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**MACROECONOMIC POLICY COORDINATION
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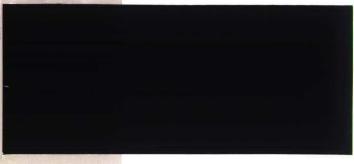**AND MONETARY INTEGRATION IN EUROPE**

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MACROECONOMIC POLICY COORDINATION DURING THE VARIOUS PHASES OF ECONOMIC AND MONETARY INTEGRATION IN EUROPE

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ABSTRACT

The need and scope for macroeconomic policy coordination during the various stages towards economic and monetary union in Europe are discussed. Attention is focused on both monetary and budgetary policies as well as on stabilisation and public-finance aspects. A case is made for an independent European Central Bank, even though this may induce a sub-optimal government revenue mix, and for a budget-neutral European Federal Transfer Scheme, especially when labour mobility remains low and shocks are country-specific. Apart from the usual advantages of a common currency area, fixed exchange rates avoid beggar-thy-neighbour attempts to export inflation. The main disadvantage is that it is more difficult to conduct stabilisation policy in the presence of country-specific shocks. Economic and monetary union poses at least five threats to the size of the public sector in Europe: (i) less seigniorage revenues means less public funds; (ii) integration means that government spending is more and more like a public good, whose supply will be inadequate; (iii) international competition drives tax rates down and leaves less room for the public sector; (iv) when there is a desire to boost the real value of Europe's real exchange rate and thus the real income of Europe's citizens, individual treasuries pursue a too tight fiscal policy; (v) as markets become more integrated, a budgetary expansion is likely to be a locomotive policy so that in the face of adverse supply shocks the fiscal stance is likely to be too tight. Although one can think of a number of reasons why European coordination of macroeconomic policies may be counterproductive, they do not seem persuasive enough. Hence, if one wants to avoid a flourishing of the private sector at the expense of a decline of the public sector, one should make sure to coordinate the budgetary policies of the treasuries of Europe.

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Introduction

Introduction

The objective of this report is to discuss the need and scope for macroeconomic policy coordination in Europe during the various stages towards economic and monetary union. Part I discusses the proposals of the Delors Committee and discusses also some alternative stages and routes towards European integration. Attention is paid to the concepts of convergence, coordination and harmonisation of macroeconomic policies as well as to rules and discretionary outcomes. Part II is concerned with the need for coordination of macroeconomic stabilisation policies under alternative exchange-rate regimes, when Europe is hit by shocks that cause stagflation. Careful distinction is made between European-wide and country-specific shocks and attention is paid to both monetary and budgetary policies. The advantage of a monetary union is that beggar-thy-neighbour attempts to appreciate the currency are avoided, but the disadvantage is that stabilisation policy is more difficult to conduct in the face of country-specific shocks. This is why there may be a case for a European Federal Transfer Scheme (EFTS). Part III is concerned with the public-finance aspects of macroeconomic policy under the European Monetary System (EMS) and with the coordination of macroeconomic policies in the Economic and Monetary Union (EMU). Because competition among treasuries and central banks leads to too much seigniorage and too little tax revenues, inflation is too high. An independent European Central Bank (ECB) leads to too low inflation, but the advantages of the increase in monetary discipline are likely to outweigh the disadvantages of a sub-optimal government revenue mix. Unbridled competition between the treasuries of the EMU leads to an under-supply of public goods and a downward trend in tax rates. Since Europe's real exchange rate and current account may be manipulated to boost the real income of Europe's citizens, it is likely that budgetary stances will be too tight. Part IV provides three examples of why coordination of macroeconomic policies may be counterproductive: it destroys the discipline of the monetary authorities, it may provoke an adverse response from the rest of the world, and it may fail because countries disagree on how the global economy works.

The conclusions make a case for an independent European System of Central Banks (ESCB), for a budget-neutral European Federal Transfer Scheme (EFTS), and for coordination of the budgetary policies of the individual treasuries. The conclusions also argue that the EMU poses a serious threat to the size of the public sector in Europe unless the budgetary policies of the various

treasuries are coordinated.

I. **General issues of macroeconomic policy on the road to economic and monetary integration**

1. **The proposals of the Delors Committee for the EMU**

   The report prepared by the Delors Committee proposes three transition stages on the road towards full economic and monetary union for Europe. The first stage involves a closer convergence and coordination of the monetary policies of the various countries taking part in the EMS[1], all European currencies to join the EMS, liberalisation of capital markets throughout Europe, a wider use of the ECU, completion of the internal markets for goods and services by removing physical, technical and structural obstacles to free intra-European trade, a common competition policy and other means to strengthen the market mechanism, and a doubling of regional and structural funds. Much progress has already been made on the first stage. The first stage of the Delors proposals for economic and monetary union in Europe has, in principle, been accepted by the Council of Ministers on 26-27 June 1989 in Madrid. Eight countries of the European Community must have fully liberalised capital movements by 1st July 1990 and the other countries will follow suit. Spain has recently joined the EMS and the UK has agreed to join the EMS as soon as the capital markets of Europe are fully liberalised and inflation in the UK has been cut to the European average. It seems clear that the UK first wants to see all obstacles to free intra-European trade in financial assets removed before it gives up its monetary autonomy and joins the EMS. Hence, the upshot of stage one as far as macroeconomic policy is concerned, is an enlargement of the EMS, absence of capital controls throughout Europe and possibly more intra-Community trade.

   The main uncertainty around stage one is whether the large public sector deficits and debt combined with large black economies imply a greater need for seigniorage revenues in southern Europe and thus a danger for monetary and exchange-rate stability within the EMS. The point is that in the past speculative attacks on the currency have been fended off by capital controls, especially by Italy and France, and by Belgium with a dual exchange rate system. However, once financial markets throughout Europe are opened up it will no longer be possible for countries to peg their exchange rates and have the freedom to set their domestic interest rates. It follows that the high-deficit countries of southern Europe may be faced with a depreciating currency. This is why some advocate a crawling peg between the currencies of

southern and northern Europe (e.g., Dornbusch, 1988)[2]. However, the experience of the Netherlands suggests that it is possible to have a strong currency and high levels of public sector deficits and debt when there are no restrictions on international capital movements. As long as one is prepared to give up an independent monetary policy, capital market liberalisation and fixed exchange rates need not be incompatible (Gros, 1989)[3]. However, one could argue that the Netherlands is in a stronger position than, say, Italy because De Nederlandsche Bank has a much better reputation for an anti-inflationary stance than the Banca d'Italia and because the Netherlands has a surplus whilst Italy has a deficit on its current account vis-à-vis Germany.

Although the countries of the European Community seem to be committed to stage one, the uncertainty described above as well as other uncertainties provide reasons why some countries do not necessarily wish to go ahead with transition stages two and three proposed by the Delors Committee. Other countries (e.g., Denmark and the UK) have some doubt about stages two and three, because this may involve too much delegation of national powers to set fiscal and monetary policy to European institutions. The more optimistic countries (France, Italy and Spain) seem more enthusiastic about the EMU, whilst the more realistic countries (Germany and the Netherlands) are willing to go ahead as long as certain safe-guards (such as an independent ESCB) are built in.

The second stage proposed by the Delors Committee requires a new Treaty of Rome in order to delegate the responsibility for monetary policy to a European System of Central Banks (ESCB) and implies a considerable loss of national sovereignity. During the second stage the progress of stage one must be consolidated and reinforced, the EMS-bands must be narrowed, and rules for the size and financing of public sector deficits must be decided upon at a Community level. During the third and final stage intra-European exchange rates must be supplemented with, and perhaps eventually replaced by, a single European currency, the ESCB must determine monetary policy for Europe as a whole and indirectly the value of the European currency vis-à-vis the dollar and the yen, national public sector deficits must not be financed by printing money and there may be limits on government borrowing from abroad, and the Council of Ministers (together with the European Parliament) is able to adjust the budgets of national governments when they would otherwise imply a danger for monetary stability. The upshot of stages two and three of the proposals of the Delors Committee seems to be the establishment of a monetary union with a centralised monetary policy, a move away from German hegemony in monetary policy, and some form of coordination of the fiscal policies of the various

countries of the European Community.

As already mentioned, it is not clear that Europe will want to go along the route of stages two and three proposed by the Delors Committee. Indeed, some argue that once capital markets are fully liberalised it is better to move to an EMS with wider bands for nominal exchange rates and others argue on the basis of currency substitution that the market should decide whether one EMS-currency will drive out all the other EMS-currenc s. The latter is advocated by the British, but seems a rather fanciful idea. Yet another idea is that the chances of the EMU being a success are greatest when Europe moves directly from stage 1 to stage 3 (Cukierman, 1989).

2. Transition phases and alternatives in the process of European Integration

It is useful for purposes of the following discussion about coordination of macroeconomic policies to distinguish between various transition phases in the process of European integration, and to also indicate various alternative roads along which Europe can proceed. This list of transition phases partially overlaps with the three stages proposed by the Delors Committee, but also includes some alternative routes. The following phases can be distinguished (see Table 1):

A. Low factor mobility, few international capital movements, managed exchange rates with German hegemony, and uncoordinated budgetary policies.

B. Low factor mobility, more intra-Community trade (due to gradual removal of barriers to trade), liberalisation of intra-Community trade in financial assets, managed exchange rates with German hegemony, enlargement of EMS membership, and uncoordinated budgetary policies.

C. (i) Low factor mobility, more intra-Community trade, free international capital movements, managed exchange rates with German hegemony, narrowing of EMS-bands, and coordination of budgetary policies.

(ii) Low factor mobility, more intra-Community trade, free international capital movements, establishment of a ESCB without German hegemony which decides on joint monetary policy, a further narrowing of bands for intra-Community exchange rates, and coordination of budgetary policies.

(iii) Low factor mobility, more intra-Community trade, free international capital movements, a ESCB without German hegemony and full monetary union, and coordination of budgetary policies.

(iv) As (iii), but also the establishment of a budget-neutral EFTS.

D. (i) Low factor mobility, more intra-Community trade, free international capital movements, establishment of a ESCB without German hegemony which

decides on joint monetary policy and ensures narrowing of bands for intra-Community exchange rates.

(ii) Low factor mobility, free international capital movements, and full monetary union.

(iii) As (ii), but also coordination of budgetary policies and possibly the establishment of a budget-neutral EFTS.

E. High factor mobility, high proportion of intra-Community trade, free international capital movements, and full economic and monetary union.

F. Low factor mobility, more intra-Community trade, free international capital movements, widening of EMS-bands, crawling peg between southern and northern Europe, uncoordinated budgetary policies and possibly a system of dual exchange rates.

G. Low factor mobility, more intra-Community trade, free international capital movements, floating intra-Community exchange rates, and uncoordinated budgetary policies.

Stage A captures the situation of the EMS since 1979. From the 1st July 1990, most restrictions on international capital movements must be abolished, Spain and perhaps the UK will have joined the EMS and there will be less

Table 1:   **Phases in the transition process towards economic and monetary integration**

A. EMS

B. First stage of EMU: liberalisation of capital markets and completion of the internal market for goods and services

C(i)-(iii). Advanced stage of the EMU: budgetary policy coordination; narrowing of EMS-bands until exchange rates are irrevocably fixed; establish ESCB	Low factor mobility	C(iv). Establish EFTS
	High factor mobility	E. Ideal EMU
D(i)-(ii). Advanced stage of the EMU: narrowing of EMS-bands until exchange rates are irre- vocably fixed; establish ESCB	Low factor mobility	D(iii). Budgetary policy coordina- tion and possibly

F. Widen EMS-bands; crawling   establish EFTS
peg between southern and
northern Europe; dual exchange
rates

G. FLOAT: Break-down of EMS;
floating intra-Community
exchange rates; uncoordinated
budgetary policies

restrictions on intra-Community trade in goods and services so during 1990
Europe moves to stage B (the first stage of the Delors Committee). In
addition, it seems clear that the EMS currently operates as a hegemonic
Deutschemark bloc and that so far there is not much evidence of coordination
and cooperation in practice (cf., Cohen, Melitz and Oudiz, 1988; Giavazzi and
Giovannini, 1987, 1989a; Goodhart, 1989)[4]. Afterwards, various routes can be
followed. One possibility is that monetary and budgetary policies are
coordinated at a European level and subsequently this facilitates the move
towards the EMU, which corresponds to route C(i)-C(iii) and possibly C(iv).
The route to a more symmetric exchange-rate arrangement could be via the
founding of the ESCB with all member countries having a right to vote on the
common policy. An intermediate phase may be to appoint representatives of EMS-
countries on the board of the Bundesbank (Vaubel, 1987; Goodhart, 1989),
because this would gradually lead to less German hegemony as well[5]. The
problem with this proposal is that the new Bundesbank, with its co-opted
members from the rest of the EMS, may not be the same Bundesbank we know and
love so well (Kenen, 1987b). If factor mobility and in particular labour
mobility increases, one could move to stage E. However, if factor mobility is
low and exchange rates are irrevocably fixed, than one may want to consider
the establishment of a budget-neutral intra-Community transfer scheme (EFTS)
and move to stage C(iv) instead (e.g., Sachs and Sala-i-Martin, 1989).

An alternative way to proceed after stage B is to gradually proceed
towards full economic and monetary union and only afterwards, in the absence
of high factor mobility, coordinate budgetary policies and possibly establish
a EFTS. This corresponds to stages D(i)-D(iii), but when factor mobility is
high one need not necessarily coordinate budgetary policies and establish a
EFTS so that one proceeds through stages D(i) and D(ii) to E. Yet another
alternative is to abolish the idea of moving towards full monetary union and,

instead, widen exchange-rate bands and allow for a crawling peg between southern and northern Europe in order to allow for a greater need of seigniorage revenues in southern than in northern Europe (Dornbusch, 1988; Canzoneri and Rogers, 1988)[6]. This means a move from B directly to F, but it is not clear that this is a very sensible argument. The countries of southern Europe, such as Italy, tend to have a large public nominal debt and thus have a big temptation to use surprise inflation to erode away the real value of debt. In equilibrium the private sector anticipates this temptation and this results in higher than optimal inflation; the EMS eliminates this inefficiency and may thus be optimal for southern Europe even though it reduces the revenues from seigniorage (Gros, 1988). A final alternative is of course to move from stage B directly to a regime of floating exchange rates, stage G. This disintegration of the EMS has the advantage that the intra-Community exchange rates can be used as an adjustment mechanism for coping with country-specific shocks in Europe. When the factor mobility within Europe remains low and there is no coordination of budgetary policies and no willingness to have a budget-neutral EFTS, there may be no alternative to stage G. This would be a pity, because then the well-known advantages of a greater common currency area (saving on exchange reserves, less exchange-rate risk, less information and transaction costs, etc.) can not be reaped.

3. **Convergence, coordination and harmonisation of macroeconomic policies**

Coordination and convergence of macroeconomic policies within Europe are stated objectives of the Treaty of Rome. The Council of Ministers made a decision in 1974 "for attainment of a high degree of convergence of economic policies of Member States", which was meant to be mainly a process of setting budgetary policy guidelines (e.g., Steinherr, 1984). In the report of the Delors Committee the concepts of coordination and convergence play a prominent role as well[7]. It is, however, not clear that convergence of policy automatically implies international coordination of policies (and vice versa); especially when there are country-specific shocks hitting Europe. Even when everything is symmetric (i.e., common shocks hitting a symmetric, interdependent system of identical economies), one can converge either on a non-cooperative or on a cooperative outcome! If it is left to the market to achieve convergence and powerful externalities are a fact of life, one may end up in a worse situation than what one started off with. Hence, convergence of economic policies does not necessarily seem to be a sensible objective on its own. Obviously, one could argue that the EMS ought to contribute to a progressive convergence of economic performance (e.g., a reduction in

inflation differentials) because otherwise there may be a threat to monetary and exchange-rate stability but such an argument has little to do with coordination. Coordination refers to the joint and mutually consistent setting of the national instruments of economic policy to maximise joint welfare of the member states of the European Community. Conversely, lack of coordination means that each country sets its own instruments of economic policy without taking into account the consequences on welfare of other c ntries in Europe[8]. Coordination does not necessarily imply convergence of economic policies, especially when individual member states are of different size, have differential social and economic structures, have different preferences, and/or are hit by different shocks. Convergence is, however, often used as an excuse by individual governments to implement unpopular policies. In some cases market forces can lead to convergence of economic outcomes and to the desirability of convergence of economic policies. For example, if gross wages are for some reason equal to a common marginal productivity of labour in each of the member states, then perfect mobility of labour throughout Europe implies that it is desirable for each individual government to converge on a common tax rate on labour income. Even under these extreme and unrealistic circumstances coordination is required to decide on which common tax rate to converge, but in general it is not clear that convergence of tax policies and budget deficits in itself is desirable. In fact, international competition in its own right tends to drive tax rates down to a too low level.

International harmonisation of economic policies attempts to achieve greater unity in economic structure, to increase the scope for rules, and to reduce the scope for discretionary policies. Harmonisation is primarily concerned with long-term objectives such as efficiency and distribution (e.g., commercial policy, anti-trust law, labour law, agricultural policy, regional policy) rather than with the use of discretionary monetary and budgetary policies for purposes of macroeconomic stabilisation. In short, harmonisation is chiefly concerned with the promotion of free and non-monopolistic competition and efficient markets throughout Europe. The completion of the Internal European Market ("1992") is mainly concerned with harmonisation. Harmonisation should also be concerned with the operation of economies; for example, making labour markets more competitive and more responsive to shocks. If this goal is achieved, this reduces the need for the European coordination of budgetary and monetary policies.

International cooperation occurs, firstly, through the international exchange of information, secondly, through international harmonisation of rules, and thirdly, through international coordination of discretionary

policies. Through the European Community, the OECD, the IMF and summit meetings there is already a great deal of exchange of information. "1992" and beyond provides a considerable amount of harmonisation. The Delors Report is partially concerned with harmonisation and design of new rules of the game, but important questions for the coming years are whether and how much convergence and coordination of discretionary macroeconomic policies at a community level is desirable given the increasing degree of economic and monetary integration of Europe. For example, whether and what kind of coordination of budgetary policies is required under an economic and monetary union in Europe.

4. Rules versus discretion

Two outcomes are often considered for decision making in dynamic environments. The rules (or pre-commitment) outcome is relevant when the monetary and fiscal authorities have sufficient discipline or reputation not to succomb to time-inconsistent behaviour, whilst the discretionary outcome is relevant when the authorities have no credibility and thus the private sector anticipates that the authorities will renege on previously announced policies whenever they have an incentive and get a chance to do so (Kydland and Prescott, 1977)[9]. Examples of a potential time-inconsistency problem occur when workers are temporarily locked into nominal wage contracts or when treasuries issue nominal debt, because then the government has an incentive to engineer a surprise inflation and thereby erode the real wage and boost employment or wipe out part of the real debt. Not surprisingly, in equilibrium one ends up with higher inflation in the discretionary outcome. In most of this report, the discussion is concerned with the rules outcome. However, when the case for an independent ESCB (part III.3) or the counterproductivity of international policy coordination (part IV.1) is discussed, the discretionary outcome is considered as well.

II. European coordination of macroeconomic policies during the various phases of economic and monetary integration: Stabilisation aspects

This part considers the role of stabilisation policy and the need for international policy coordination under alternative exchange-rate regimes. Since the focus is most of the time on the optimal respon e to a situation of stagflation, i.e., unemployment and rising prices caused by adverse supply shocks, a standard multiple-country, short-run, Mundell-Fleming model is used for the analysis in this part.

1. European coordination of monetary policies[10]

It seems reasonable to assume that there is nowadays little mobility of labour within Europe, perfect capital mobility[11] and imperfect substitution between home and foreign goods in Europe. Three regimes will be considered: (1) managed exchange rates (development of the EMS according to the first stage of the proposals of the Delors Committee, phase B); (2) monetary union (advanced stage of the EMU, phase C(iii) or D(ii)); and (3) floating exchange rates (FLOAT, step G). The EMS is the status quo for Europe, which can either develop into the EMU (cf., routes A, B, C or D) or there is a danger that it gradually breaks down into a FLOAT (cf., routes A, B, F or G). Since the breakdown of Bretton Woods the exchange-rate regime between Europe and the US was a FLOAT, but more recently (witness the New York Plaza Summit in 1985 and subsequently the Tokyo Summit in 1986, and the Louvre Accord and Venice Summit in 1987), an era of coordinated exchange-rate management for the global economy has gradually replaced a clean FLOAT (e.g., PPC, 1988; Funabashi, 1988; Kenen, 1989).

It is best to start with the need for international coordination under the hypothetical situation that Europe is characterised by a FLOAT. One could think that, when there is full employment, there is no reason for member states to coordinate their monetary policies. The reason is that the exchange rates adjust to ensure equilibrium in the balances of payments, so that each country can conduct an independent monetary policy and set the growth in its nominal money supply equal to its real growth rate plus its desired inflation rate[12]. However, there may well be a public-finance motive (van der Ploeg, 1988b) or a Mundell-Tobin motive (van der Ploeg, 1990a)[13] for international policy coordination in a market-clearing world with floating exchange rates. In any case, this view definitely does not hold when one departs from the fairy-tale world and considers a world plagued by wide-spread unemployment.

When unemployment is caused by the downward rigidity of nominal wages, both at home and abroad, the Mundell-Fleming model is the most appropriate framework[14]. A monetary expansion is a **beggar-thy-neighbour** policy, because the downward pressure on interest rates and incipient capital outflows induces a depreciation of the exchange rate and thus boosts net exports at the expense of foreign output and employment. However, the monetary expansion raises import and thus consumers' prices and depresses real income (defined as the nominal wage deflated by the consumers' price index) at home and boosts real income abroad. It is assumed that countries are faced with adverse supply shocks so that they are faced with stagflation and must be concerned about achieving employment on the one hand and fighting inflation and maintaining a satisfactory level of real income on the other hand.

1.1 Stagflation caused by common supply shocks

Consider the problem of stagflation caused by a European-wide adverse supply shock (e.g., an oil-price hike). It then follows that, under the hypothetical case of a FLOAT and in the absence of European policy coordination, each country has a too tight monetary stance leading to too high interest rates and excessive unemployment rates. The reason is that under a FLOAT each central bank attempts to export inflation by appreciating its exchange rate. Coordination recognises that such competitive appreciations are futile, avoids beggar-thy-neighbour attempts to appreciate the currency and thus leads to looser monetary policies and full employment (e.g., Oudiz and Sachs, 1984; Canzoneri and Henderson, 1987)[15].

One of the main advantages of a symmetric regime of irrevocably fixed exchange rates such as the EMU over a FLOAT is that international conflicts about the intra-European exchange rates and the distribution of inflation are avoided. More precisely, fixing exchange rates under a EMU can be viewed as a substitute for international policy coordination. In fact, when the member states are symmetric and are hit by identical shocks, EMU reproduces exactly the outcome that prevails when central banks coordinate their monetary policies under a clean FLOAT or an adjustable-peg regime such as the EMS. When member states are not identical, EMU is only a partial substitute for international monetary policy coordination under a FLOAT.

Many view the EMS as an asymmetric exchange-rate system, because the Bundesbank enjoys monetary hegemony (Giavazzi and Giovannini, 1989a). This means that in the EMS the Bundesbank sets the money supply and the other central banks peg their currencies to the Deutschemark at a given rate. Hence, once capital markets are liberalised, they give up control of their money

supply. For example, if there is an Italian balance-of-payments deficit and pressure on the lira to depreciate, the Banca d'Italia must sell foreign reserves and buy up lira in order to defend the currency and meet the demand from importers. Since sterilisation (buying of bonds on the open market by the monetary authorities) is impossible once capital markets are fully liberalised, the Italian money supply falls to the extent of Italy's balance-of-payments deficit. Under such a system, a tightenin; of German monetary policy must imply a tightening of Italian monetary policy, else the lira will have to depreciate. When the Bundesbank raises interest rates, De Nederlandsche Bank usually follows suit within a couple of hours! Clearly, as long as the Netherlands sticks to a given guilder-Deutschemark rate, it will not be able to conduct an independent monetary policy. This is the price one pays for obtaining the credibility of the Bundesbank. The macroeconomic trade-offs and spill-over effects are very different under this asymmetric characterisation of the EMS than under the more symmetric arrangement of a FLOAT or the EMU[16]. An increase in the German money supply leads to a corresponding increase in the money supplies of the other countries of the EMS and thus to a larger fall in European interest rates because the non-German central banks are defending themselves against an appreciating currency. Employment throughout the EMS increases due to the increase in consumption and investment arising from lower interest rates, hence a German monetary expansion is now a locomotive policy. A devaluation of a non-German currency is a beggar-thy-neighbour policy, because it boosts net exports at the expense of German employment and output. The European money stock increases, so that interest rates fall throughout the EMS. The non-German cost of living increases, whilst the German cost of living falls.

Returning to the problem of European-wide stagflation caused by an adverse supply shock, absence of coordination of monetary policies in the EMS with German hegemony implies that the non-German central banks use a real appreciation of their exchange rates[17] to disinflate away the adverse consequences of the supply shock so that the Bundesbank expands its money supply by more than the rest of Europe (Giavazzi and Giovannini, 1989b; van der Ploeg, 1989c). The reason is that, when the Bundesbank expands its money supply, the rest of the EMS enjoys an increase in employment and output and thus can afford to revalue their currencies and pay more attention to their cost-of-living targets. Monetary stances throughout the EMS are tighter than under the EMU. Germany achieves full employment, but experiences a severe increase in its relative cost of labour. The rest of Europe still suffers from unemployment, but manages to soften the blow to real income. The exchange-rate

realigment allows the rest of Europe to reduce the damage to its welfare at the expense of Germany. The move from EMS to EMU benefits Germany, worsens the welfare of the rest of Europe, but makes Europe as a whole better off. Money supplies increase by more under the EMU than under the EMS, so the supply shock has a one-for-one impact on the cost of living and leaves unemployment throughout Europe unaffected. Hence, even in a non-cooperative EMS consisting of identical countries hit by identical shocks, the exchange rate will be realigned from time to time, so that the view that the completion of a common market for Europe ("1992" and all that) leads to homogeneous structures and thus by itself creates a lasting monetary union is fallacious[18]. However, if in addition monetary policies are coordinated within the EMS, the movement towards the EMU will be facilitated. A corollary is that German leadership of the EMS is no substitute for monetary policy cooperation in Europe.

Finally, consider the break-down of the EMS into a (non-cooperative) FLOAT. When countries are conservative, i.e., care relatively more about the cost of living than unemployment, Germany prefers the EMS to a FLOAT, else, Germany prefers a FLOAT. As far as average European welfare is concerned, the EMS is preferred to a FLOAT. The reason is, of course, that the EMS avoids to a certain extent the competitive, futile attempts to appreciate the currencies and thus leads to looser monetary stances and less unemployment.

1.2 Country-specific shocks: A case for a EFTS

The answer to the question which exchange-rate regime allows individual governments to best achieve their national objectives without an explicit need for international policy coordination is important and depends crucially on both the origin and the nature of the shocks hitting the various countries of Europe (e.g., Canzoneri and Gray, 1985; McKibbin and Sachs, 1986; 1988; Kenen, 1987a; 1988; van der Ploeg, 1989c).

So far, the non-cooperative responses of monetary policies to a common adverse supply shock under three alternative exchange-rate regimes for Europe have been considered. The main finding has been that for such a shock the EMU (or a fully coordinated FLOAT) is the preferred arrangement for exchange-rate management. A second-best exchange-rate regime may be the EMS, because then at least the futile, non-cooperative attempts to appreciate the currency and export inflation by tightening monetary policy that occur under a non-cooperative FLOAT are also to a certain extent avoided.

However, when there is an asymmetric demand shock, say a shift in preferences away from, say, British goods towards French goods, matters are not so simple. The initial effects of this shock are unemployment and a trade

deficit for Britain and over-employment and a trade surplus for France. If labour markets throughout Europe function properly, then British wages fall immediately and French wages increase to ensure full employment. If this is the case, one should proceed to the EMU and reap all the benefits of a greater common currency area (lower transaction costs, lower information costs, no exchange-rate risk, saving on exchange reserves, etc.) (Goodhart, 1988). Alternatively, if nominal wage rigidities prevent bour markets from adjusting immediately to full employment, then workers may migrate from Britain to France and restore balance in this way. The Delors Committee puts a lot of emphasis on this adjustment mechanism, but the idea of British people moving across the Channel to France in order to find a job when they don't even move from the North to the South of England for a job seems a bit unrealistic. Although intra-European migration of unskilled labour (especially from Italy to northern Europe) was significant during the period 1960-74, when foreign labour was essential to the fast growing economies of Europe and when governments established bureaus to recruit migrant workers, migration among member states of the European Community has decreased since the Treaty of Rome (especially articles 7 and 48ff) became effective (Molle and van Mourik, 1988). Foreigners now consitute only about 2 percent of the labour force in Europe, so it seems fair to entertain some doubt about a significant degree of intra-European labour mobility. Unfortunately, Europe is neither characterised by a smooth functioning of its labour markets nor by high degrees of labour mobility (due to differences in language and culture)[19] and therefore some form of policy adjustment may be required. First-best policies should promote more responsive labour markets and more labour mobility, so that there certainly is a role for structural policy improving the functioning of labour markets while mitigating adjustment costs for migrating labourers.

The most obvious second-best policy adjustment, in the absence of wage flexibility and labour mobility, is then a loosening of monetary policy in Britain, a tightening of monetary policy in France and a depreciation of the pound-franc rate for this boosts net exports of Britain to France and restores equilibrium. Of course, this is not possible under the EMU with irrevocably fixed exchange rates whilst it is only possible to a limited extent under the EMS. Alternatively, Britain might loosen its budgetary policy and France might tighten its budgetary policy. However, there is a danger that politicians will go along with the idea, advanced by the Delors Committee, that there should be constraints on too high budget deficits, where "too high" presumably means that there is a danger that deficits get monetised and thus that there is a threat to monetary and exchange-rate stability. Budgetary stances, once

corrected for full employment, are then likely to be pro-cyclical under the EMU. These are the main reasons why in the presence of asymmetric real shocks a FLOAT is to be preferred to the EMU or, to a lesser extent, to the EMS. The case for a FLOAT is convincing (as Mrs. Thatcher repeatedly seems to suggest) when shocks consist of shifts in preferences, but if nevertheless the traditional advantages of a greater common currency area are large enough to warrant the move towards EMU then another form of policy adjustment must be used.

One possibility is that the establishment of a EMU must go hand in hand with the establishment of a European Federal Transfer Scheme (EFTS), perhaps not unlike the system envisaged by the MacDougall Report of April 1977. The political merits of a EFTS should be clear, because it ensures an equitable distribution of the gains and losses of the EMU[20], it responds to basic citizenship rights of people living in the EMU, and it fits in with the principle of horizontal budgetary equity. It also fits in with the principle of subsidiarity, because the job of arranging such transfers can not be left to individual governments. The task of the EFTS is to make exchange-rate changes unnecessary by transferring income from one country to another country when there are such shifts in preferences (e.g., Sachs and Sala-i-Martin, 1989). In practice, the scheme operates by transferring income from individuals of one nation to individuals of another nation and replaces, to a certain extent, the national unemployment compensation schemes. One could envisage a Community-wide tax, which in itself would act as an automatic stabiliser, whose proceeds are used to finance a Community-wide unemployment compensation scheme. It is crucial that such a version of the EFTS is budget-neutral. To be more precies, the budget of the EFTS should be intertemporally balanced so that taxes are smoothed (see Part III) and that in time of a boom debt, which was accumulated in time of a recession, is paid off. It is a pity that the Delors Report does not contain any recommendations for the establishment of a EFTS, because without it regional imbalances induced by shifts in preferences may persist[21] (for example, initial estimates suggest that one third of state-specific shocks in the US seem to be cushioned by federal transfers).

The reason for this reluctance to recommend a EFTS is that there may be strong incentive arguments against a EFTS, because unemployed individuals are then even less likely to pack their bags and find a job elsewhere in Europe and individual governments are less likely to pursue a rigorous and effective unemployment policy. In other words, a EFTS signals to the bargaining process that real wages can be kept high, provides an invitation for free riding on

European funds, and gives a fiscal incentive for government failure. These are strong arguments against a EFTS to do with moral hazard and sometimes with adverse selection. They must be taken seriously, but at the same time it must be realised that they can be rallied against national unemployment compensation schemes as well. Most of these incentive problems can be overcome by changing the rules of national schemes in such a way that benefits are only handed out to the unemployed, if the unemployed at the sa time have the duty to accept a job even when the job is not in his or her field of training (not unlike the Swedish model). If necessary, the schemes can then provide top-up payments to provide an acceptable standard of living. Obviously, the EFTS should be subject to similar rules of the game.

It must be pointed out that the EFTS should operate as a transfer scheme and thus should not affect the overall budget of the European Community[22], that without the EFTS the budgetary policies of the individual treasuries may be pro-cyclical, and that it may be possible to design incentive rules that avoid these problems of moral hazard. The most obvious incentive rule is to give conditional transfers. For example, transfers to a depressed region should occur on the condition that funds are allocated to training and schooling programmes for the unemployed[23]. In addition, it will be important to harmonise the criteria for being eligible to benefit from the national unemployment schemes as well as from the EFTS. Empirical evidence suggests that country-specific shocks are important for Europe, so despite all its problems establishment of a EFTS may increase the chances of moving to irrevocably fixed exchange rates in Europe. If Europe is unwilling to introduce a EFTS, then individual countries have a duty to give a much greater role to supply-side policies in order to ensure that national labour markets clear and get rid of unemployment through the market mechanism in a painless and expedient manner.

However, when asymmetric shocks correspond to adverse country-specific supply shocks, the case for a FLOAT and thus for the EFTS is a bit more subtle. The reason is that such a shock leads both to unemployment and to higher prices and a lower real income (stagflation) at home so that on the one hand a depreciation of the currency is required as this leads to more employment but on the other hand an appreciation of the currency is required to depress prices and raise real income. It is therefore not clear whether a depreciation or an appreciation of the currency is desirable from a welfare point of view. This is the familiar dilemma one faces when one is stuck with stagflation. In a FLOAT the excess demand for home goods induces an immediate appreciation of the real exchange rate to its new long-run value and a cut in

the wedge between consumers' and producers' prices, so that the fall in real income is cushioned compared with the outcome under the EMU (without a EFTS). The counterpart is that the other countries suffer a greater fall in real income. Of course, the falls in employment and output are accelerated whilst the other countries enjoy a temporary increase in employment and output as a result of the appreciation of the exchange rate. Hence, in the face of an adverse supply shock, the EMU (without a EFTS) copes better with unemployment than with real income[24]. The reason is that the EMU leads to an expansion of the stock of money balances at home and a contraction abroad.

As far as the EMS is concerned, an adverse supply shock in Germany leads to a much sharper fall in German employment than the fall induced in, say, French employment by a French supply shock. In addition, a German supply detoriation leads to unemployment in the rest of Europe whilst an adverse supply shock in the rest of Europe leads to over-employment in Germany. The reason is that in the first case the central banks of the rest of Europe defend their currencies by buying them up and tightening their monetary policy whilst in the latter case the central banks of the rest of Europe prevent their currencies from appreciating by buying Deutschemarks and loosening their monetary policy. The adverse effects on real income are symmetric, because the greater increase in French wages arising from a French shock is exactly set-off by less of a fall (actually an increase) in German wages so that the effect of a French supply shock on the real exchange rate is exactly the opposite of the effect of a German supply shock.

As far as average European welfare is concerned, the welfare ranking in decreasing order of magnitude is a cooperative FLOAT, a cooperative EMS, a non-cooperative EMS, a non-cooperative FLOAT and the EMU (without a EFTS). The EMU (without a EFTS) performs so badly because appreciation of the exchange rate can no longer be used as an instrument to remove the excess demand for home goods. As a result the greater expansion of the home money supply leads to a larger increase in prices, a larger fall in (and overshooting of) real income and less unemployment than in the regimes where the exchange rate is allowed to appreciate. Hence, the occurrence of country-specific shocks makes the EMU (without a EFTS) an undesirable regime. There is not much difference between a cooperative and a non-cooperative FLOAT. In the former case the home money supply expands somewhat more, which leads to somewhat smaller output losses and higher losses in real income. As far as the EMS is concerned, when Germany is hit by a supply shock, it expands its money supply by more than when the rest of Europe is hit by a supply shock, so that this leads to smaller output losses and larger losses in real income for Germany.

The main conclusion that sticks out, as far as stabilisation policy is concerned, however, is that EMU (without a EFTS) performs badly when member states are hit by country-specific shocks and performs well when member states are hit by common shocks[25]. One could argue that this provides a case for the EFTS, unless budgetary and structural policies are both viable and achieve the objective of full employment.

2. European coordination of budgetary policies[26]

Now consider the use of fiscal policy to fight the short-run problem of stagflation caused by a common adverse supply shock in an interdependent world with nominal wage rigidities. This is a short-run analysis, so the dynamics of government debt are ignored (see, however, Part II for a discussion of debt dynamics). Under the hypothetical case of a FLOAT a fiscal expansion in one country leads to higher interest rates, an appreciation of its real exchange rate, a boost in real income at home and a decline abroad, and an increase in employment at home and abroad. This is the standard two-country Mundell-Fleming story. Treasuries want full employment, high levels of real income and budgetary balance. It follows that, in the absence of international cooperation, right-wing (left-wing) treasuries who care relatively more about the cost of living (unemployment) have too loose (tight) fiscal stances and thus end up with excessive levels of employment (unemployment) relative to the cooperative outcome[27]. The reason is that right-wing (left-wing) governments do not internalise the adverse (beneficial) effects of a fiscal expansion on the foreign cost of living (on foreign unemployment). Clearly, international cooperation leads right-wing (left-wing) governments to tighten (loosen) their fiscal stance.

Under the EMS it is now assumed that the Bundesbank ensures a stable money supply and the other central banks of the EMU ensure relatively fixed intra-European nominal exchange rates. Budgetary policies must then be used to fight the problem of stagflation. Since a fiscal expansion can no longer affect real income through the real exchange rate (as prices are fixed in the short run and nominal exchange rates are irrevocably fixed), the EMS avoids competitive, futile attempts to appreciate the exchange rate and may thus be superior to a FLOAT. As far as spill-over effects are concerned, a fiscal expansion outside Germany is a locomotive policy whilst a German fiscal expansion is less effective and less of a locomotive, perhaps even a beggar-thy-neighbour, policy. In the former case the excess demand for non-German goods is accomodated by an increase in the non-German money supply and the excess demand for money in Germany is choked off by a rise in European

interest rates, which causes some crowding out. In the latter case the non-German money supplies fall, as the non-German central banks are selling Deutschemarks in order to prevent their currencies from depreciating, which reduces, and may even reverse, the increase in non-German employment! It follows that, in the absence of cooperation, fiscal stances will be too tight[28] and that Germany has a tighter fiscal stance than the rest of Europe. Hence, the EMS has a built-in deflationary bias for budgetary stabilisation policies[29] and the price one pays for German hegemony in monetary policy is that Germany cannot be relied upon to be the "locomotive engine of growth" that pulls Europe out of a recession. Nevertheless, the EMS may be superior to a FLOAT since it avoids competitive attempts to appreciate the currency and export inflation. A typical welfare ranking, from a pure macroeconomic stabilisation point of view, in decreasing order is: cooperative EMS, cooperative FLOAT, non-cooperative EMS, non-cooperative FLOAT.

Countries with a large surplus on the current account and a modest public debt, such as Germany, should play a greater role in a coordinated supply-friendly budgetary expansion for Europe (Drèze and Wyplosz, 1988). Supply-friendly is important, because a number of economists fear that Europe may suffer from a capital shortage once demand is expanded. Hence, the prescription is for the government to invest in, say, infrastructure and R&D. The irony is that Germany has very little incentive under the EMS to be an "engine of growth" for Europe[30].

Under the EMU with an independent ESCB which pursues a stable European money supply and guarantees irrevocably fixed intra-European exchange rates, budgetary policies are essential in order to stabilise the economy in the face of stagflation caused by common, adverse supply shocks[31]. A fiscal expansion in one of the countries raises interest rates throughout Europe and crowds out some of the initial gains in employment due to the fiscal expansion. Employment in the other countries increases when the beneficial effects on net exports outweigh the adverse effects of crowding out. This is likely to happen as the goods markets of Europe become more and more integrated, so that there is a danger that fiscal stabilisation responses will be too weak relative to the cooperative outcome. It is easy to show that Germany then has no incentive to lose the monetary hegemony it enjoys under the EMS, whilst the rest of Europe is keen to move towards the EMU.

If wages are fully indexed to consumers' prices (and everything else is indexed), monetary policy and thus the particular nominal exchange-rate regime in force are irrelevant for real outcomes. A fiscal expansion is a beggar-thy-neighbour policy, because it induces an appreciation of the real exchange rate

and thus cuts consumers' prices and wages at home and boosts wages abroad. Hence, absence of cooperation in the face of a common adverse supply shock, leads to excessive budgetary stances as treasuries attempt in vain to export unemployment (Branson and Rotemberg, 1980; Bruno and Sachs, 1985; van der Ploeg, 1988a).

III. European coordination of macroconomic policies durin the various phases of economic and monetary integration: Public-finance aspects[32]

This part considers the public-finance and allocative aspects of economic and monetary integration in Europe. The basic framework that is adopted is the one of tax and seigniorage smoothing (Barro, 1979; Mankiw, 1987), extended to see what happens under a FLOAT, the EMS (Grilli, 1988) and the EMU. Individual treasuries and central banks minimise the present value of the deadweight burdens associated with the various sources of revenues subject to the intertemporal government budget constraint. Attention is also paid to the externalities associated with using the foreign debt of Europe to smooth consumption in individual countries of the EMU. No particular attention is paid to the use of stabilisation policy in the fight against unemployment, since the emphasis is on medium-run issues of allocation and of public finance. Unemployment manifests itself in a higher level of desired public spending, but the role of fiscal policy in reducing unemployment is not considered here. The objective of this part is to discuss the allocation and public-finance aspects of international policy coordination; in the past most of the attention has been focussed on the stabilisation role of macroeconomic policy.

1.   Tax and seigniorage smoothing under the EMS

One of the most important rules derived in the theory of public finance is that tax rates should be smoothed over time and that government debt should be allowed to increase whenever public spending exceeds its permanent level. A war or temporarily high level of unemployment justifies government borrowing. However, as long as public investment bears a market rate of return, it does not affect the permanent level of the public primary deficit and thus the treasury is allowed to borrow for investment purposes. A balanced current budget and borrowing only for investment is often referred to as the "golden" rule of public finance. When seigniorage is also a source of public revenues, inflation and nominal interest rates should go up and down together with tax rates and all of them should be smoothed over time. In other words, when the

real interest rate equals the pure rate of time preference, the theory of public finance says that inflation and tax rates should follow a random walk because only then the marginal distortions of the various ways of raising revenues are equalised. The random-walk property implies that the best estimate of tomorrow's tax rate, given all the information that is available today, equals today's tax rate. It is in this precise sense that tax and inflation rates are smoothed over time; of course, shocks can cause quite a lot of variation in tax and inflation rates over time. The above arguments hold for a closed economy or for a small open economy with a FLOAT, but not necessarily for the EMS. Under the EMS countries other than Germany peg their exchange rate to the Deutschemark and give up an independent monetary policy in order to obtain low inflation through the strong discipline of the Bundesbank (e.g., Giavazzi and Pagano, 1988), but this means that they can extract less seigniorage and end up with a sub-optimal government revenue mix and a too low level of the public spending. Of course, this argument should not just be viewed in this narrow public finance perspective. Generally speaking, benefits accrue from higher inflation (e.g., it may be easier to keep real wages down) and thus in a broader perspective they end up worse off. In order to flesh out the above arguments, it is worthwhile to construct a simple model.

The government's intertemporal budget constraint can be written as

$$d + PV(g) = PV(t + pm)$$

where d, g and m denote, respectively, the levels of public debt, exhaustive public spending and real money balances (all expressed as fractions of the national income), t denotes the direct tax rate, p denotes the rate of inflation (or the growth in the nominal supply of high-powered money), and PV(g) denotes the present value of the stream of future levels of g calculated with the aid of the real interest rate corrected for real growth in the national income, say r, which is (as capital markets are fully liberalised) determined on the world market. In plain words, solvency of the government's finances requires that the current public debt plus the present value of future levels of exhaustive public spending must match the present value of the stream of future tax and seigniorage revenues. The absence of capital market imperfections means that public debt can be used as a smoothing device. The government does this by choosing tax rates, monetary growth rates and public spending levels by solving:

$$\text{minimise } PV[b_1 t^2 + b_2 p^2 + b_3 (g-g^d)^2 + b_4 (p-p^*)^2]$$

where g^d and p^* denote the desired level of exhaustive public spending and the German inflation rate, respectively. Hence, the government minimises the excess burden caused by taxation and inflation[33], attempts to maintain a desired level of spending, and at the same time attempts to achieve an intermediate target by stabilising the nominal value of i currency vis-à-via the Deutschemark in order to converge to the German inflation rate. Germany has independent monetary policy ($b_4^*=0$), but for the other EMS-countries b_4 indicates the weight they attach to the EMS-anchor[34]. For the Netherlands b_4 is very large, but for Britain b_4 is small. The optimality of the government revenue mix is measured by the first three terms, whilst the fourth term measures an intermediate target associated with monetary discipline (see Section 3.1).

The first-order conditions show that t must follow a random walk and that two optimality relationships must be satisfied:

$$p = (b_1 mt + b_4 p^*)/(b_2 + b_4) \text{ and } b_1 t = b_3 (g^d-g).$$

Hence, the marginal cost of direct taxes and of inflation (per unit of real money balances) must equal the marginal benefit of exhaustive public spending. For Germany and to a lesser extent Britain, b_4 is negligible and consequently inflation and tax rates go up and down together, but for the EMS-followers b_4 is substantial and consequently their inflation rates are tied to the German rate which leads to a sub-optimal government revenue mix (more precisely, the combined costs associated with b_1, b_2 and b_3 go up when b_4 increases). Exhaustive public spending goes up whenever taxes go down, and vice versa, because the first-order conditions demand that whenever the marginal distortions associated with taxation diminish, the marginal benefits associated with exhaustive public spending must diminish as well.

Upon substitution into the government's intertemporal budget constraint, one obtains (after a suitable normalisation):

$$t = (b_2 + b_4)(rd + g_p^d) - b_4 m p_p^*$$

where the permanent level of desired exhaustive public spending is defined as $g_p^d := rPV(g^d)$ and $p_p^* := rPV(p^*)$. The government's inflation-corrected deficit (change in d) then follows as

$$rd + g - t - pm = (g^d - g_p^d) - [b_4/(b_2+b_4)] \ m \ (p^* - p_p^*).$$

A permanent increase in the desired level of exhaustive public spending requires higher tax and seigniorage revenues, but a temporary increase is fully met and financed by borrowing. An anticipated increase in the desired level of exhaustive public spending leads to an increase in taxes, a cut in spending today and public saving. A permanent increase in German inflation leads to more seigniorage and thus allows a cut in taxes and an increase in exhaustive public spending, but a temporary increase in German inflation leaves the tax rates and level of exhaustive public spending unaffected, leads to a bigger increase in inflation and seigniorage revenues, and thus allows some public debt to be paid off.

The general point is that, when there is a need to raise revenues for the public sector, there is a trade-off between zero tax distortions and zero inflation leading to both a positive tax rate and a positive inflation rate (Phelps, 1973). However, a strong commitment to the intermediate target of defending the currency within EMS-bands (high value of b_4) induces a sub-optimal public revenue mix, i.e., too high taxes and too low inflation (as measured by the terms in b_1 and b_2), and a too low level of exhaustive public spending (as measured by the term in b_3). In this sense, the price one pays for joining the EMS is a too small size of the public sector[35].

Perhaps, it is worthwhile to discuss at this juncture why some economists think that there are important public-finance reasons against moving from the EMS with managed exchange rates to the EMU with irrevocably fixed exchange rates (Dornbusch, 1988; Canzoneri and Rogers, 1988). Their point is that the countries of southern Europe, Italy, Spain, Portugal and Greece, have relatively a much greater need for seigniorage revenues than the countries of northern Europe and that a fixed exchange rate deprives the countries of southern Europe from a potentially important source of public revenues-seigniorage. The reason is that the countries of southern Europe have much higher costs of tax collection and a larger black economy (proxied by a relatively high value of b_1), so that the optimal rules for public finance then immediately give rise, ceteris paribus, to higher inflation rates and lower direct tax rates (see above). The first-best policy is, of course, to get rid of the black economy, reduce the costs of tax collection and thus enable oneself to cut the inflation rate. One could argue that a second-best policy is to have a crawling peg between the currencies of northern and southern Europe as this would accomodate the required differential in inflation rates. Although this seems to provide a convincing public-finance

case against narrowing EMS-bands and moving to the EMS, section 3 will argue that the argument may not hold water.

2. Competition among the central banks and treasuries of a monetary union

The previous section discussed the public-finance implications of the EMS. The remaining sections of this part focus on the EMU. This section pays attention to a monetary union with a dependent system of ntral banks, whilst section 3 presents the case for an independent ECB. Section 4 assumes the existence of an independent ECB, whose sole task it is to maintain price stability throughout Europe, and concentrates attention on the scope for independent budgetary policies to be conducted by the individual treasuries. In particular, three externalities are identified in section 4 which all go in the direction of a too low level of exhaustive public spending. Before this can be done, it is however worthwhile to see the problems that occur when a monetary union does not have an independent system of central banks.

Consider a monetary union of N countries, denoted by the subscript $i = 1,\ldots,N$, whose system of central banks is run by the various treasuries and is thus not independent. There is a common inflation rate, p, and exchange rates within the union are irrevocably fixed. The government of country i solves:

$$\text{minimise } PV[b_1 t_i^2 + b_2 p^2 + b_3(g_i - g_i^d)^2] \quad \text{s.t. } d_i + PV(g_i) = PV(t_i + s_i),$$

where s_i is the amount of seigniorage taken by treasury i from the common central bank. Individual governments are, in contrast to the rather odd recommendation of the Delors Committee for guidelines on public sector deficits, free to borrow as long as they remain solvent. It also needs to take account of the budget constraint of the dependent system of central banks: $s_1 + s_2 + \ldots + s_N = pmN$. The main externality is, of course, that the seigniorage each treasury grabs from the system of central banks leads to higher inflation for all the other countries of the monetary union as well.

In the non-cooperative outcome (denoted by a superscript N)

$$b_1 t_i^N = b_3(g_i^d - g_i^N) = (b_2/mN)p^N, \quad i = 1, \ldots, N$$

must hold and tax rates and thus inflation rates must follow a random walk. As before, inflation and tax rates go up and down together and move in the opposite direction of the level of exhaustive public spending. In addition, since there is a common inflation rate and the costs of tax collection and the parameters in the welfare-loss are assumed to be the same across countries,

tax rates must be the same in all countries of the EMU as well, even though levels of desired public spending and public debt may vary from country to country! (Of course, when the costs of collecting taxes is much higher in one country than in the rest of the EMU, its optimal tax rate will be lower than in the rest of the EMU). In the cooperative outcome (denoted by a superscript C) the treasuries internalise the adverse external effects from grabbing more seigniorage so that

$$b_1 t_i^C = b_3 (g_i^d - g_i^C) = (b_2/m) \, p^C, \qquad i = 1, \ldots, N$$

must hold: the marginal distortion from collecting seigniorage revenues is N times as large as under the non-cooperative outcome. The case of an independent system of central banks (denoted by a superscript I) is relevant when monetary policy is set such as to maintain price stability throughout the region and thus corresponds to zero inflation, $p^I=0$, whilst the fiscal authorities have no option but to accept this and given this find it optimal to let taxes follow a random walk.

Upon substitution into the treasuries' intertemporal budget constraints, one can show that

$$p^N = (rd+g_p^d)/[m+(b/mN)] \text{ exceeds } p^C = (rd+g_p^d)/[m+(b/m)] \text{ exceeds } p^I = 0$$

where $b = b_2(b_1^{-1} + b_3^{-1})$, d denotes the average of the d_i, and g_p^d denotes the average of the g_{ip}^d. Conflict between the treasuries of a monetary union without an independent common central bank leads each of them to grab too much seigniorage, which pushes up inflation for the whole region[36]. International coordination of monetary and budgetary policies leads to lower monetary growth and inflation, higher tax rates and lower levels of exhaustive public spending for each of the countries of the union, because the seigniorage-inflation externalities are now internalised. An independent system of central banks must be governed by ultra-conservative central bankers and thus achieves a stable price level, so that the treasuries must make up for this loss in seigniorage revenues by resorting to higher tax rates and lower levels of exhaustive public spending than would be the case under a cooperative dependent system of central banks. It is easy to show that the highest welfare is achieved when the various ministers of finance coordinate their budgetary and monetary policies in a dependent system of central banks, whilst the lowest welfare is achieved under an independent system of central banks.

3.   **The case for an independent ESCB: Rules versus discretion**

If an independent ESCB leads to a sub-optimal government revenue mix, a decline in public spending and consequently performs so badly compared with a non-cooperative, dependent ESCB and a fortiori with a cooperative, dependent ESCB, why then does the Delors Committee strongly advocate an independent ESCB based on the German (and Dutch) model?[37]

The answer must, of course, be that one is afraid t t a dependent ESCB is likely to succomb to pressure from individual ministers of finance to finance their levels of public spending. An independent ESCB is by many believed to be the only viable means of ensuring a strong and undeniable monetary discipline. More precisely, an independent ESCB, whose primary task it is to preserve price stability, is not going to either levy a surprise inflation tax in order to wipe out the real value of outstanding nominal public debt or to increase the money supply in order to accomodate the demand from ministers of finance for more public spending or to accomodate the demand from unions for higher wages[38]. Since ministers of finance, unions and other agents anticipate that an independent ESCB is not going to give in to their demands, they settle for less and as a result inflation in equilibrium is lower than it would be under a dependent ESCB without much monetary discipline. This is the main reason why central bankers - the main signatories of the report produced by the Delors Committee - are very much in favour of an independent ESCB: they dislike inflation more than anything else and an autonomous body for setting monetary policy is the best way to achieve a stable price level!

In view of the above discussion, it must be clear that it is much more relevant to compare non-cooperative and cooperative **discretionary** outcomes under a dependent ESCB with the **rules** outcome under an independent ESCB. In other words, to assess the case for an independent ESCB, one should trade off the disadvantage of a sub-optimal government revenue mix and a lower level of exhaustive public spending against the advantage of a better monetary discipline and the lower inflation this brings with it.

It is possible to think of at least three potential sources of time inconsistency that may be relevant for a ESCB. The first is when workers are locked into nominal wage contracts and the central bank reneges by eroding the real value of the wage and thus boosting the level of employment (Barro and Gordon, 1983; Giavazzi and Pagano, 1988). In as far as Europe enjoys wage indexation, this source of time inconsistency is less relevant. The second occurs when the demand for money depends negatively on the expected inflation rate, because then the central bank has an incentive to renege and levy a

surprise inflation tax and use the seigniorage to cut distortionary taxes and boost welfare (Calvo, 1978; Barro, 1983; van der Ploeg, 1988b; Cukierman, 1989). The third occurs when treasuries issue nominal rather than real or indexed government bonds, because then there is in principle an incentive to impose a surprise inflation tax, wipe out the real value of government debt, and have more funds available to cut distortionary taxes (Gros, 1988) and increase the level of exhaustive public spending. In all three cases the rules outcome leads, in equilibrium, to lower inflation than the discretionary outcome, hence all three cases can be used to illustrate the advantages of an **independent** ESCB. To illustrate the argument, however, attention will be focussed on the monetary discipline an independent ESCB may offer in safeguarding the real value of public debt, probably the most important source of time inconsistency for Europe[39].

Hence, assume that the treasuries issue, instead of real (or indexed) bonds, nominal bonds with a guaranteed nominal rate of return, $r + p^e$ where p^e denotes the expected rate of inflation. The expected or ex-ante real interest rate, or just the real interest rate for short, is according to this Fisherian relationship determined by consumption tastes and production technologies, more or less independent of the expected inflation rate, p^e. If you compare two states of the world with identical tastes and technologies, any difference in nominal interest rates must then be due to differences in expected inflation rates. The realised or ex-post real interest rate, $r + p^e - p$, is relevant for borrowing and lending activities. It decreases with unanticipated inflation, which is one way in which governments can reduce the level of their inflation-corrected deficit, $(r + p^e - p)d_i + g_i - t_i - pm$, and reduce their debt-GDP ratio over time[40]. The problem of time inconsistency arises, because unanticipated inflation can be used to wipe out the real value of public debt. Two outcomes should be considered: rules and discretion. The point about the trade-off between an optimal government revenue mix on the one hand and discipline and low inflation on the other hand can be made both for the EMS and the EMU.

3.1 The role of the Bundesbank in the EMS

For simplicity, consider first the EMS and the role of the Bundesbank. Assume that the government minimises the same welfare loss function as in section 1. The rules outcome is appropriate when the government has sufficient discipline not to renege. The government can then credibly influence expectations of the private sector so that in the determination of its optimal policy it can assume that $p^e = p$. The rules outcome (denoted by a superscript

R) is observationally equivalent to a situation where the government issues real or indexed bonds. Of course, the rules outcome must be enforced or else the government has an incentive to cheat with an unanticipated increase in monetary growth and a corresponding reduction in distortionary taxes and increase in the level of exhaustive public spending. The discretionary outcome (denoted by a superscript D) is appropriate when the government cannot make credible announcements and consequently must take p as given in the determination of its optimal policies. The first optimality relationship of section 1 changes to $p^D = [b_1(m+d)t^D + b_4p^*]/(b_2+b_4)$, so that for a given tax rate, exhaustive public spending is as before but inflation is now higher than under the rules outcome, at least when the government has issued nominal debt. The reason is that a lower monetary growth would not be credible, because then the government is tempted to levy a surprise inflation tax. Upon substitution into the government's intertemporal budget constraint, one has

$$t^D = t^R/\{1 + b_1[m + (b_2+b_4)/(b_3m)]d\} \text{ less than } t^R.$$

It follows immediately that g^D exceeds g^R and it is straightforward to show that p^D exceeds p^R. Hence, a lack of monetary discipline, especially for countries with a high level of public debt, leads to lower tax rates, higher inflation rates and higher levels of exhaustive public spending than would be the case when central banks do enjoy a reputation for sticking to rules. One can argue that this is a reason why countries of southern Europe with a dependent central bank, a lack of monetary discipline and high levels of public debt extract relatively more revenues from seigniorage than from direct taxation. Another reason is that the costs of tax collection and the size of the black economy are greater or that the tax system of those countries is less efficient (higher value of b_1), so that it is optimal to have higher inflation and lower tax rates, even when the central banks of these countries have a reputation for not succombing to pressures of inflationary finance.

The main reason for the central banks of southern Europe to join the EMS may be that they gain the credibility of the Bundesbank and the associated tying of their hands (proxied by b_4) leading to lower inflation (associated with the term in b_2) which they would miss otherwise. They have to judge whether this advantage outweighs the less efficient public revenue mix they may be stuck with under the EMS (associated with the terms in b_1 and b_3). The choice is to have either an independent monetary policy and no reputation ($b_4=0$) or to peg one's inflation rate to the German rate and obtain the credibility of the Bundesbank (b_4 tends to infinity). Hence, to have an

incentive to join the EMS, the welfare (as measured by the terms in b_1, b_2 and b_3 only, thus excluding the intermediate target b_4) under a rules outcome with fixed exchange rates and no independent monetary policy (very high value of b_4, denoted by the superscript E) should be higher than under the discretionary outcome with an independent monetary policy and floating exchange rates ($b_4=0$, denoted by the superscript F). Since p^E is less than p^F but t^E exceeds t^F and g^E is less than g^F, one has to trade off the merits of lower inflation against the costs of higher tax rates and lower levels of exhaustive public spending. One can show that, for the case of $g_p = g_p^d$, it pays to join the EMS when $(b_2-b_1 m^2)d$ exceeds $(b_2+b_1 m^2)m$, irrespective of the value of b_3. Hence, countries with a very high priority for low inflation (high value of b_2), with a low priority for eliminating tax distortions (low value of b_1) and with a large outstanding stock of nominal government debt (high value of d) have a strong incentive to levy an unanticipated inflation tax and thus will want to join the EMS in order to bind their hands to the Bundesbank. For these countries, the gains in monetary discipline outweigh the losses from more tax distortions. Italy, Ireland, Belgium, and the Netherlands have high levels of public debt and, especially the latter two countries, have no clear wish to reduce tax distortions: no wonder that they are such fervent supporters of the EMS! Britain is very keen on reducing tax distortions and has less of a public debt problem, which may be a reason why it is less keen to join the EMS.

Recent developments in Eastern Europe may well be relevant for the development of the EMS as a zone of monetary discipline. The reunification of the two Germanies creates additional demand for West-German products from East-German citizens to consume what they previously could not and from firms to build a new infrastructure for East-Germany. This is why many fear a bout of inflation in West-Germany during the process of integrating the two economies. This may well threaten the role of the Bundesbank in the short run as a nominal anchor for the EMS, since inflation in the whole of Europe may then rise. If this occurs, it is less likely that countries want to join or stay in the EMS for then they have to give up an independent monetary stabilisation policy (see part II) without necessarily obtaining a lower inflation rate, even though their public revenue mix may become more efficient[41].

3.2 The role of an independent ESCB in the EMU

There seems to be a serious political problem in moving from the EMS to the EMU. In order for the British, French and Italians to benefit from the

enhanced monetary discipline offered by the Bundesbank, they need to leave it largely untouched as an autonomous institution. Indeed, the ESCB advocated by the Delors Committee is meant to be independent and based on the Bundesbank model. However, from a political point of view the independence and autonomy of such an ESCB may be threatened, because in lieu of the loss of an independent monetary policy the electorates of these countries are likely to want a strong element of control in the ESCB. But this s like letting the baby go out with the bath water, because it would destroy the discipline advantages associated with creating the new institution in the first place. Despite the danger of these political problems, it seems worthwhile to compare the non-cooperative and the cooperative discretionary outcomes for the EMU, when it works with a dependent ESCB (denoted by the superscripts ND and CD, respectively) on the one hand, with the rules outcomes for the EMU when it works with an independent ESCB on the other hand (denoted by the superscript I, as discussed in section 2).

It is straightforward to show that (cf., section 2) $p^{ND} = (rd+g_p^d)/[m+b/(mN+d)]$ exceeds $p^{CD} = (rd+g_p^d)/[m+b/(m+d)]$, which of course exceeds $p^I = 0$. The presence of an outstanding nominal public debt is an open invitation to wipe it out with an unanticipated inflation tax and a dependent ESCB cannot be trusted not to take up the invitation, hence inflation rates under the discretionary outcomes exceed the rates under the rules outcome (p^{ND} exceeds p^{NR} and p^{CD} exceeds p^{CR}). It then follows that t_i^{ND} is less than t_i^{CD}, which in turn is less than t_i^I. Also, g_i^{ND} exceeds g_i^{CD}, which in turn exceeds g_i^I. Hence, as far as the treasuries are concerned, the presence of a dependent ESCB and competition within the EMU improves welfare, since this reduces tax distortions and raises the level of exhaustive public spending (as measured by the terms in b_1 and b_3), but as far as the central bankers are concerned this reduces welfare, since it increases inflation (as measured by the term in b_2). This is in a nut-shell the conflict between ministers of finance and central bankers. In a sense, the case of an independent ESCB corresponds to non-cooperation between central banks and ministers of finance whilst the case of a dependent ESCB means that the monetary and fiscal authorities in any particular country are one and the same entity and can thus be assumed to cooperate. It is easy to show that one is more likely to come out strongly in favour of an independent ESCB when the level of average public debt (d) in Europe is high, when the priority one attaches to price stability (b_2) is high, and when the priority one attaches to eliminating tax distortions (b_1) is low. Since the Delors Committee consisted largely of central bankers, it is not surprising that they have come out in favour of an independent ESCB for

the EMU.

In fact, the conditions under which one favours an independent ESCB over a cooperative EMU with a dependent ESCB (CD) are exactly the same conditions under which a country wants to join the EMS and peg its currency to the Deutschemark (see section 3.1). More relevant, is perhaps that one prefers an independent ESCB over a non-cooperative EMU with a dependent ESCB (ND) when

$$(b_2 - b_1 m^2)d \text{ exceeds } [b_2(2-N) + b_1 N m^2]m.$$

As the number of members of the EMU increases, this condition becomes more likely to hold (be violated), provided that b_2 exceeds (is less than) $b_1 m^2$. In other words, when the priority one attaches to price stability exceeds the priority one attaches to reducing tax distortions and the number of EMU countries is large, one always favours an independent ESCB over a non-cooperative EMU with a dependent ESCB, and vice versa.

When one, nevertheless, comes out in favour of a dependent ESCB, one should realise that macroeconomic policy coordination within the EMU may well be counterproductive when one restricts attention to discretionary outcomes (see part IV.1). This is likely to occur when the advantages of cooperation in the form of lower inflation are outweighed by the disadvantages in the form of more tax distortions and lower levels of exhaustive public spending (cf., van der Ploeg, 1988b). Such a counter-example to the usefulness of macroeconomic policy coordination is easily constructed: when $d = -m$, the CD-outcome yields the same welfare as the I-outcome and, when $(b_2/b_1)(N-3) < m^2(N-1)$, the ND-outcome yields a higher welfare than the I-outcome and thus the CD-outcome[42]. Macroeconomic policy coordination destroys discipline and can thus be counterproductive!

4. Fiscal externalities under the EMU

Now consider the EMU, more or less as envisaged by the Delors Committee, and ask what scope remains for the coordination of budgetary policies in Europe. To be quite clear, individual treasuries must finance their deficits by borrowing and cannot benefit from seigniorage revenues (except from those accruing through real growth), the ESCB is independent and pursues a stable price level, all bonds are assumed to be perfect substitutes, capital markets are fully liberalised, and the goods markets of Europe are fully integrated with each other but not with the rest of the world. In addition, assume that Europe as a whole is a small open economy relative to the rest of the world. Three externalities are briefly considered: spending by individual treasuries

is a public good to Europe as a whole, international tax competition, and an externality arising from the common determination of the real exchange rate and current account of Europe.

4.1 National public spending is a public good under the EMU

In view of the planned completion of the internal market for Europe, it seems reasonable to assume that countries care more ; ! more about each others' levels of public spending on the environment, training of low-skilled workers, research and development, foreign aid (e.g., to Eastern Europe), infrastructure, museums, etcetera. Although each member country of the EMU benefits from a higher level of public goods provided by other countries of the EMU, they do not have to pay the price in the form of higher taxes for it. Absence of the coordination of budgetary policies means that exhaustive public spending is not recognised as a public good for Europe as a whole and consequently its supply will be inadequate. The theory of clubs may serve as a useful guide in deciding on whether a sub-group of countries get together and specialise in the production of certain public goods.

A special case needs to be made for public investment, because this is in view of the developments in Eastern Europe, the bad state of the environment and the demand for infrastructure very much needed in Europe. There are two aspects of public investment that should be stressed: its international and its intertemporal nature. It is clear that, due to the fact that most of public investment is a public good for Europe as a whole, its supply will be deficient. Just as important, however, is the fact that public investment with a market rate of return increases the current level of exhaustive public spending, but leaves the permanent level of exhaustive public spending unaffected. The optimal response from the point of view of the theory of public finance is to leave tax rates alone, but borrow and increase the public sector deficit now in order to finance the investment outlays and to reap the benefits later on. Unfortunately, the Delors Committee recommends guidelines on public sector deficits without making a reference to public investment or to permanent levels of public spending. Such a myopic view on the public sector's finances is bound to harm public investment in Europe and should be avoided at all costs. Much better is to advocate the "golden rule" of public finance: tax for permanent increases in exhaustive public spending, but borrow for temporary increases in current exhaustive public spending and for (temporary of permanent) increases in public investment with a market rate of return.

4.2 International tax competition and tax harmonisation

If factors of production, goods and capital are highly mobile within Europe, it is clear that individual treasuries do not want their tax rates to diverge too much from their competitors for otherwise they would lose all their revenues to their competitors[43]. Indeed convergence is a major objective, but it is not clear what one should converge to (the lowest, the highest of the average tax rate?) and whether one converges to Pareto-efficient levels of tax rates or not. In fact, one must take account of the possibility that each member country of the EMU attempts to be a tax haven and have slightly lower tax rates than its competitors. In any case, treasuries will not want to diverge too much, because otherwise the mobile part of their labour force will prefer to migrate to the rest of the EMU and their consumers will prefer to buy their products from the rest of the EMU. One of the main concerns of Dutch macroeconomic policy is to bring marginal income tax rates and VAT rates down to the European average or, more specifically, German level. Such actions should be taken account of as well. If one takes account of these effects, international competition will drive down tax rates and levels of public spending in Europe below the levels that would prevail under European coordination of budgetary policies. The downward bias in tax rates arises from futile, beggar-thy-neighbour attempts to cut tax rates and increases when the number of EMU-countries increases. In general, when an individual treasury is faced with EMU-competitors who have a much lower need for revenues (due to lower permanent levels of exhaustive public spending), it is forced to cut tax rates and exhaustive public spending, and to allow private consumption to flourish, even though it is faced with a large need for public revenues. If EMU-countries have similar preferences, tax smoothing does not only occur over time, but also between EMU-competitors, even though their levels of public debt and desired exhaustive public spending differ. The main point is that the outcome under tax competition is likely to be inefficient, since all EMU-countries would be better off if they raised tax rates and levels of exhaustive public spending[44].

Various studies on tax competition and on tax harmonisation are now becoming available. One of the main findings is that the immobile factors of production (usually the poorer workers) are going to be the losers of uncoordinated tax competition and most heavily, since the mobile factors of production (such as capital) will find their way to tax havens and thus have a high price-elasticity and impose a high excess burden relative to the amount of revenues collected (Sinn, 1989). To a certain extent, consumers will gain as competition forces down VAT rates. Another set of results is that the

residence principle leads to an inefficient world allocation of saving and that the source principle leads to an inefficient world allocation of investment. In addition, it can be shown somewhat surprisingly that in a market-clearing world with perfect capital mobility (and the interest rate determined on the world market) the residence principle is optimal and there are no gains from tax coordination (Razin and Sadka, 1989b; c)[45]. In addition, one could argue that tax distortions and evasion can be ʀ ided through, say, basing taxes on nationality rather than on residence, but (given only too common attempts to evade taxes) by far the best method seems to go for a coordinated approach to tax harmonisation (Sinn, 1989), which is what the Delors Committee seems to have in mind. Given the liberalisation and integration of markets for capital, goods and services, there is more scope for individual European countries to impose adverse externalities on others and thus there is a need for coordination of capital income taxation within Europe, starting with agreeing on a tax base and followed by setting minimum statutory rates (Tanzi and Bovenberg, 1990).

4.3 Europe's current account is a public good

Since the EMU is not a closed economy but an open economy relative to the rest of the world, one can think of a number of externalities to do with the fact that all EMU-countries share a common real exchange rate and current account vis-à-vis the rest of the world (cf., Cohen and Wyplosz, 1989). Budgetary policies of the various treasuries now jointly determine Europe's real exchange rate and current account. A budgetary expansion by any of the treasuries of the EMU raises the demand for European goods relative to those from the rest of the world and thus induces an appreciation of Europe's real exchange rate and a deficit on Europe's current account. Absence of the coordination of budgetary policies in Europe means that Europe's real exchange rate and current account are not recognised as public goods and leads to inefficient outcomes when budgetary policies under the EMU are pursued in a competitive fashion.

Treasuries must satisfy their usual intertemporal budget constraints, but individual EMU-countries do not satisfy such as intertemporal constraint vis-à-vis the outside world directly. Instead, the EMU-countries face a joint intertemporal budget constraint vis-à-vis the countries outside the EMU. More precisely, when the EMU as a whole is solvent, the present value of the stream of the EMU's balance-of-trade surplusses must equal the outstanding net foreign debt of the EMU as a whole. The EMU's balance of trade is jointly determined, since it corresponds to the output produced by the whole of the

EMU minus private and public consumption of the whole of the EMU. A budgetary expansion by any of the EMU-countries raises public or private consumption and thus induces a deficit on Europe's current account. The associated appreciation of Europe's real exchange rate reduces the cost of goods imported from the rest of the world and thus reduces the cost of living and boosts real income for all EMU-citizens.

When each treasury attempts to use budgetary policy to appreciate the real exchange rate of Europe and thus raise the real income of its citizens, it increases its tax rate and its level of public consumption. In the absence of European coordination of budgetary policies, the real exchange rate of Europe is under-valued whilst exhaustive public spending and tax rates are too low relative to the cooperative outcome. The reason is that spending by treasuries reduces the cost of living for all EMU-citizens and is thus a public good. In effect, each EMU-country is trying to pass the burden of appreciating the real value of Europe's currency on to its EMU-competitors (van der Ploeg, 1990b).

The EMU as a whole might have an explicit target value for its current account, perhaps, a deficit because Europe wants capital from outside Europe to poor into Europe in order to rebuild Eastern-Europe. If this is the case, each of the EMU-countries will try to shift the burden of loosening the fiscal stance to its EMU-competitors. The result is that public spending as a whole will be too low throughout Europe and capital inflows into Europe will not be high enough, relative to the outcome where all EMU-countries coordinate their budgetary policies.

So far, this part has assumed that guidelines for national public sector deficits are unnecessary and, perhaps, even undesirable. However, the externalities in this section suggest that it may be worthwhile to impose a requirement on the overall borrowing requirement for Europe. The point is that, if EMU-countries only consider their own current account and not the current account of Europe, then such limits on borrowing from outside the European Community may act as a substitute for European coordination of budgetary policies. Hence, it may be desirable to allow individual governments to borrow what they want from European households and institutions, but to constrain or to encourage them in their borrowing from outside the European Community.

IV. Counterproductivity of macroeconomic policy coordination

Most of the discussion so far gives the impression that international coordination of macroeconomic policies is always a good thing, given the particular exchange-rate regime in force. However, there are a variety of situations under which international coordination worsen the welfare of the countries concerned. This section discusses three good reasons why international policy coordination may be counterproductive: (i) it worsens the discipline of central banks and thus leads to higher inflation; (ii) it may provoke an adverse response from third countries (such as the US); (iii) it can make the countries concerned worse off when there is uncertainty or disagreement about how the global economy functions. Since the move towards the EMU closely resembles international policy coordination under a FLOAT, these are in principle also three good reasons why the move towards the EMU may be undesirable.

1. Coordination destroys discipline: Rules versus discretion

The view that international policy coordination is never a bad thing is fallacious, because it can worsen the credibility problems of the central banks vis-à-vis private sector agents and can therefore be counterproductive. This paradox easily arises within the context of a Keynesian multi-country world with rational expectations in financial markets and nominal wage rigidity (Rogoff, 1985)[46]. Central banks have an incentive to renege on previously announced plans by engaging in an unanticipated monetary expansion, because this leads to higher prices, erodes the real values of the wage and thus boosts employment and output. International policy coordination under a FLOAT destroys the discipline of central banks and thus leads, in equilibrium, to higher inflation and lower welfare for all countries concerned. The reason is that, in the absence of cooperation, the depreciation of the exchange rate and associated inflation costs provide a disincentive to renege which does not arise under a cooperative FLOAT. Another way of looking at the paradox is that coalition among a sub-set of players, the various central banks, can worsen the game with the remaining players, private sector agents.

This paradox does not only arise in a world plagued by wide-spread unemployment, but also occurs in a long-run world with full employment and all markets clearing (van der Ploeg, 1988b)[47]. The time inconsistency now has a public-finance rationale[48], because individual governments may levy a surprise inflation tax and use the seigniorage revenues to cut distortionary taxes and

increase spending on public goods, both of which increase welfare. An increase in taxes or public spending worsens foreign welfare[49]. In the absence of cooperation this externality is not internalised, so distortionary taxes will be too high and employment and private consumption will be too low whilst public spending will be too high. However, with international policy cooperation a discipline device is destroyed (as the exchange rate is unaffected by a surprise inflation tax) and thus inflation will be higher and holdings of real money balances will be lower than under a non-cooperative FLOAT. Hence, international policy coordination is counterproductive when the adverse effects of excessive monetary growth on inflation arising from a worsening of monetary discipline outweigh the beneficial welfare effects of less tax distortions and a more optimal provision of public goods. Another example of the counterproductivity of macroeconomic policy coordination under the EMU, based on using unanticipated inflation to wipe out the real value of nominal government debt, was already discussed at length in part III.3.2.

The point of the above three examples is that, when one restricts attention to the discretionary rather than to the rules outcome, international policy coordination under a FLOAT can be counterproductive, because it worsens credibility problems and thus increases the incentive to have an unanticipated increase in inflation[50]. However, it is important to realise that the EMS, and to a much greater extent the move towards the EMU, also destroy the discipline device that is prevalent under a non-cooperative FLOAT. Hence, the EMS and EMU worsen credibility problems of central banks vis-à-vis trade unions and other private sector agents and may therefore gradually lead to higher inflation rates throughout Europe. The move from a FLOAT, towards the EMS and eventually towards the EMU is only desirable when central banks already have sufficient credibility and discipline in order for the private sector to believe that they will not succomb to the temptation to renege on announced policies. This is a different way of saying that the Bundesbank and De Nederlandsche Bank with their excellent reputation for low-inflation policies must keep a major say in the operation of the EMU and the ESCB and that the ESCB should be allowed to conduct an independent and autonomous policy.

Indeed, this is perhaps one of the main reasons why countries whose central banks are less disciplined (such as France, Italy or Ireland) chose to join the EMS. Membership of the EMS can provide such countries with a "nominal anchor": by pegging their currencies to the Deutschemark (and giving up an independent monetary policy) they buy the credibility of the Bundesbank and obtain a lower inflation rate than they would otherwise obtain (Giavazzi and Pagano, 1988; Giavazzi and Giovannini, 1987, 1989a; Collins, 1988; Melitz,

1988a). However, it can be argued that the reduction in inflation achieved by the EMS-countries is not more spectacular than the ones achieved by other OECD-countries and that the sacrifice ratios of some EMS countries are notably worse than those of other OECD-countries (e.g., Dornbusch, 1989). The move towards the EMU may dilute the reputation of the Bundesbank and thus worsen credibility problems throughout Europe and increase inflation in Europe; if this is the case, the move from the EMS towards t EMU may well be undesirable from the point of view of the objective of inflation. The case of Ireland, however, suggests that the dramatic drop in inflation is a mixed blessing, because although it was successful as far as gaining credibility is concerned (Kremers, 1989), it has also led to the problems of high public debt, massive emigration and high unemployment (Dornbusch, 1989).

2. The EMU versus the rest of the world[51]

Consider the EMU versus the rest of the world, say the United States. There is one currency in the EMU, the ECU, whose value in terms of dollars floats. There is a stable US and a stable European money supply, so attention is focussed on the fiscal policy responses to a situation of stagflation caused by a world-wide adverse supply shock. Under a global, non-cooperative outcome, the US exploits the smaller size of the EMU-countries by having a looser fiscal stance and thus appreciating the real value of the dollar vis-à-vis the ECU and exporting inflation to the countries of the EMU. However, when the countries of the EMU cooperate, they can be treated as a bloc of roughly the same size as the US and the analysis is as under a FLOAT (see part II.2): right-wing (left-wing) treasuries have a too loose (tight) budgetary stance relatively to the global, cooperative outcome. When the US is faced with a coordinated EMU, it can no longer employ the tactic of appreciating the real value of the dollar so that Europe has higher inflation when its fiscal policies are coordinated. However, the US now must have a tighter fiscal stance and thus unemployment in both the US and Europe will be higher. It follows that coordination of budgetary policies within the EMU can be counterproductive, especially when governments care a lot about unemployment.

The above is again a standard proposition in game theory: a coalition among a sub-group of players (countries of the EMU) can decrease the utilities of these players, because it may provoke an adverse response from other players (the US).

3. Disagreement on the workings of the global economy

Various economists, particularly policy advisors in supranational

organisations such as the IMF, argue that many countries are reluctant to participate in international policy coordination, because either they are uncertain on how the global economy functions and unsure about the nature of the interdependencies between their economy and other economies or their view on these matters differ from the view of their partners in the EMS or summit meetings. For example, German officials have been known to argue that a budgetary expansion is bad for German employment, which is at variance with what most economists teach and have been taught and is probably at variance with what officials of other countries believe. Given that when you ask ten macroeconomists to give an answer to a question they are likely to give ten different answers, theorists must live in "cloud-cuckoo land" when they think that macroeconomists, let alone policymakers, can agree on a common model. It is therefore no surprise that government officials disagree and quibble about the functioning of the global economy and thus a fortiori are likely to have the wrong view. Such lack of knowledge and disagreement on the functioning of the world economy can easily render international policy coordination counterproductive and make all countries concerned worse off (Ghosh, 1986; Frankel, 1988). For example, using ten multi-country models (e.g., Bryant et al., 1988) as representing the views of the US government and other governments, or the true world economy, out of 1000 possible combinations monetary coordination perceptibly improved US welfare in only 546 cases and welfare of other industrialised countries in only 539 cases (Frankel and Rockett, 1988). Indeed, many have argued that this is the main barrier to succesful international policy coordination. A less known result is that, when countries have the wrong view on the nature of global interdependence and do not cooperate, they can be much better off than when they have the correct view on the nature of global interdependence and do cooperate. Hence, better information need not make countries better off when countries do not cooperate because this can worsen various forms of conflicts arising from international externalities (van der Ploeg, 1989d).

Conclusions

The main benefits of the EMU are well known and not directly related to the issues of macroeconomic policy coordination: (i) elimination of exchange-rate uncertainty and the costs of hedging against such risks; (ii) more economic use of international reserves for Europe as a whole; (iii) availability of a more efficient unit of account, medium of exchange and store

of value, and the ECU is likely to become a "vehicle currency"; (iv) saving on transaction and information costs; (v) less speculative flows of capital; (vi) political ambitions of an integrated Europe are achieved; (vii) more power in G-3 summit meetings, particularly in matters of monetary policy[52]. The main costs are the loss of an independent monetary policy, possibly a weakening of monetary discipline, and a sub-optimal government revenue mix in the sense of too low (high) inflation rates and too high (low) ｝ rates for those countries with high (low) costs of tax collection. Since most of the benefits show non-rivalry in consumption and are "public goods" whilst the disadvantages are more like "private goods", the calculus of participation suggests that Europe may not move far enough in the direction of the EMU and small countries are likely to be "free riders" in the efforts to move towards the EMU (Hamada, 1985, Chapter 3). Hence, the impetus of the EMU must come from the larger countries of the European Community.

Most of this report was, however, concerned with the potential need of macroeconomic policy coordination during the various phases of economic and monetary integration in Europe. Taking the problems of stabilisation policy in the face of European-wide stagflation caused by a common adverse supply shock under alternative exchange-rate regime first, one finds that the EMU performs better than the EMS or a regime of floating exchange rates. The reason is that the futile competitive attempts to appreciate the currency and export inflation and the associated beggar-thy-neighbour tightening of monetary policy are altogether impossible within the EMU. EMS-followers manage to disinflate away an adverse supply shock by appreciating their currency vis-à-vis the Deutschemark at the expense of welfare in Germany, but would not be able to do this under the EMU. In fact, this is one of the few reasons why Germany may be keen to move to the EMU. As far as budgetary policy responses to European-wide stagflation are concerned, German hegemony in monetary policy under the EMS implies that Germany has a tighter fiscal stance than the other EMS-countries and thus Germany is unlikely to fulfill its role as locomotive "engine of growth for Europe". Both the EMS and the EMU are likely, especially as intra-European trade increases, to have a built-in deflationary bias in stabilisation policies, unless budgetary policies are coordinated. When real wage rigidity and other forms of indexation are important phenomena, the particular exchange-rate regime in force is irrelevant for real outcomes and absence of international policy coordination is likely to lead to too tight budgetary policies as well.

However, when Europe is hit by country-specific shocks or shocks associated with switches in preferences, the EMU scores very badly on

stabilisation policy. The reason is, of course, that the currency cannot under the EMU appreciate in response to the excess demand. The EMU is therefore only likely to respond well to country-specific or switch shocks when **either** labour markets clear instantaneously (as in such a fanciful world stabilisation policy is not needed), **or** labour mobility throughout Europe is high. To the extent that this is not likely, a strong case can be made for a European Federal Transfer Scheme which transfers income from regions with unemployment to regions with overemployment and which should thus be budget-neutral on the Community level. Clearly, there are incentive problems with such a transfer scheme but they are reasonably well resolved on a national level and there is no reason to believe why they cannot be resolved at a European level. Only giving benefits when the unemployed have the duty to take a job if offered, even if it is not in their field of training, and training programmes would help. If the people of Europe are not willing to introduce a EFTS, individual countries have a duty to pay much more attention to structural supply-side policies in order to ensure that national labour markets adjust more quickly to full employment.

Moving on to the public-finance aspects of moving from the EMS to the EMU, it is clear that a monetary union without an independent central bank leads, in the absence of coordination of the policies of the various fiscal and monetary authorities, to excessive inflation, too low tax rates and too high levels of public spending. The reason is that each treasury fails to internalise the adverse effects of grabbing more seigniorage from the common central bank on the inflation rate that is common to all countries of the union. When central bankers and ministers of finance can be relied upon not to succomb to the temptation to levy surprise inflation taxes, there is not much of a case for an independent ESCB. However, if one really wants to be sure that the monetary authorities are not going to give in to the demands of unions for higher wages or of ministers of finance for financing their deficits arising from high levels of public spending, the best strategy seems to appoint conservative central bankers to the board of the ESCB and to make sure that the status of the ESCB is autonomous and independent of political pressures. The price one pays for institutionalising monetary discipline is a sub-optimal public revenue mix, that is inflation and thus seigniorage revenues are too low whilst tax rates are too high and the level of exhaustive public spending too low. Even though the inflation tax might disappear, some seigniorage revenues will accrue through real growth and it will be a major political issue to decide how those will be distributed to the members of the EMU.

It is clear that the Delors Committee has come out strongly in favour of an independent ESCB based on the German model, but it is also clear that this implies a threat for the size of the public sector. Developments in Eastern Europe may lead to excess demand for German goods and an increase in German inflation and thus in European inflation. Together with the dilution of the German monetary discipline, caused by the appointment of less disciplined central bankers to the Council of the ESCB, this carries the seeds of a less successful EMU from the inflation point of view.

There are at least three fiscal externalities which also pose a danger to the size of the public sector in Europe, unless of course budgetary policies of the various treasuries are coordinated. The first is that, as Europe becomes more and more integrated, spending by national treasuries on items such as the environment, training, research and development, foreign aid (e.g., to Eastern Europe), and infrastructure, becomes more and more like a public good to all citizens of Europe, whose supply will be inadequate unless the treasuries coordinate their policies. The second is that international competition between the treasuries of Europe drives tax rates down and leaves less room for exhaustive public spending. The third is that treasuries may wish to loosen their fiscal stance in order to appreciate the real exchange rate of Europe and boost the real income of their citizens. Since such a policy also has beneficial effects on the rest of the EMU-countries, public spending will be too low unless cooperation takes place. There does not seem to be a firm public-finance case for imposing upper limits on public sector deficits, as the Delors Committee recommends, but in view of this last externality it may be sensible to impose limits on borrowing by treasuries from outside the European Community for otherwise there may be insufficient control over the value of Europe's currency in international markets.

One can think of three reasons why macroeconomic policy coordination within Europe can be counterproductive. Firstly, it may provoke an adverse response from the US leading to higher unemployment in Europe. Secondly, it may destroy the use of the exchange rate as a discipline device for central banks. Thirdly, conflicting views on how the global economy functions may render macroeconomic policy coordination counterproductive. The first can be countered by encouraging macroeconomic policy coordination between Europe and the US, which seems more likely as an integrated Europe is likely to become a more powerful negotiator in the G3-summits. The second can be countered by ensuring that the ESCB has an independent and autonomous status and that the sole task of the ESCB is to preserve price stability. The third can be countered by more discussions involving politicians, economists and the

public. Given that all three points against macroeconomic policy coordination can be countered, it should be no surprise that this report concludes with a strong plea for the coordination of budgetary policies in Europe in order to ensure that stabilisation policy is used effectively to fight wide-spread unemployment and, more generally, to safe-guard the size of the public sector in Europe.

One can legitimately wonder whether the current size of the public sector in Europe is too large relative to the first-best outcome. Indeed, many people believe this is the case so that Europe is now in a second-best or third best situation. Introducing distortions in a second-best world may be desirable, if this cancels the effect of other distortions. However, the experience of the US suggests that the EMU may well pose a threat to the size of the public sector. In the long run, when the EMU is firmly established, Europe may have to get used to the problem of coping with a too small size of the public sector. In the medium run, the competitive setting of budgetary policies under the EMU may speed up the process of cutting the size of the public sector and taking Europe in the direction of the first-best optimum. People who believe that the current size of the public sector in Europe is too large should like this.

Notes

1. For useful overviews of the functioning of the EMS, see Gros and Thygesen (1988), Giavazzi, Micossi and Miller (1988), and Giavazzi and Giovannini (1989a).

2. Other reasons put forward in favour of a crawling peg are concern about the future cohesiveness of EMS currencies when international trade in financial assets is fully liberalised and when there is the danger `hat the dollar may have to fall by a further 20-30 per cent before global i ilances in current accounts are eliminated. See Giavazzi and Giovannini (1986) and Melitz (1988b) for related discussions.

3. A balanced overview of the arguments for and against a breaking down of the EMS as a consequence of fending off speculative attacks being less easy when capital markets are liberalised may be found in Driffill (1988).

4. De Grauwe (1989a) casts some doubt on whether the EMS can be characterised by German hegemony. However, de Grauwe (1989a) also finds that Italy (and France) managed with the aid of capital controls to almost completely insulate their domestic interest rates from speculative attacks.

5. Gros and Lane (1989) suggest that tightening of EMS-bands leads to more intervention by all members, even if the formal responsibility for keeping exchange rates within the bands lies with the peripheral countries. Hence, progress on the proposals of the Delors Committee in itself leads to a weakening of German hegemony.

6. For the countries of southern Europe seigniorage appears to have been an important component of their financing policies, whereas for countries such as the Netherlands seigniorage is a negligible source of revenues (Giavazzi, 1989; Grilli, 1988). This lack of consensus may well be a source of conflict in the move towards fixed exchange rates and thus provide a case for a national money (e.g., Fischer, 1982).

7. Goodhart (1989) claims that the Delors Report used the word "coordination" at least 41 times and the word "convergence" at least 12 times; in addition, many synonyms (e.g., cooperation, concertation) were used.

8. Such a non-cooperative outcome corresponds to the Nash-Cournot equilibrium outcome, which in the presence of international externalities is usually not Pareto-efficient for the countries concerned. Roubini (1987a; b) also considers Stackelberg outcomes, which may be relevant in a discussion of German leadership in the EMS.

9. In the language of game theory the rules outcome corresponds to a pre-commitment outcome, whilst the discretionary outcome corresponds to subgame-perfect outcome.

10. This section draws on van der Ploeg (1989c; 1990c).

11. Strictly speaking, perfect capital mobility does not only require absence of capital controls but also perfect substitution between home and foreign bonds. Although it seems realistic to assume full liberalisation of European capital markets, it is worthwhile to point out that there are cases in which capital market integration is only welfare-improving if governments coordinate their monetary policies (Chang, 1989). The point is that financial integration

enhances the impact of domestic policies on foreign interest rates, real allocations and welfare and thus liberalisation of capital markets increases the welfare losses from non-cooperative policymaking.

12. Hamada (1976) assumes purchasing power parity and uses the monetary approach to the balance of payments to show that under fixed exchange rates national monetary policies are highly interdependent and there are strong incentives to coordinate. The reason is that there is a common inflation rate, given by the weighted growth in the supply of domestic credit expansion plus growth in international reserves minus average growth in real income, and a balance-of-payments surplus occurs when the demand for money exceeds the domestic supply of money. Hence, an expansion of domestic credit leads to a deficit, mirrored by surpluses elsewhere, and a higher inflation rate for all member states. When welfare depends on inflation and the balance of payments, Hamada (1976) shows that, in the absence of international policy coordination, inflation is higher than desired inflation when the increase in international reserves exceeds the weighted desires increase in reserves. The reason is that countries defend themselves against reserve accumulation by expanding domestic credit and thus raising inflation. A FLOAT does not require this type of coordination, because balances of payments are always in equilibrium and each central bank can set its own monetary growth to its desired inflation rate.

13. An increase in home monetary growth increases home inflation by the same amount but leaves foreign inflation unaffected. It reduces real interest rates and capital accumulation throughout the world. This can be called the interdependent Mundell-Tobin effect. In the absence of international policy cooperation each country fails to internalise the beneficial effects of higher inflation on capital accumulation in the rest of the world and thus pursues a too low monetary growth rate. Effectively, each country attempts to shift the burden of reducing the world real interest rate to its competitors.

14. Mussa (1990) states that "The behavior of Real Exchange Rates is SYSTEMATICALLY and SUBSTANTIALLY influenced by the nature of the Nominal Exchange Rate Regime". The point is that in the move from Bretton Woods to floating exchange rates, the volatility of nominal exchange rates and of real exchange rates go up together. Similarly, in moving to the EMS, the volatility of both real and nominal intra-European exchange rates diminished considerably. The main implication of this solid empirical fact is that it is reasonable to assume, at least in the short run, that nominal wages and prices are much less volatile than nominal exchange rates in a regime of floating exchange rates. It thus seems, as a first shot, a sensible approximation to assume fixed real exchange rates under the EMU and volatile real exchange rates under a FLOAT.

15. When countries inherit a high inflation rate and engage in a monetary disinflation, one usually finds that this occurs too fast as central banks attempt to tighten their monetary policy and dump a higher cost of living on their rivals (e.g., Oudiz and Sachs, 1985; Miller and Salmon, 1985).

16. For a related analysis of dynamic monetary policy games under the EMS, see Begg and Wyplosz (1987) and Huizinga (1989).

17. Any complications arising from speculative attacks are ignored, which may be a bit tricky as capital controls will be abolished from 1st July 1990 onwards.

18. Basevi and Giavazzi (1987) use numerical simulation to show that, when the EMU consists of countries with different structures, it is not optimal to have fixed intra-European exchange rates, even when countries are hit by identical shocks.

19. The recent developments in the two Germanies provide, of course, a spectacular example of labour mobility, which means that from the point of view of optimum currency areas the unification of West-Germany and East-Germany is a splendid idea. It is essential for the EMU to be a success that labour mobility within Europe is high, which may be fa ly probable at the margin in some sectors. Although Molle and van Mourik (1988) provide some empirical evidence, more work on this issue is badly needed.

20. However, as always one may doubt whether convoluted political horse-trading leads to an equitable distribution. The some worries apply to the harmonisation of rules for social security.

21. The intention to double the funds for regional and structural policies does, of course, not deal with these problems.

22. When there are temporary and Europe-wide shocks, one could argue that the budget of the EFTS should be balanced in an intertemporal fashion and that this thus permits transfers from one generation to another in order to off-set such temporary shocks. However, one could argue that there should be limits to this use of the EFTS and, in general, to the transfer of additional fiscal powers to the federal level, since benefits vary too much throughout Europe and since the Community should not levy taxes as long as it is not fully accountable to the electorates of Europe (also Goodhart, 1989).

23. The challenge is thus to supplement redistributive transfer schemes, such as a EFTS, with incentive rules in order to make sure that the EFTS does not take away the incentive for individual countries to adjust to market signals. One way of having such incentive rules is to build in conditionality into the EFTS. For example, training and schooling. Alternatively, one could have loans to depressed regions with conditional elements such as interest rebates, the rebate serving as the transfer. An alternative is, perhaps, to use changes in VAT rates to bring about the required changes in wages and prices, but the problem with such a scheme is that it runs counter to the attempts to harmonise VAT rates in Europe.

24. This is exactly the opposite of what happens under a shift of preferences from home to foreign goods, because then the depreciation of the currency that occurs under a float softens the adverse effects on unemployment but leads to a further fall in real income.

25. Of course, some would argue that the real issue is not whether shocks are country-specific or not but whether shocks are sectoral or not. One could envisage a Community-wide adverse shock to the steel industry. The most appropriate response is then not necessarily macroeconomic stabilisation policy, but a coordinated Community attempt at resolving the problems in the steel industry.

26. This section draws on van der Ploeg (1989b).

27. Of course, even though right-wing governments end up with too loose and left-wing governments with too tight fiscal stances, right-wing governments will in general have tighter fiscal stances than left-wing governments.

28. However, if a German fiscal expansion is a beggar-thy-neighbour policy, the German fiscal stance may be too loose.

29. Drèze et al. (1987), Drèze and Wyplosz (1988) and Wyplosz (1990) also argue that Europe with its wide-spread unemployment problem is in view of its domestic problems in dire need of a coordinated budgetary expansion, but that Europe has not much incentive to reduce global imbalances for the sake of the US. In either case, too little demand expansion is undertaken in Europe to get a good grip at its problem of wide-spread unemployment.

30. The point is that Germany currently has no real individual incentive to engage in a demand expansion, whereas many other parts of Europe would benefit from a German expansion. In any case, microeconomic and supply side problems are much more important in Germany because these stifle Germany's growth of output, investment and employment, and reduce the responsiveness of the German economy to market signals (e.g., Lipschitz, et al., 1989).

31. Of course, one could argue that the ESCB should adjust its monetary policy in the face of European-wide shocks but this may go at the expense of its reputation for strict monetary discipline (see Part III.3). This is the reason why one may advocate an independent (and thus passive) ESCB.

32. This part draws on van der Ploeg (1990b) and attempts to give some reasons why the EMU may pose a threat to the size of the public sector in Europe.

33. The menu costs of anticipated inflation can usually be measured in terms of triangles under the money demand schedule. However, empirically the magnitude of such costs are small and in any case under the quantity theory these costs are zero. However, if a higher level of anticipated inflation leads to a higher variance of unanticipated inflation, resources will be misallocated, arbitrary redistribution would occur and, perhaps, less long-term contracts will be made. The resulting costs of inflation may be substantial.

34. Empirical evidence may be found in de Jong and van der Ploeg (1990).

35. In any case, some argue on empirical grounds that the EMS has not really got such a fantastic inflation-unemployment trade-off (e.g., as measured by sacrifice ratios) anyway (Dornbusch, 1989). The reason may be that EMS-countries employed a gradualist disinflation policy whilst some of their competitors (the UK and the US) employed a shock treatment to get rid of inflation (de Grauwe, 1989b). However, others argue that there is evidence that the EMS has enabled countries such as Ireland to reduce the output costs of disinflation (Kremers, 1989).

36. In fact, the monetary union may end up at the wrong side of the seigniorage Laffer curve, when money demand depends negatively on expected inflation (Aizenman, 1989).

37. In fact, the Delors Committee recommends a federal structure in which the central banks of the EMU-countries are incorporated in a ESCB. The ESCB should have an autonomous and independent status. The ESCB should have three levels of organisation: (i) the Council of the ESCB consisting of the presidents of the national central banks, which is independent of the Community and national authorities (cf., the German "Zentralbankrat"); (ii) the Board of the ESCB, which monitors monetary developments and oversees the implementation of the common monetary policy (cf., the German "Direktorium"); and (iii) the national central banks which execute the decisions taken by the Council (cf., the

"Landeszentralbanken") (also, see Eijffinger, 1989). Much more details on the ECB can be found in De Cecco and Giovannini (1989).

38. Of course, the first-best response is to destroy such incentives to renege on nominal contracts through, for example, wage indexation or the issue of indexed rather than nominal bonds. Conversely, an independent ESCB does not destroy all forms of capital levy.

39. There is plenty of evidence that wages in Europe are fairly well indexed to consumers' prices (e.g., Branson and Rotemberg, 1980   so that the scope for eroding the real value of the wage through unanti..ipated inflation is limited. In any case, it is straightforward to extend the arguments of this part to also allow for an effect of unanticipated inflation on output as in Barro and Gordon (1983). Since money is mainly held for transactions rather than for speculative purposes, there is not much scope for eroding the real value of money balances either. In any case, public debt in Europe is much larger than the stock of real money balances.

40. Since the real stock of public debt, d_i, is no longer a predetermined variable, an increase in the level rather than in the growth of the nominal supply of high-powered money leads to an equal increase in the price level and can thus be used to wipe out the real value of public debt at "the stroke of a pen" (cf., Keynes, 1971, Chapter 2). Such capital levies are not discussed here.

41. Of course one could question why an exchange-rate target is more credible than a direct money-supply target. Presumably, the answer is that the EMS provides an institutional arrangement for forcing countries to stick to their exchange-rate commitments.

42. Sufficient conditions are d=-m and N=2 or N=3 or (b_2/b_1) is less than m^2, so that, when the higher costs of tax collection dominate the gains arising from lower inflation, cooperation is counterproductive. The counter-example is based on a restructuring of government debt in such a way as to remove the incentive to levy a surprise inflation in the cooperative outcome: the gains on real money balances are exactly off-set by the losses on public assets.

43. In fact, this statement is only true when lower taxes are not capitalised. If one country has lower taxes, then house prices may go up by exactly the same amount as the annuity value of the tax advantage.

44. The point may be weakened somewhat if one allows countries to compete in the provision of public goods (e.g., an efficient legal system).

45. Other examples of the international coordination of tax policies in two-country general equilibrium models with a well-developed supply side can be found in Frenkel and Razin (1987; 1989), Frenkel, Razin and Symanski (1989), and Razin and Sadka (1989a). An example of the Pareto-improving effects of harmonisation of VAT rates can be found in Keen (1989).

46. One way to overcome the problem of time inconsistency is often thought to be to appoint conservatie central bankers. In a two-country world this is particularly true for asymmetric shocks, but symmetric shocks weaken the case for conservative central bankers (Laskar, 1989).

47. Here attention is focussed on a monetary market-clearing model; Kehoe (1987; 1989) considers the counterproductivity of coordination of fiscal policies within the context of a real market-clearing model with capital

accumulation.

48. The time inconsistency arises despite the fact that public and private preferences coincide. A related source of time inconsistency is when there is a conflict between a treasury and a central bank trying not to succomb to pressure from ministers and other politicians to finance public spending with seigniorage (see part III.2).

49. This policy change leads to a trade surplus, which is choked off by an appreciation of the real exchange rate. Hence, foreign consumption of home goods falls and foreign welfare falls.

50. However, it is important to realise that there exist counter-examples to the point that international policy coordination can be counterproductive.

51. Details can be found in van der Ploeg (1989b).

52. Original contributions to the theory of optimum currency areas are Mundell (1961), McKinnon (1963) and Kenen (1969) which respectively emphasise the criteria of factor mobility, openness, and diversification and fiscal integration. Surveys of the pros and cons of common currency areas are given by Ishyama (1975) and by van der Ploeg (1989a) and others in WRR (1989).

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