. An improvement of the budget accounts just before EMU through a wave of privatisations as in France, or a cut in public investment as in Germany, for example, has an immediate effect of fiscal retrenchment, without the potential political costs of a tax increase or a reduction of public current expenditures. However, these decisions may yield merely a temporary effect on the deficit, if the expected net returns from those privatised assets or from the curtailed investments exceed, respectively, their sale-value and initial cost.

4.2 Testing long-run sustainability

Table 1 displays the univariate stochastic properties of the main budget variables, with a special emphasis on the total surplus. The unit root tests on the series of total revenues and expenditures may provide earlier indications of the fiscal situation in some countries, but are intended mainly as a pre-test for the cointegration analysis. The test on the total surplus, however, provides a more direct indication of sustainability and stability of the debt ratio.

[table 1 about here]

The empirical evidence on table 1 suggests that all series of total revenues and total expenditures are integrated of first order.[2] Before proceeding to the cointegration analysis, a first direct test of sustainability can be performed. A sufficient, but not strictly necessary condition is the stationarity of the series of total surplus. Besides testing sustainability, this condition also examines whether the ratio of debt-to-GDP will grow without bound. The results are shown on the last column of the above table.

The unit root tests more or less strongly reject the null hypothesis of nonstationarity of the total surplus in Austria, Denmark, Finland, France, Germany, Luxembourg, the Netherlands (at the 10% level) and the UK. In the particular case of the Iberian countries, although the time period available is relatively smaller, the results clearly suggest unsustainability. This is certainly due to the very large imbalances incurred by both countries during the 1970s and 1980s. The situation has gradually improved, although the Council of the EU has recently (November 2002) issued a Recommendation against Portugal in the framework of the Excessive Deficit Procedure (article 104.7 of the Treaty).

In January 2003, a Recommendation has also been issued to Germany and an *Early Warning* to France. The fact that both countries have been found in the tests above to follow sustainable fiscal policies suggests that the European authorities are more concerned with short-term values than with long-run trends.

The robustness of the above conclusions derived from the unit root tests on the budget surplus may be evaluated with a cointegration test between total revenues and expenditures. Table 2 presents the results of the Johansen testing procedure. The model employed in the tests includes a constant in the cointegrating vector and no other deterministic terms. The order of the VAR (in parenthesis) has been chosen according to the indication of the Schwarz Bayesian Criterion (SBC).

[table 2 about here]

The null hypothesis of no cointegration is rejected for Austria, Denmark, Germany, Luxembourg and the Netherlands, reinforcing the results obtained above. For Finland, France and the United Kingdom no evidence of cointegration was found and therefore the final results are not conclusive, requiring further econometric and data analysis. For all other countries, the evidence strongly suggests unsustainable fiscal policies and therefore the need for further fiscal corrections. This is the case of Portugal and Spain for example, which have recently followed similar paths in terms of deficits and debt (Figure 5).

4.3 The CEEC' fiscal situation

Except for Hungary and Romania, data is not available for a long-run analysis in all other CEEC. Besides lacking a sufficiently long data series, fiscal variables in these countries reveal large fluctuations and significant structural breaks, especially in Bulgaria.

Observing the evolution of the deficit/surplus as a ratio to GDP (figure 4), it appears that the series seem to converge to equilibrium in the last years of the sample. The prospects of accession and the conditions of fiscal consolidation seem to have significantly reduced budget deficits. A more careful analysis, however, suggests different patterns. The Czech Republic, for example, has been presenting progressively higher deficits since the mid 1990s, the Slovak Republic displays the largest deficit at the end of the period considered (3.7 per cent of GDP), and Hungary also presents a relatively high deficit in 2001 (2.9 per cent), but improving from 6.3 per cent of GDP in 1998. On the other extreme, Bulgaria, Romania, Estonia and Poland display fiscal surpluses in the last year for which data is available.

[2] The tests on the first-differenced series, not shown, unanimously rejected the null of nonstationarity, excluding the hypothesis of higher orders of integration.

[Figure 6 about here]

Figure 6 displays the positions of the current and incoming member countries in a debt/deficit chart for 2001, the latest year for which data is available for all these countries. The values are not directly comparable with the previous data set since they refer to the general government and therefore include for example the social security accounts, an important element in many countries. Most CEEC are concentrated in the lower left part of the chart, presenting higher deficits but lower debt ratios. The lower the debt ratio, the lower the share of the budget allocated to the debt service and therefore the less difficult it is to reduce the deficit. Current EU members appear mostly in the top half of the chart, burdened with high public debts, and some in the lower right, a clear sign of fiscal discipline.

4.4 Final remarks

Although a long-term analysis reveals some unsustainability issues, the Stability and Growth Pact's extremely restrictive provisions may be sufficient to prevent major future fiscal problems both in the current and in the prospective EU members. Even the deteriorating fiscal conditions in recent years in some EU countries, such as Portugal, seem to be mainly due to the economic recession, and have raised doubts, even from the European Commission's president, on the desirability of maintaining the strong restrictions of the Pact in these declining economic conditions.

For those CEEC for which data restrictions do not allow a long-run analysis, no major problems can be identified from a visual inspection of the fiscal variables. One factor benefiting these countries is the fact that they do not hold a very high debt to GDP ratio, comparatively to some EU countries, where public debts above GDP have been observed in Italy, Greece and Belgium. Within the CEEC, only Bulgaria presented a debt ratio above 60 per cent in 2001 (figure 4). A very high debt ratio implies that a large share of the public revenues must be reserved for debt service, reducing the autonomy of the fiscal policy to react to the business cycle.

The most serious threat to fiscal stability in all the European countries is the predicted changes in their demographic structures. A rapidly ageing population will increase the fiscal burden, through the welfare and health systems. Dependency ratios will, on average, double in the next fifty years (table 3). The situation will be particularly problematic in the Southern European countries, notably in Spain where the dependency ratio is expected to reach 73.8 in 2050.

The population in the CEEC is, on average, relatively younger than the EU's average, which could postpone all the fiscal problems related to the social security funds and welfare programs. However, according to the United Nations' projections, population in the CEEC is ageing faster. By 2050, the median age will be above that of the current EU members (table 3).

Recognizing that "long-term fiscal sustainability is a major issue in many EU Member States" (Commission of the European Communities, 2003, p. 7), the European Commission recently issued a report addressing the problem faced by pension systems. According to the report, public expenditures on pensions will increase, on average in the EU members, from 10.4 per cent of GDP in 2000 to 13.3 per cent by 2050, with the effects starting within the next decade.

EU governments are now facing the important challenge of ensuring the sustainability of their welfare systems. Fiscal policies must be implemented to reduce the current debt burden and to modernise the pension systems. At the same time, economic polices aimed at increasing productivity and employment are also required.

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Tables and Figures

Table 1: Unit root tests

Country	sample period	Augmented Dickey-Fuller test statistic		
		total revenues	total expenditures	budget balance
Austria	1948-1998	-1.0773 (0)	-1.3054 (0)	-3.039** (0)
Belgium	1948-1998	-0.7234 (0)	-0.9932 (0)	-1.5672 (0)
Denmark	1950-1999	-1.4974 (0)	-1.4958 (0)	-3.7352** (1)
Finland	1948-2001	-1.1885 (0)	-2.1194 (1)	-3.4548** (1)
France	1948-1997	-1.0280 (0)	-0.4081 (0)	-3.0073** (0)
Germany	1949-1998	-2.5270 (0)	-2.5235 (0)	-4.2987** (0)
Greece	1951-1999	-1.3579 (0)	-1.2611 (0)	-1.9161 (0)
Hungary	1981-2001	-.31506 (0)	-0.6711 (0)	-2.1257 (0)
Ireland	1950-2001	-1.6659 (0)	-1.4073 (0)	-0.9107 (0)
Italy	1948-2001	-0.9442 (0)	-0.9983 (0)	-1.0505 (1)
Luxembourg	1973-1997	-2.3661 (0)	-1.9857 (0)	-4.0759** (0)
Netherlands	1948-2001	-1.4874 (0)	-1.2085 (0)	-2.7306* (0)
Portugal	1970-1998	-1.4446 (0)	-2.1163 (0)	-1.9582 (0)
Romania	1980-1999	-1.7834 (0)	-2.9845 (0)	-1.9586 (0)
Spain	1962-2001	-0.7096 (0)	-1.5122 (0)	-2.1646 (0)
Sweden	1951-2000	-1.7706 (0)	-1.8835 (0)	-1.9813 (0)
United Kingdom	1948-1999	-1.5255 (0)	-1.6280 (0)	-3.4677** (1)

Notes: The lag length is chosen according to the 'Schwarz Bayesian Criterion'. In parenthesis is the number of lagged differenced terms used in the regression (in all ADF tests the maximum lag length considered was four). The asterisks (**) indicate rejection of the null of nonstationarity at the 5 per cent significance level.

Table 2: Cointegration tests

	λ_{max}		Trace	
	r=0	r<=1	r=0	r<=1
Austria	17,0844	2,1116	19,1960	2,1116
	(1)	(1)	(1)	(1)
Belgium	5,4005	2,8826	8,2831	2,8826
	(1)	(1)	(1)	(1)
Denmark	15,7881	6,1452	21,9333	6,1452
	(2)	(2)	(2)	(2)
Finland	13,4806	1,5562	15,0368	1,5562
	(2)	(2)	(2)	(2)
France	10,6394	4,1475	14,7869	4,1475
	(1)	(1)	(1)	(1)
Germany	19,6508	9,4210	29,0718	9,4210
	(1)	(1)	(1)	(1)
Greece	11,8436	2,6677	14,5112	2.6677
	(1)	(1)	(1)	(1)
Hungary	6,8596	1,8632	8,7228	1,8632
	(1)	(1)	(1)	(1)
Ireland	6,6257	2,7869	9,4126	2,7869
	(1)	(1)	(1)	(1)
Italy	10,7304	1,4950	12,2254	1,4950
	(1)	(1)	(1)	(1)
Luxembourg	19,3684	3,7413	23,1096	3,7413
	(1)	(1)	(1)	(1)
Netherlands	17,3428	1,3833	18,7261	1,3833
	(1)	(1)	(1)	(1)
Portugal	5,9909	3,3013	9,2922	3,3013
	(1)	(1)	(1)	(1)
Romania	11,5664	2,1166	13,6830	2,1166
	(1)	(1)	(1)	(1)
Spain	6,6434	3,1209	9,7643	3,1209
	(1)	(1)	(1)	(1)
Sweden	10,3099	3,6817	13,9916	3,6817
	(1)	(1)	(1)	(1)
United Kingdom	8,9430	2,1975	11,1405	2,1975
	(1)	(1)	(1)	(1)

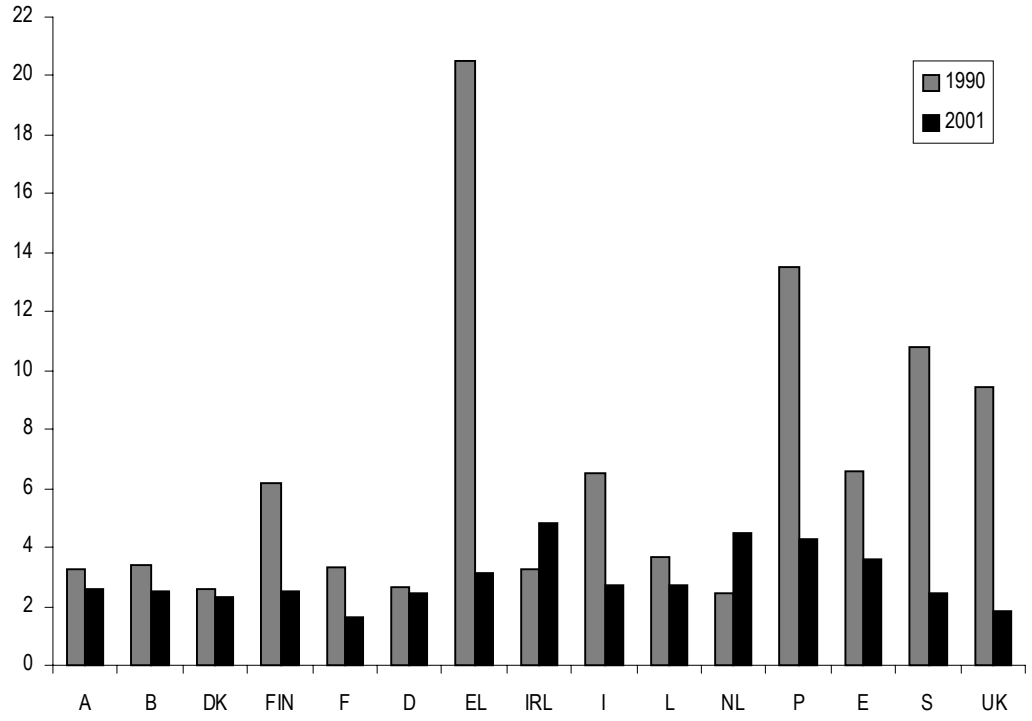
In parenthesis is the order of the VAR. The asterisks (**) indicate rejection of the null hypothesis of no cointegration at the 5% level of significance. Critical values (Pesaran, Shin and Smith, 1997): 15.87/20.18 (5%) and 13.81/17.88 (10%) for the λ_{max}/Trace tests and the null hypothesis of r=0, and 9.16 (5%) and 7.53 (10%) for both tests of r≤1.

Table 3: Median age and dependency ratios – 2000-2050

	Median age (years)			Old-age dependency ratio*		
	2000	2050	change (%)	2000	2050	change (%)
Luxembourg	37.7	40.0	6.1	21.5	31.4	46.0
Ireland	31.9	40.5	27.0	16.9	37.2	120.1
Denmark	38.7	46.5	20.2	22.5	43.8	94.7
Netherlands	37.7	46.9	24.4	20.1	45.0	123.9
France	37.6	45.2	20.2	24.5	46.7	90.6
United Kingdom	37.7	47.4	25.7	24.1	47.3	96.3
Finland	39.4	47.7	21.1	22.3	48.8	118.8
Belgium	39.1	48.7	24.6	25.9	51.2	97.7
Portugal	37.0	48.6	31.4	23.1	53.5	131.6
Sweden	39.7	51.2	29.0	27.1	54.5	101.1
Germany	40.1	50.9	26.9	24.1	54.7	127.0
Austria	38.4	53.7	39.8	22.9	62.5	172.9
Greece	39.1	52.3	33.8	26.0	64.6	148.5
Italy	40.2	54.1	34.6	26.7	68.1	155.1
Spain	37.7	55.2	46.4	24.8	73.8	197.6
Romania	34.6	46.7	35.0	19.4	44.6	129.9
Estonia	37.3	47.9	28.4	21.2	46.8	120.8
Poland	35.2	48.0	36.4	17.7	49.5	179.7
Latvia	37.8	49.8	31.7	21.8	49.6	127.5
Slovak Republic	34.0	50.2	47.6	16.5	49.8	201.8
Lithuania	35.7	50.6	41.7	19.9	51.0	156.3
Hungary	38.1	49.8	30.7	21.4	51.2	139.3
Bulgaria	39.1	51.3	31.2	23.7	53.7	126.6
Czech Republic	37.6	52.4	39.4	19.8	60.8	207.1
Slovenia	38.1	54.1	42.0	19.8	65.9	232.8

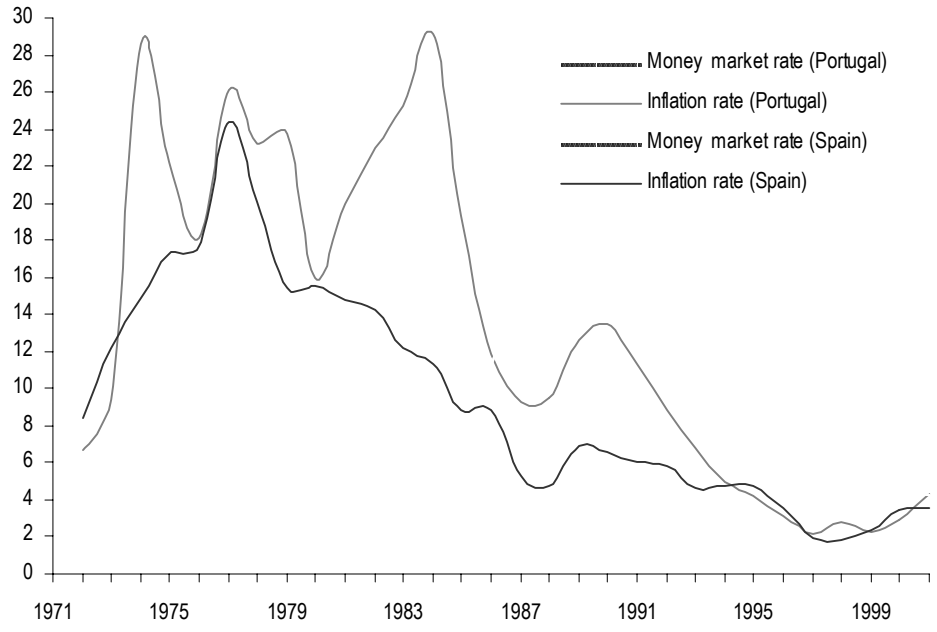
Note: *Number of individuals aged 65 and over per one hundred individuals aged 15-64.
Source: United Nations, Population Division, DESA, *World Population Ageing 1950-2050*.

Figure 1: Inflation rates in the European Union (1990 and 2001)



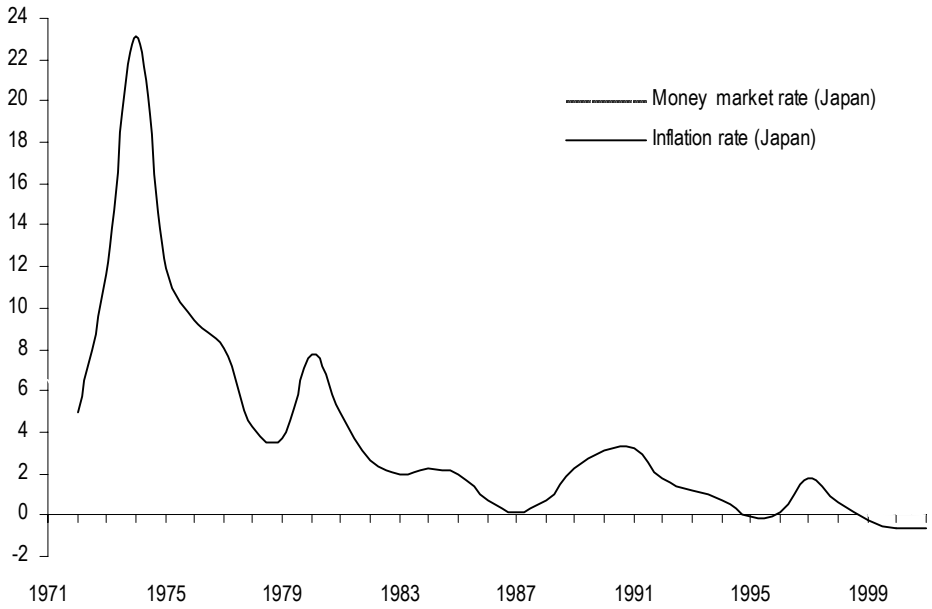
Source: International Financial Statistics, IMF

Figure 2: Inflation and short-term interest rates in Portugal and Spain (1971-2001)



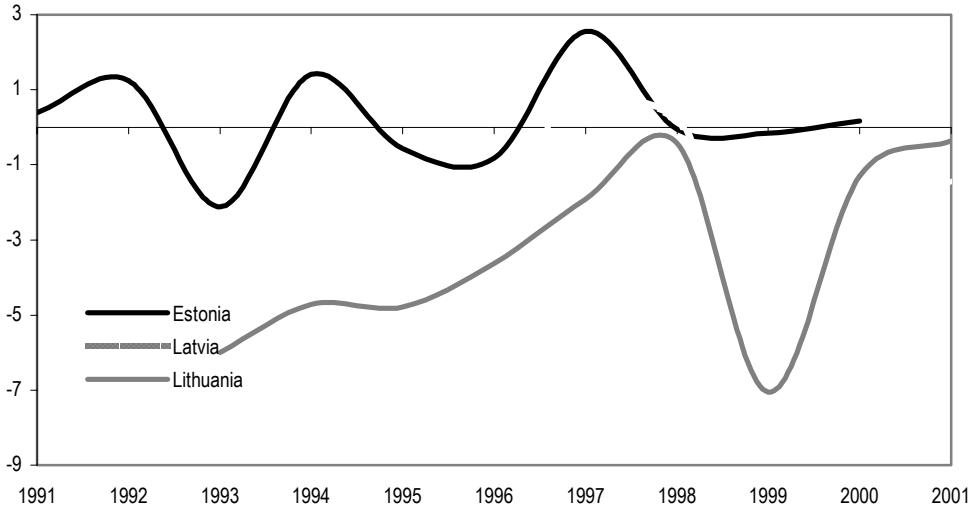
Source: International Financial Statistics, IMF

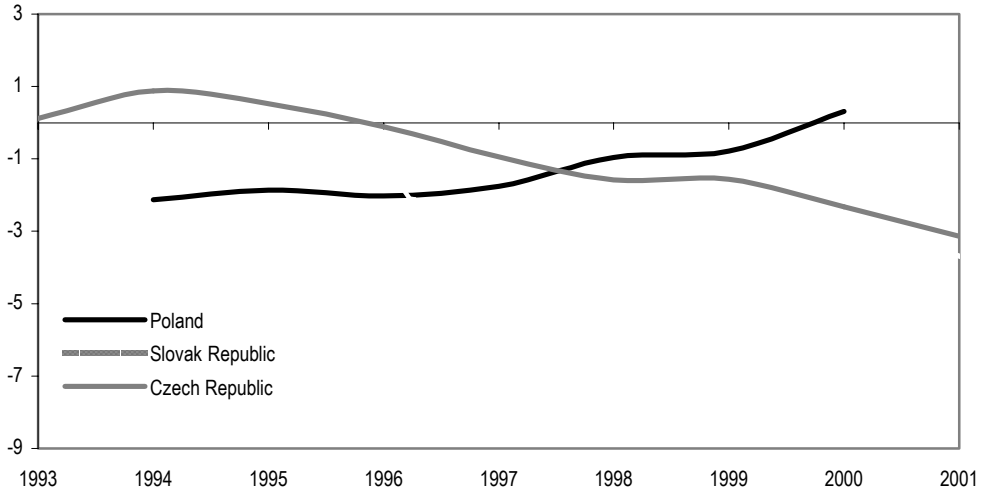
Figure 3: Inflation and short-term interest rates in Japan (1971-2001)

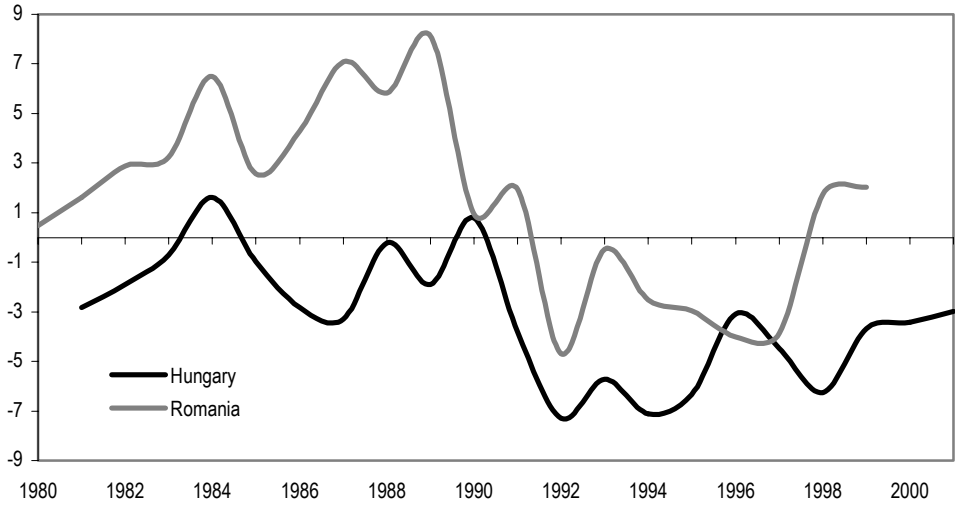


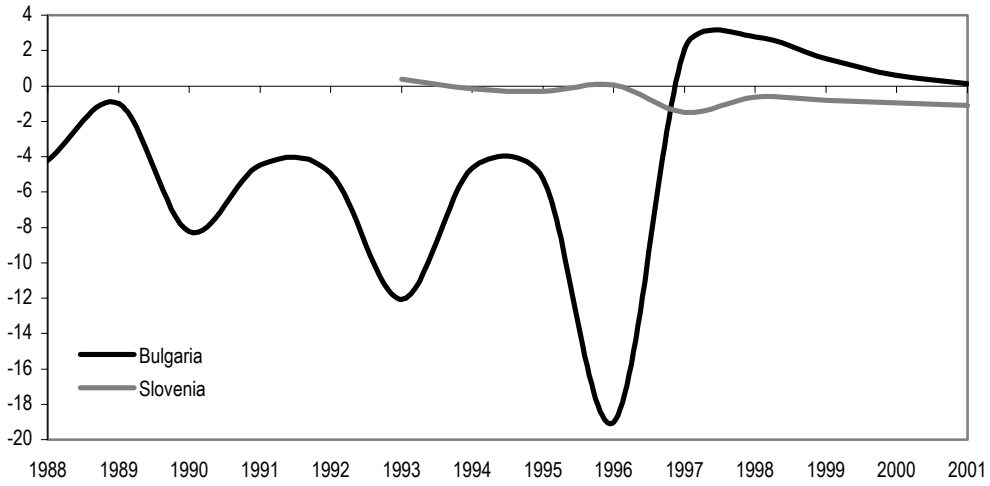
Source: International Financial Statistics, IMF

Figure 4: Fiscal deficits in the CEEC



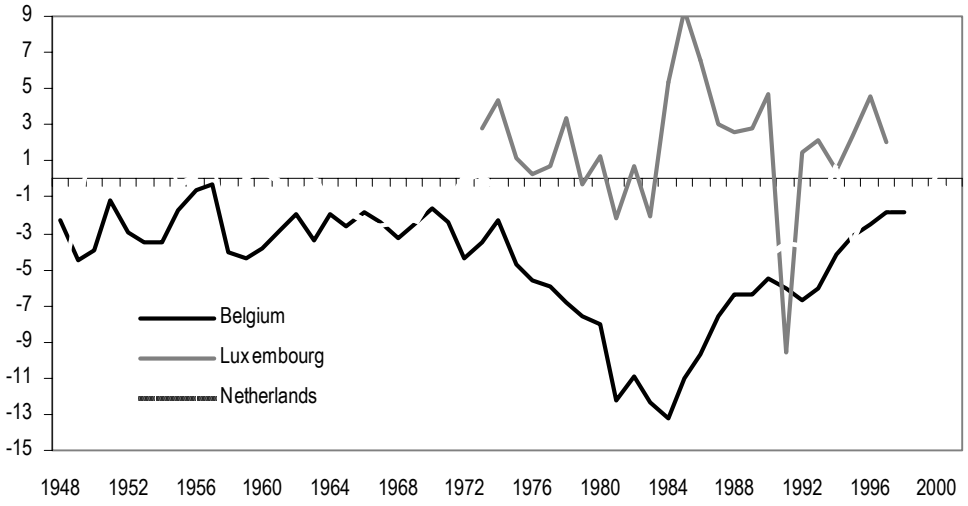






Source: International Financial Statistics, IMF

Figure 5: Fiscal deficits in the EU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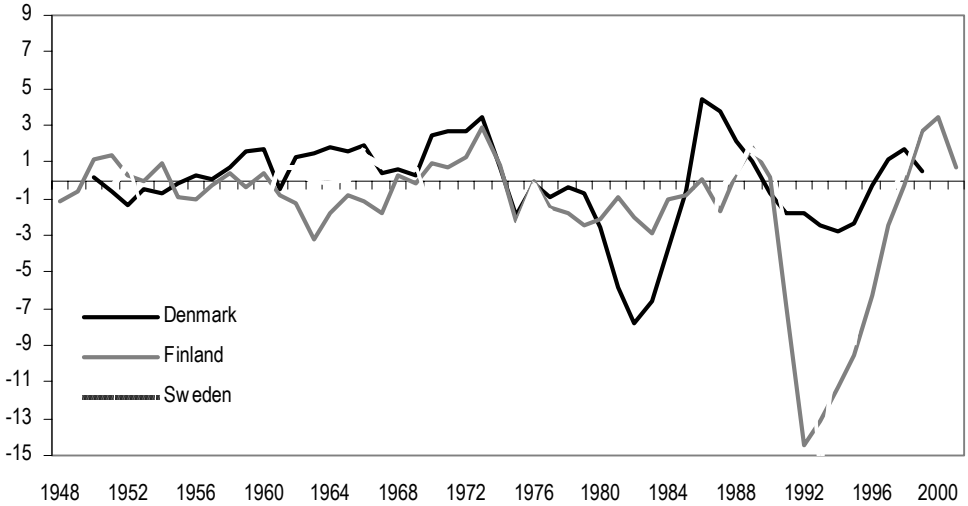
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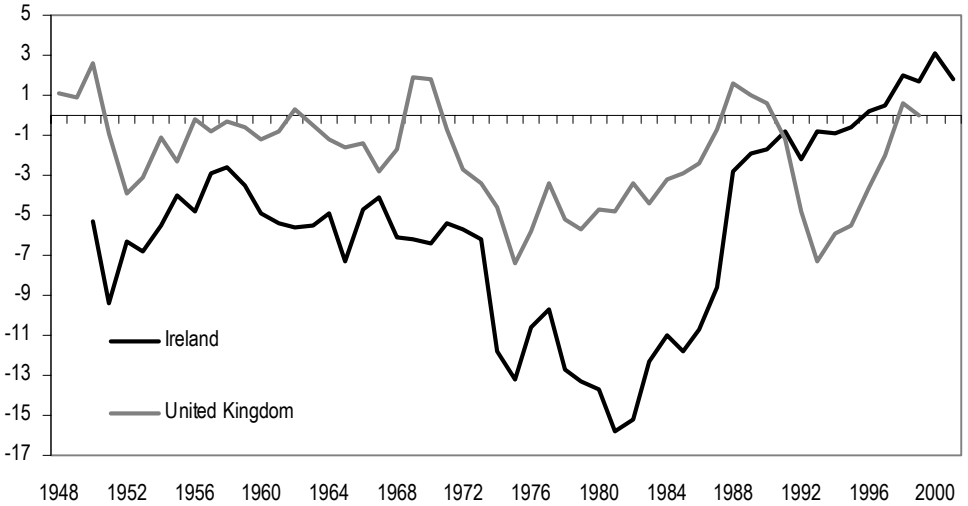
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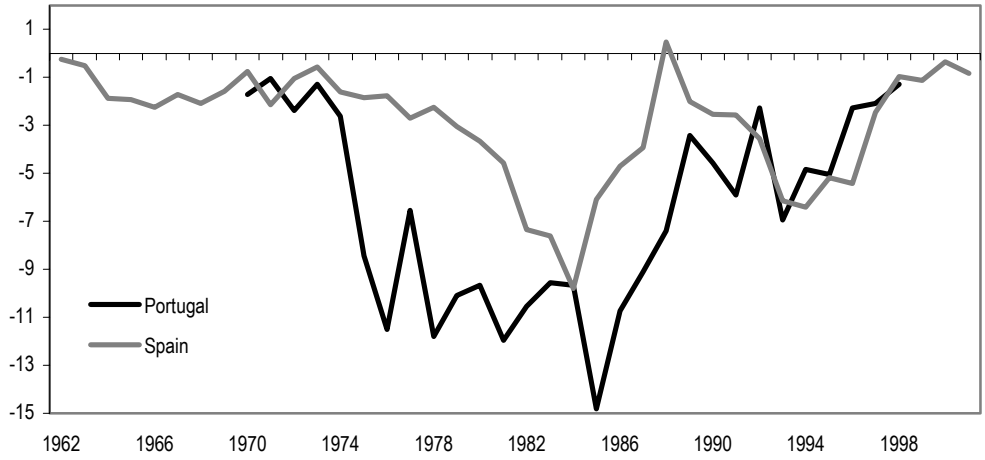
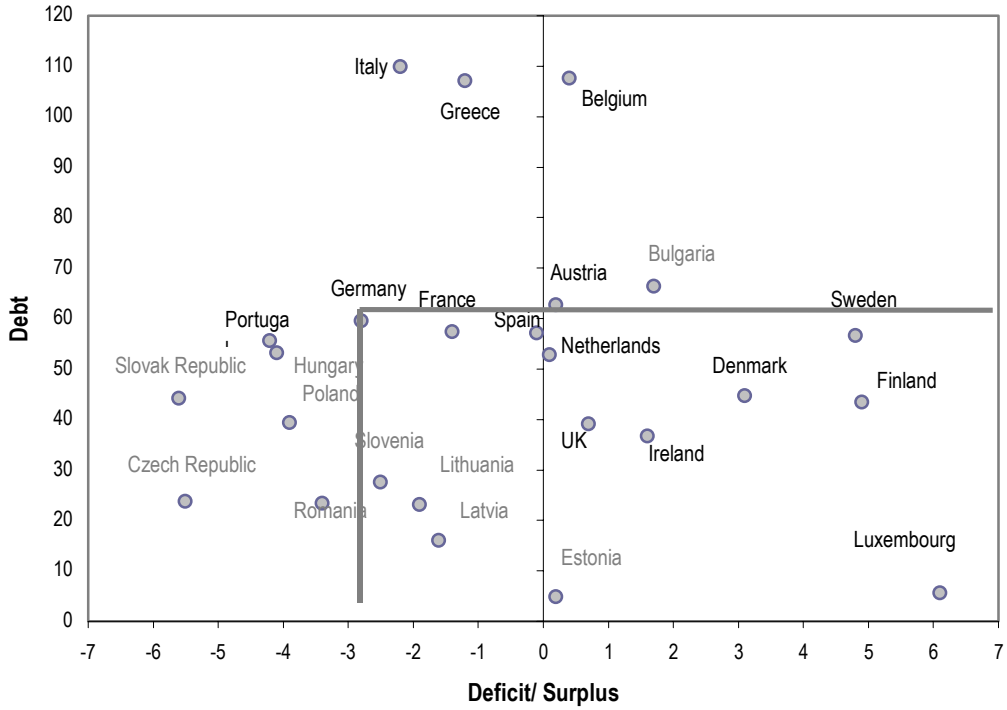
1952
1956
1960
1964
1968
1972
1976
1980
1984
1988
1992
1996
2000
Ireland
United Kingdom



Source: International Financial Statistics, IMF

Figure 6: General Government Consolidated Gross Debt and Deficit/ Surplus (% of GDP) - 2001



Source: European Commission (2002a), European Commission (2002b) Eurostat (2002 and 2003).