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CENTER DISCUSSION PAPER NO. 613

REFLECTIONS ON THE FISCAL IMPLICATIONS
OF A COMMON CURRENCY

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Notes: Center Discussion Papers are preliminary materials circulated to stimulate discussion and critical comments.

REFLECTIONS ON THE FISCAL IMPLICATIONS OF A COMMON CURRENCY

Abstract

This paper studies the likely consequences of monetary unification among the EC members for the conduct of fiscal policy in the EC countries (and by an emerging Federal European Fiscal Authority). Among the conclusions are the following. If the Eurofed is to be independent, the external exchange rate policy of the EC should be assigned to the Eurofed and not to the fiscal authorities. Effective (as opposed to formal) independence of the Eurofed is going to be very difficult to achieve. Coordinated upper ceilings on national public sector financial deficits are unnecessary and probably undesirable. Coordination of national public expenditure policies, tax policies and borrowing policies is in principle desirable for both efficiency and distributional reasons. The empirical models required for a serious welfare analysis of fiscal policy coordination do not yet exist.

KEY WORDS: Monetary union, fiscal policy coordination, externality

REFLECTIONS ON THE FISCAL IMPLICATIONS OF A COMMON CURRENCY

Willem H. Buiter and Kenneth M. Kletzer

1. Introduction: Sense and Nonsense in the Delors Report.

The much increased likelihood of significant advances in European monetary integration—and even of European monetary union in the medium-term future—has not surprisingly shifted the spotlight on the need for coordination of fiscal policies as a complement to monetary unification. The Delors Report [1989] made much of the fiscal implications of the movement towards a greater degree of rigidity of nominal exchange rates among participants in the exchange rate arrangements of the European Monetary System (EMS).

A monetary union would require a single monetary policy and responsibility for the formulation of this policy would consequently have to be vested in one decision-making body. In the economic field a wide range of decisions would remain the preserve of national and regional authorities. However, given their potential impact on the overall domestic and external economic situation of the Community and their implications for the conduct of a common monetary policy, such decisions would have to be placed within an agreed macro-economic framework and be subject to binding procedures and rules. This would permit the determination of an overall policy stance for the Community as a whole, avoid unsustainable differences between individual member countries in public sector borrowing requirements and place binding constraints on the size and the financing of budget deficits. (Delors Report [1989, p.18])

No deficits, please.

There are frequent further references in the Delors Report to the need to control national public sector deficits and in a number of places the Report becomes rather specific about the constraints to be imposed on national

budgetary policy. The passage quoted below (and similar ones scattered through the Report) make this clear:

In the budgetary field, binding rules are required that would: firstly, impose effective upper limits on budget deficits of individual member countries of the Community, although in setting these limits the situation of each member country might have to be taken into consideration; secondly, exclude access to direct central bank credit and other forms of monetary financing while, however, permitting open market operations in government securities; thirdly, limit recourse to external borrowing in non-Community currencies. (Delors Report [1989, p. 24])

Space constraints do not permit an exhaustive analysis of this rather unusual statement. Note however, in the first proposed binding rule, the startling asymmetry of the constraints on the public sector deficit: upper limits but no lower limits. Such an asymmetry can only be rationalized through a belief that absent these constraints there would be a bias towards government deficits that are too large rather than too small. The reader of the Report is provided neither with a criterion for measuring excess or deficiency in public sector deficits nor with a hint of the evidence on which the empirical judgement is based. The statement appears to represent the typical Pavlovian conditioned reflex of fiscally conservative central bankers when faced with any and all government deficits.

An independent European Central Bank: form and substance.

The second proposed binding rule only makes sense if one believes that it is possible that the new "independent" European System of Central Banks (ECB) could still be forced (at any rate under extreme circumstances such as those represented by a very high public debt overhang) into inflationary monetization. Such a situation could come about either because the ECB would lack formal independence or because, despite formal independence, the ECB

would choose to lose a game of chicken with the budgetary authorities rather than causing a monetary and financial crisis by not giving in. In what follows the wisdom (or lack of it) of having an independent Central Bank will not be considered. There are good arguments both for and against it. The discussion is limited to the meaning of 'independence' and the means of achieving it.

An effectively independent ECB is one which cannot be forced, either by law or by circumstances under the control of the budgetary authorities, (be they member state governments or an emerging central fiscal authority) to monetize deficits, to engage in open market operations or to engage in foreign exchange market interventions (especially nonsterilized interventions).

Even if it were possible to identify any given change in the stock of base money either as additional money issued "to finance the government deficit", or as money issued as the counterpart of an open market purchase or as money issued as the counterpart of a nonsterilized purchase of official foreign exchange reserves, the distinction would be behaviourally meaningless unless the different ways in which an additional ECU gets into the system somehow convey different signals about the future actions of the monetary authority. In any case, monetary deficit financing, money injected through open market purchases and money injected through nonsterilized purchases of foreign exchange cannot be separately identified from the data. The three sources of base money growth are also operationally equivalent.

Consider e.g. the case of an accounting period during which the government deficit excluding borrowing from the Central Bank is, say, ECU 100, the monetary base and the Central Bank's holdings of public debt each increase by ECU 100 and the stock of foreign reserves remains unchanged. This could be interpreted as representing ECU 100 of monetary financing of the government

deficit with no net open market purchase of government debt by the Central Bank and no unsterilized or sterilized foreign exchange market intervention. Alternatively it could be interpreted as the outcome of zero monetary financing of the deficit, ECU 100 of open market purchases of government debt by the Central Bank and zero unsterilized and sterilized foreign exchange market intervention. A third possible interpretation is to view it as the outcome of the following set of financial operations. First, ECU -100 of monetary financing of the deficit. The Treasury is "overfunding" the deficit by borrowing ECU 200 from the non-Central Bank public (ECU 100 more than the government deficit) and thus increasing its balance with the Central Bank by ECU 100. This corresponds to an ECU 100 reduction both in the monetary base and in Central Bank holdings of government debt. Second, ECU 300 of open market purchases of public debt by the Central Bank (that is an ECU 300 increase in the monetary base and an equal increase in Central Bank holdings of public debt). Third, ECU 100 of sterilized purchases of foreign exchange (that is an ECU 100 increase in foreign exchange reserves and an equal reduction in Central Bank holdings of public debt) and fourth, ECU 100 of nonsterilized sales of foreign exchange reserves (that is an ECU 100 reduction in reserves matched by an equal reduction in the monetary base). There is no natural benchmark or counterfactual. There are too many degrees of freedom.

If a Central Bank is formally independent but can easily be manoeuvred by the fiscal authorities into a position where, given the Central Bank's own objectives, the optimal thing to do is to create money to a much greater extent than it would have chosen to do if the fiscal authorities could have been induced to act differently, then Central Bank independence is an empty shell. Substantive independence presupposes a non-trivial domain over which choice can be exerted. Even if every inhabitant of Bangladesh were formally

free to buy a Rolls Royce (which owing to import restrictions in that country is actually unlikely to be the case) the budget constraints of most Bangladeshis make this formal freedom an empty one.

One can easily imagine a formally independent Central Bank with a strong (but not an absolute) aversion to inflation, confronting a fiscal authority that is persistently unwilling (even though technically able) to cover current outlays with current revenues. Assume that, if the Bank does not provide accommodating monetary growth and the Treasury does not reduce the deficit, the public debt-GDP ratio will increase steadily. If the debt were to grow persistently faster than the rate of interest, eventual insolvency of the Exchequer would result. Even if there is no threat of insolvency, the increasing debt burden would, if there is no "first-order" debt neutrality, put upward pressure on real interest rates and crowd out interest-sensitive categories of private spending or increase the external current account deficit.

Sargent [1986, pp. 19-39] contains an interesting description (attributed by Sargent to Neil Wallace) of this game of "chicken" between a Central Bank and a Treasury. "Chicken" is a non-cooperative game in which both players promise that they will adopt the strategy of Stackelberg leaders. For each of the players, of course, the announced strategy is feasible only if the other player acts as a follower. This struggle for dominance between the monetary and fiscal authorities represents a situation of Stackelberg warfare (Sargent [1986, p. 37]). To complicate matters, in the USA the game is between the Central Bank and a rather more Balkanized set of fiscal authorities, i.e. it is a three- or more sided game of chicken.

The Central Bank asserts that, come hell or high water, it will not engage in inflationary monetization, in the hope of forcing the fiscal

authorities to take steps to reduce the deficit. A unified fiscal authority counters by asserting that it will under no circumstances reduce its deficit, hoping to convince the Central Bank to monetize the deficit in order to prevent a steep rise in real interest rates, financial distress etc. Alternatively, with a Balkanized fiscal authority, the Central Bank may (mixing metaphors) suffer the fall-out from an unresolved game of chicken between two or more fiscal warlords. The White House fiscal warlord may threaten to veto any tax increase ("read my lips") in the hope of forcing one or more of the Capitol Hill fiscal warlords to accept spending cuts. Blocking coalitions of Capitol Hill warlords may veto cuts in certain spending categories ("not in my constituency") in the hope either of directing the spending axe elsewhere or of securing a tax increase.

Unpleasant things tend to happen when an irresistible force meets an immovable object. While no one likes to be caught bluffing, the resolve of the Central Bank may well weaken as it sees the debt burden rising. If it believes the fiscal authority is unlikely to mend its ways, it may rationally opt to be chicken rather than risking a head-on collision. The dilemma is resolved through monetization and inflation.

In a recent paper Ben Friedman [1990] has argued that in the years to come the rising corporate debt burden in the USA may play the role attributed to public debt in the Sargent-Wallace scenario: tough anti-inflationary monetary policy is not credible given the financial exposure and fragility of the US corporate sector. In the British context Buiter and Miller [1983] have identified a similar game of chicken during the 1970's between the trades unions on the one hand and the monetary and fiscal authorities on the other hand (in Britain the Central Bank is formally and effectively subordinate to the Treasury). Unions submitted inflationary wage demands (and often

succeeded in imposing inflationary wage settlements) in the expectation that demand management would be accommodating. No government would be willing to live with the unemployment consequences of non-accommodating monetary and fiscal policy. Governments talked tough about not validating inflationary wage and price developments. During most of the seventies it was the governments that blinked and lost the game. The new Conservative administration that came to power in 1979 changed the rules of the game (at any rate during its early years) and broke the inflationary momentum with the deepest recession since the 1930's.

One way to increase the likelihood that the Central Bank will win the game of chicken with the fiscal authorities is by convincing the latter that the Central Bank is implacably, irrevocably and unalterably opposed to any and all inflation. This could be achieved by the founding fathers and mothers of the Central Bank appointing someone (or a group of people) to head the Central Bank who is known to possess extreme, perhaps even irrational or pathological, inflation aversion. (The appointment procedure for the first and subsequent heads of the Central Bank will of course be crucial for this to work). It isn't wise for anyone to play a game of chicken with an adversary who may be slightly insane. Believing it is dealing with an anti-inflationary fanatic of doubtful rationality, the Treasury may prefer to give in rather than to test the resolve of the Central Bank. The possible rationality of choosing an agent who does not exactly share one's objectives (or who may even be irrational) is explained very clearly in Schelling [1960]

The use of thugs and sadists for the collection of extortion or the guarding of prisoners, or the conspicuous delegation of authority to a military commander of known motivation, exemplifies a common means of making credible a response pattern that the original source of decision might have been thought to shrink from or to find profitless, once the threat had failed. (Just as it would be

rational for a rational player to destroy his own rationality in certain game situations, either to deter a threat that might be made against him and that would be premised on his rationality or to make credible a threat that he could not otherwise commit himself to, it may also be rational for a player to select irrational partners or agents.) (Schelling [1960], pp. 142-143)

This idea has recently been taken up again, amongst others by Rogoff [1985b].

While formal independence of the ECB is not sufficient to rule out the possibility of the ECB being forced into accommodating inflationary monetization, it is a necessary condition. It is important to stress that formal independence requires that the ECB have control over all sources of money creation: monetization of public sector deficits, monetization through open market purchases and monetization through (non-sterilized) purchases of foreign exchange. If, say, foreign exchange market intervention were to continue to occur at the initiative of the national Treasuries (or the central European Community (EC) fiscal authority) and if the ECB were not to be free to engage in sterilizing sales or purchases of public debt, there would not even be a formally independent monetary authority. What this means in practice is that for the Central Bank to be independent, the exchange rate of the ECU with non-EC currencies must be under the control of the Central Bank, and not of the national or supranational fiscal authorities.

In principle it is of course possible for the Central Bank to have control over all sources of money creation and yet for the Treasury to have control over the exchange rate. This would be the case if fiscal instruments could be used to influence the various arguments in the money demand function. Even with perfect capital mobility between the EC and the rest of the world, international interest taxes or subsidies could enforce departures from uncovered interest parity. Since the EC is large in the world economy, fiscal policy could be used to influence the world level of real interest rates and

(given the stance of monetary policy) also the level of nominal interest rates, which is one of the arguments in the money demand function. If nominal interest rates affect EC money demand differently than money demand in the rest of the world, this would be a further channel through which the exchange rate could be influenced through fiscal policy. In addition, various spending and tax instruments could be used to influence the "scale variables" in the money demand function such as income or (financial) wealth. Given the rather severe limitations in practice on the flexible use of fiscal instruments and their uncertain effects on money demand and on the exchange rate, at least the day-to-day management of the exchange rate would have to be the province of monetary policy.

The post-Delors Report consensus that is emerging in and around Brussels appears, fortunately, to have been purged of the Report's rather obsessive concern with upper limits on national public sector budget deficits. However, there also appears to be agreement that the determination of the common EC external exchange rate should not be the exclusive province of the "Eurofed", but should be determined by the appropriate political budgetary authority (or authorities) in the new Community. We sympathize with the view that the exchange rate is too serious a matter to be left to the Central Bank. The unavoidable implication of that view is, however, that the Central Bank cannot be independent.

The authors of the Report may well be right in their lack of confidence (implicit in the (now apparently discarded) budgetary recommendations of the Report) in the independence of the proposed ECB. The recent embarrassing (to Central Bank pride) subjugation of the Bundesbank by Chancellor Kohl in connection with the latter's 'out of the blue' proposal for instant monetary union between the FRG and the GDR makes it clear that in the last resort even

the most independent Central Bank will give in to the political authorities. It is however, somewhat ironic to find side by side in the Delors Report a statement about the need to create an independent ECB and an implicit admission that there are identifiable contingencies when independence is bound to be an empty phrase.

As regards the last of the triad of proposed binding rules, it is very hard to make sense of the curious concern with the currency composition of external borrowing. If a European national fiscal authority or an emerging Federal European fiscal authority can borrow externally in US Dollars, Japanese Yen or inconvertible Rubles, why shouldn't it? Where is the externality?

2. Exchange rate unification, monetary unification and fiscal coordination.

If phases 2 and 3 of the Delors Report's scheme for exchange rate unification and monetary union are eventually implemented, a single European Central Bank and a single European currency will emerge. The long-standing opposition to this scheme by British Prime Minister Thatcher (and the less vocal but probably no less determined opposition of the Bundesbank and part of the current West German political leadership) make it unlikely, however, that full exchange rate and monetary union for the European Community are imminent. The recent preoccupation of the West German authorities with the monetary, financial and fiscal consequences of their take-over of the bankrupt East German economy is likely to create further delays in the implementation of the Delors monetary agenda.

How robust is the proposition that exchange rate unification and monetary union create greater need for fiscal policy coordination than would prevail

under greater exchange rate flexibility?

With a high degree of international capital mobility and a fixed nominal exchange rate (and a fortiori with a full single-currency, monetary union with pooled international reserves), individual national fiscal authorities will lose control over national seigniorage as a means of financing national public sector deficits. The total amount of seigniorage that can be extracted by the fixed exchange rate zone or the monetary union as a whole and its distribution among the members of the union (and between the member governments and a strengthened and enlarged central authority in Brussels) remain objects of choice and potential bones of contention.

In the case of the European Community, the currencies of two of the intended members of the monetary union (The D-Mark and the Pound Sterling) have been used and continue to be used both as official international reserves and as components of private working balances by agents outside the proposed monetary union. The ECU, when it emerges as a full-fledged currency can be expected to play a similar international reserve and vehicle currency role. We can therefore anticipate bargaining over the distribution of both the external and the internal seigniorage.

Changes in the degree of national control over seigniorage revenue will have implications for the rest of the budget, if only because government solvency constraints must be met. The concept of solvency used by macroeconomists and public finance specialists only makes sense in a dynamically efficient economy. In a non-stochastic world, dynamic efficiency rules out the possibility that the rate of interest be forever below the growth rate of real economic activity. In a dynamically efficient economy, a solvent government is assumed not to be able to play Ponzi games with its debt: the value of the outstanding national debt can be no greater than the

sum of the present discounted value of anticipated primary (non-interest) public sector financial surpluses and the present discounted value of anticipated future issues of high powered money¹.

There are large differences in primary surpluses (as a proportion of GDP) between the members of the European Community. For the ten countries listed in Table 1 the general government primary surplus as a percentage of GDP/GNP in 1988 ranges from +4.6 percent for Denmark to -6.3 percent for Greece. For the nine countries for which net public debt-GDP ratios are given in Table 1, the range in 1988 is from 21.2 percent for Denmark to 123.7 percent for Belgium. There is no systematic tendency over the past decade for primary surplus-GDP ratios to be positively correlated with debt-GDP ratios. The arithmetic consequence is a very wide range of public sector financial balance-GDP ratios, from +0.8 percent for the U.K. to -14.5 percent for Greece in 1988.

Recourse to seigniorage has been relatively small in most European Community member states (see Table 2). Exceptions to this rule are Italy (before 1986) and Portugal, Greece and Spain.

Monetary policy can be an important policy instrument even if the use of base money as a source of seigniorage is negligible. If the right kind of nominal stickiness or inertia in wages or prices is present in an economic system with imperfect international capital mobility, real economic activity can be influenced both by the systematic and the unanticipated components of the monetary rule. With a fixed exchange rate and perfect international capital mobility national monetary stabilization policy has national effects only to the extent that it influences the world rate of interest. With a monetary union national monetary policy exists only through national influence on the decisions of the union's Central Bank.

3. National Solvency Without National Monetary Policy.

The public sector budget identity for any country i can be written as follows:

$$\dot{d}_i \equiv (r_i - n_i)d_i - \pi_i - \sigma_i$$

Here d is the debt-GDP ratio, r the instantaneous real interest rate on the non-monetary public debt, n the growth rate of real GDP, π the primary surplus-GDP ratio and σ seigniorage as a proportion of GDP (the ratio of changes in the stock of base money to nominal GDP).

With the abolition of all remaining capital controls within the European Community, full covered interest parity can be expected to prevail among the member states. With complete and credible exchange rate unification, uncovered nominal interest rate parity will also be established among the members. Whether or not this leads to greater convergence of real interest rates is a question that is theoretically and empirically open. With complete instantaneous purchasing power parity (PPP) nominal interest equalization implies real interest equalization. The behaviour of national producer and consumer price indices is far from being well characterized by PPP. Mean reverting tendencies appear to be weak or even absent for a number of key real exchange rate indices, so even as a long-run characterization of the data, PPP leaves a lot to be desired.

It is true that real exchange rate volatility and uncertainty have been statistically associated very strongly with nominal exchange rate volatility and uncertainty. If this statistical association survives the Lucas critique when a further move towards reduced nominal exchange rate flexibility occurs,

there will be a reduction in those components of national real interest differentials that reflect nominal exchange risk premia. No such presumption exists for the contribution to national real interest differentials due to anticipations of real exchange rate appreciation or depreciation. For the sake of argument, however, consider the case in which following nominal exchange rate unification, national real interest differentials on the public debt vanish, except of course for differentials due to market perceptions of differences in national public debt default risk premia.

With similar primary surpluses τ_i , similar seigniorage σ_i and similar real interest rates r_i , countries with high current debt-GDP ratios d_i will have more rapidly rising debt-GDP ratios unless higher GDP growth rates n_i come to the rescue of the high debt countries. There is little evidence to support the view that high debt countries are high growth countries (see Table 1).

The pure version of the solvency constraint does not rule out the possibility that a forever rising (and eventually unbounded) public debt-GDP ratio is consistent with solvency. As long as the growth rate of the debt-GDP ratio is less than $r_i - n_i$ (which in a dynamically efficient economy will eventually or in the long run be some nonnegative number), d can rise without bound with the government's solvency intact.

This surprising fiscal feat is possible because the government is assumed to have access to lump sum taxes which, without distortions or enforcement costs, enable it to appropriate (and to use for debt service) any amount of resources less than or equal to the sum of GDP and the interest on its debt. Allowing for distortionary taxation and/or for tax compliance costs is sufficient to establish a finite upper bound for the public debt-GDP ratio. While these bounds need not be the same for all countries, it is likely that

the current high debt countries will encounter their barriers before the less indebted countries. Countries like the U.K. may already be in the position that a continuation of current primary deficits and seigniorage patterns implies a steadily declining debt-GDP ratio.

With a currency union (or even just a credible fixed exchange rate system) a country headed for insolvency no longer has the option of unilaterally determining the extent to which it uses the inflation tax. Neither seigniorage narrowly defined (high-powered money creation), nor the rest of the "anticipated inflation tax" (the effects of anticipated inflation on the primary deficit through fiscal drag or through the Tanzi effect and the Tobin effect of expected inflation on the real interest rate), nor the "unanticipated inflation tax" on holders of long-dated nominally denominated government debt are national policy instruments any longer. It also seems unlikely that any single member country will have enough influence on the Community's Central Bank to allow it to assign the community-wide inflation rate to the solution of its national fiscal problems. That leaves cuts in its primary public sector deficit and/or default on its debt as the only two policy options. The perception by the market of the existence of default risk will, by adding a default risk premium to the interest rate on the public debt, exacerbate the fiscal problem and bring forward the moment when actual default becomes inevitable.

All this is likely to be painful for the inhabitants (and the government) of the heavily indebted country. The question is, should it be of concern to the other members of the Community? Are there efficiency or equity arguments for constraining the member states' public sector financial deficits, primary deficits or even spending and revenue-raising separately, that is is there a case for coordinating budgetary policy among the member states?

4. National Public Sector Deficits and Community-wide Interest Rates: Pecuniary vs. Technological Externalities.

The arguments frequently made in favor of international coordination of fiscal policies, both in the scholarly literature and in nontechnical policy debate, appear to apply with equal force regardless of the exchange rate regime. They often rely on *fiscal externalities* or *spillovers* that are present whenever domestic and foreign government debts are traded internationally or indeed when any form of international transmission is present. A representative example of this kind of argument in a contribution to the policy debate can be found in the following quote from Professor Casella's response to an editorial opinion in *The Economist* which had stated that there was "no economic reason why the members of a common monetary system should not run budget deficits as they see fit." Referring to a common monetary system she writes:

Suppose first, in accordance with standard economic theory, that national governments with tax-raising powers could be considered safe borrowers (in contrast to private corporations). National debts in a common currency would be perfect substitutes and would therefore earn a common interest rate. A spending spree by one member state (Italy?) could be accommodated with a small increase in the interest rate—given the absence of exchange rate risk—but it would be an increase in the interest rate on the debt of *all* member states. In other words, the value of government bonds everywhere would fall, and the capital losses in the foreign portfolios would indirectly help to support the Italian deficit. Of course, the possibility of exporting the cost of financing government expenditure would distort incentives in the conduct of economic policy, in general leading to excessive deficits in all countries. Some form of coordination would be required. (Casella [1989] p. 4)

Even when (small) spreads between national borrowing rates (reflecting differential risks of de jure or de facto repudiation) are possible, the story

just told could still hold. Quoting again,

In a world with few borrowers, it may still be possible for one state to influence the value of the other states' debt if rates move in the same direction. (Casella [1989] p. 4)

Frenkel, Goldstein and Masson [1988] in their survey of international coordination of economic policies state (emphasis added)

. . . that economic policy actions, particularly those of larger countries, create quantitatively significant spillover effects or externalities for other countries, and that a global optimum requires that such externalities be taken into account in the decision-making calculus. Coordination is then best seen as a facilitating mechanism for internalizing these externalities. (p. 3)

They go on to stress the noncompetitive behavior of larger countries who "exercise a certain degree of *influence over prices* including the real exchange rate" (p. 3).

No doubt the authors of these quotes are, like other professional economists, fully aware of the distinction between efficiency-based and distribution-based arguments for policy intervention (including international policy coordination) and know the conditions under which international spillovers can have important efficiency or distributional consequences. In policy-oriented economic writing aimed at a wider audience it is especially important to be clear and explicit (albeit non-technical) about the economic reasoning underlying key assertions and propositions. The subject of spillovers, international transmission and interdependence involves subtleties that make it mandatory to cover all bases when addressing the intelligent lay person.

Since the late 19th century economists have recognized what are now called "technological externalities" as possible reasons for market failure

and as possible grounds for government intervention in the market mechanism.

As Laffont [1987] states succinctly, a

. . . technological externality [is], the indirect effect of a consumption activity or a production activity on the consumption set of a consumer, the utility function of a consumer or the production function of a producer. By indirect, we mean that the effect concerns an agent other than the one exerting this economic activity and that this effect does not work through the price system.
(p. 263)

Such technological externalities (positive or negative) will upset the first fundamental theorem of welfare economics and create a *prima facie* case for intervention.

During the 1920s and 1930s another kind of externalities or external economies labeled "*pecuniary* external economies" by Viner [1931] was the subject of much confused debate. The classic article "Two Concepts of External Economies" by Scitovsky [1954] settled many of the central issues (see also Bohm [1987]).

Pecuniary externalities work through the price system and refer to the effects of producer or consumer activities on the input or output prices of other producers, consumers or suppliers of factor services. It should be clear that when all the assumptions required for competitive equilibria to be Pareto optimal are satisfied, pecuniary externalities have no *efficiency* implications. They are merely another word for general market interdependence. When a consumer, alone or together with many other consumers, shifts his consumption bundle towards bananas and the price of bananas increases as a result, all those who were "long" in bananas (i.e. the net banana exporters) will benefit, and all those who were "short" in bananas (the net banana importers) will suffer a welfare loss. There may be important distributional issues involved, but there is no efficiency or market failure

argument for intervention.

At its simplest, the example developed by Professor Casella can be interpreted as describing an "*international* pecuniary externality". Unless there are other departures from competitive efficiency, the higher foreign interest rate that results from increased domestic borrowing need not involve any inefficiency. There are interesting distributional issues (international and intergenerational) which we have analyzed in a number of papers (Buiter and Kletzer [1990a,b]).

Much (though by no means all) of the work on international policy coordination uses national objective functions or social welfare functions that are not easily rationalized as utilitarian aggregators of underlying individual preferences. That need not pose any problems if one is interested in a positive theory of policy design. The objectives pursued by those actually in command of the instruments of economic policy may reflect narrow sectional or group interests rather than the utilitarian ideals of the philosopher kings that motivate many of the normative approaches to policy design. Even for many of the positive or descriptive approaches to economic policy design it remains true, however, that it is not easy to rationalize the policy makers' objectives in terms of the self-interest of any group, however broad or narrow.

When a utilitarian national objective function is optimized, it is important for a full appreciation of the meaning of statements such as , "cooperation increases (or reduces) national social welfare", to go behind the national (or global) social welfare functions and to verify what happens to the welfare of the individual consumers or households.

In Buiter and Kletzer [1990b] we show that, in a two-country overlapping generations² world with perfect international capital mobility, policy

cooperation is not required to achieve equilibria that are Pareto efficient in terms of the underlying private preferences. With only non-distortionary lump-sum taxes and transfers (and with government borrowing only constrained by the requirement that solvency be maintained), cooperation is required to achieve Pareto optima with respect to the two national social welfare functions. Cooperation and international transfers (or side payments) are required to achieve optimality with respect to a global social welfare function that can be seen as a utilitarian aggregator of the two national social welfare functions. In this case, the gains in national or global social welfare are purely distributional: some lose and some gain. A national social welfare function represents a specific weighting of the welfare of (successive generations of) a nation's residents. The global social welfare function represents a further specific weighting of the welfare of the residents of the two nations. Cooperation does not achieve a Pareto improvement with respect to the underlying individual preferences.

When distortionary taxes or subsidies are added to the instrument arsenal, it can easily happen that the achievement of a Pareto optimum with respect to the two national social welfare functions (or the achievement of an optimum for the global social welfare function) requires the use of the distortionary instruments. This will certainly be the case if there is no mechanism for effecting lump-sum international redistribution. For example, investment taxes and subsidies can be used to influence the distribution of income between the two countries' fixed factors (labor in Buiter and Kletzer [1990b]). In that example national social welfare Pareto optima and global social welfare optima will not be Pareto optima with respect to the underlying individual preferences. The cooperative pursuit of national social welfare here means that some efficiency is sacrificed in order to achieve preferred

distributional outcomes.

There obviously is nothing wrong with knowingly trading off efficiency for equity. It is, however, not always obvious that this is what is being done when national social welfare functions are plonked down and optimized. It is also not hard to think of other examples in which cooperation can lead to efficiency gains as well as improved distribution or, in the spirit of Rogoff [1985a] and Kehoe [1986], to efficiency losses and worse distribution. the moral of all this is that it is wise to stand back and reflect a bit when confronted with a finding that cooperation does (or does not) improve social welfare. Careless use of a national social welfare function for optimal policy design in an otherwise sensible model of the economy may create the misleading impression that one is dealing with a representative agent model, the nadir of macroeconomic analysis. Redistribution and conflict are swept under the carpet and what may well be the major obstacles to cooperative international policy design are ignored.

Returning to the problem of international interest rate spillovers, it is indeed likely that in a financially integrated Europe, borrowing by any government (or private agent) will put upward pressure on interest rates everywhere. If a government borrows to the point that its ability to service the debt becomes questionable, a default risk premium will be added to its borrowing costs and it may face credit rationing. Neither a community-wide increase in interest rates nor the market's response to a perception of sovereign risk need create an efficiency based argument for intervention or for coordination aimed at preventing these contingencies.

Higher interest rates will have international distributional consequences that are a legitimate concern of policy makers. Higher interest rates redistribute income from borrowers to lenders. This is true within national

economies and between national economies. Within a national economy higher interest rates redistribute income towards rentiers and away from labour and the owners of other real resources. It also tends to be associated with intergenerational redistribution from the young to the old. In the international context, the major resource transfer from debtor countries to creditor countries following the sharp increase in real interest rates in the early eighties is a dramatic example of the redistributive implications of interest rate changes.

Sovereign default risk affecting one of the member states may create externalities for the other member states that may be pecuniary or technological in nature. Asymmetric information and/or limited rationality may give rise to bandwagon or contagion effects that may cause default risk premia and credit rationing to spread to member countries for whom the fundamentals do not warrant such penalties. Such occurrences are, however, by no means certain. In the private sector we observe the coexistence of firms with very different credit ratings and conditions of access to credit markets. Default and bankruptcy of one firm, or even of a number of firms, need not results in panics and market seizures.

Some of the concerns expressed about the high debt countries in the Community seem to be born from the fear that the Community as a whole will be compelled (or feel compelled) to socialize part or all of their debt. While one cannot rule out categorically this or any other unusual future policy action by the new Community, there seems to be no compelling economic or political logic to support it. Even within existing nation states, provincial and local governments don't act as if they assume that the higher government tiers will routinely assume their liabilities. When city governments go into (the public sector equivalent of) receivership, as New York City did in the

Seventies, the costs in terms of financial and economic disarray, loss of autonomy etc. appear to be sufficiently high to discourage emulation and repeat performances.

We can therefore safely assume that even with a common European currency and unrestricted capital mobility, the Italian public debt will remain the Italian public debt, to be serviced out of Italian primary surpluses and out of whatever amount of seigniorage Italy manages to get from the ECB. International intra-Community transfers may well grow in significance as the Community matures. Among the criteria governing such transfers the relative magnitudes of the various national debts can be expected to play at most a very minor role. The total (private and public) international indebtedness of a country will, as one of the components of the wealth of the nation, play a role in future games of distribution, but the national debt per se can be expected to remain a national responsibility.

Summarizing, international interdependence and international spillovers do not by themselves imply market failure and do not create an automatic efficiency case for any form of intervention including international policy coordination. Interdependence or spillovers reflecting the transmission of policy through competitive markets and prices (be they commodity prices or asset prices and rates of return) do not create an efficiency-based case for policy coordination unless there are other distortions or sources of market failure in the economy. This is true even if the policy authorities are "large" and deliberately try to influence market prices in the pursuit of national advantage.

5. Non-Walrasian Equilibria, Pecuniary and Technological Externalities.

When the economy has "preexisting" distortions or when the instruments the government manipulates in the pursuit of national advantage create inefficiencies or distortions, an efficiency-based case for coordination may exist. Among the preexisting distortions that may make policy transmission through market prices inefficient are: distortionary taxes; technological consumption or production externalities; noncompetitive behavior; incomplete markets; and Keynesian market failure reflecting insufficient or excessive effective demand.

Even when markets are competitive, policy-induced distortions are absent and conventional technological consumption and production externalities are absent, a role for policy coordination may exist. As pointed out by Laffont [1987], when we move away from competitive equilibria in which all the assumptions for Pareto optimality are satisfied, market prices may do more than equate supply and demand and distribute income:

In economies with incomplete contingent markets, prices span the subspace in which consumption plans can be chosen. In economies with asymmetric information, prices transmit information. When agents affect prices, they affect the welfare of the other agents by altering their feasible consumption sets or their information structures. (p. 264)

In such economies the distinction between pecuniary and technological externalities vanishes because changes in prices do more than create or destroy rents.³ It is quite possible that the arguments in favor of the coordinated international management of international pecuniary fiscal externalities are (implicitly) based on such a non-Walrasian world view. It is of course always desirable to bring out explicitly either the reason(s) for

the breakdown of the first fundamental theorem of welfare economics or the distributional criteria that support the cooperative fiscal policy prescription.

With monetary policy emasculated as an instrument of national economic policy, the large differences between the debt burdens of Community member states foreshadow significant differences in the paths of future primary surpluses. While current and future primary surpluses are a very imperfect measure of the impact of fiscal policy on aggregate demand, there is a presumption that countries saddled with the need for relatively large future primary surpluses will have a relatively contractionary stance of fiscal policy.

If demand-deficient Keynesian equilibria are likely to result from contractionary fiscal policy actions, a *prima facie* case for policy intervention, including international coordination of policies, exists. In a Keynesian unemployment equilibrium the value of output foregone exceeds the value of the extra leisure "enjoyed" by the unemployed. This holds even in a closed economy. In addition, in an open economy, part of any demand contraction (fiscal or private) will spill over to the rest of the world through the deflating country's demand for imports and supply of exports. This will create a non-pecuniary externality to the extent that goods and labor are not priced properly. If nominal wage stickiness (or the combination of nominal wage stickiness and price stickiness) is the key link in the transmission mechanism that causes demand-deficient equilibria to result from a contraction of demand, the magnitude of the international spillover will actually be smaller (given perfect international capital mobility) with any credible fixed exchange rate regime than with a floating exchange rate regime. The payoff from international coordination is correspondingly reduced.

It goes without saying that the efficient use of policy instruments such as exhaustive national public spending with international technological externalities will in general require international policy coordination (see e.g. Kehoe [1986,1987]). Public expenditure for the abatement of pollution of rivers, oceans and the air is one example. Defense expenditures and expenditures on law enforcement (given the increasingly transnational nature of major criminal activities) are another. The same holds for the efficient use of distortionary taxes and transfers, even when the activities that are taxed or subsidized do not have direct international technological externalities. When there are such international externalities (think of the taxation or regulation of national activities producing acid rain, ozone holes or greenhouse effects) the case for international coordination of taxation, subsidization and regulation is of course reinforced.

6. Conclusion.

This paper studies only a few among the very large number of important fiscal policy issues facing the members of the European Community as they move along the road towards further economic and political integration. The new Europe will be characterized by greater (and increasing) mobility of factors of production, of owners of factors of production, of beneficiaries of transfer payments and of consumers of local, regional, national and Community-wide public goods. Interesting issues arise when the domain of mobility of rational private agents and the span of fiscal control or the size of the regulatory jurisdictions do not coincide. Issues like tax harmonization and tax competition (see e.g. Giovannini [1988], Giovannini and Hines [1990], Razin and Sadka [1989], Sinn [1990a]), become central issues in

addition to (or even rather than) concerns about the stabilization function of national fiscal policy. The application of destination vs. origin principles of commodity taxation and residence vs. source principles of (capital) income taxation will have major effects on competitiveness and the location of economic activity (Dixit [1985], Slemrod [1988], Krugman and Feldstein [1989], Sinn [1990b]). Internal transfer pricing by multinational corporations poses formidable challenges to the ability of national governments to tax multinationals' profits. The theory and practice of fiscal federalism will be required reading for European public finance scholars. Suitably modified versions of the theory of local public goods and of the theory of clubs will have to guide the design of efficient and fair tax and public expenditure systems and in the new Europe.

For distributional reasons and, given the myriad departures from the competitive Walrasian and Tieboutian ideal types, for efficiency reasons also, coordination of national fiscal policies will be desirable in the new Europe (as it was in the old). There is no good argument why such coordination should give high priority (or indeed any priority) to binding agreements on public sector budget deficits. It is wellknown that the public sector deficit (level, change or share of GDP, "raw", structural, operational, full employment, demand-weighted, inflation-corrected, permanentized or otherwise transformed or transmogrified), is not an adequate measure of the impact of fiscal policy on aggregate demand or on aggregate supply (short-run or long-run), nor an index of financial crowding out pressure. In Buiter and Kletzer [1990a] we also show that any real effects of public sector deficits can be reproduced with a balanced budget and flexible taxes and transfers. It is very hard to come up with any reasonable argument for giving this statistic the attention it gets (See also Blinder and Solow [1974], Buiter [1983, 1985]

and Kotlikoff [1988])).

There is no royal road to fiscal policy coordination. Agreements on contingent rules for the various tax, spending and financing instruments will have to be struck in the face not only of uncertainty about the exogenous environment, but also of "model uncertainty", i.e. uncertainty about the effects of policy instruments and exogenous events on key endogenous economic variables. Policy cooperation can at least ensure that strategic uncertainty doesn't complicate the task of economic management even more.

The desire for maximal scope to respond flexibly to new contingencies will have to be balanced against the need for simplicity and transparency in the cooperative policy rules. The success of any common strategy depends on its credibility with the private sector inside and outside the Community. Unless the private sector knows and understands the policy rules and is capable of monitoring and verifying the adherence of the various governments to the cooperative strategy, credibility will be wanting and the strategy will fail.

NOTES

¹For this solvency constraint to be a non-trivial constraint, the public debt should be valued gross of any discount reflecting a perceived risk of default, and the interest rates used to discount future primary surpluses and seigniorage should be net of any default risk premium. When the market value of the debt is variable (and potentially different from its issue value, par value or redemption value) even without the presence of any default risk (as is for instance likely to be the case with long-dated debt), the calculation of what the value of the public would be in the absence of default risk is a non-trivial matter.

²Examples of the use of the two-period OLG model in two-country models are Buiter [1981], Buiter and Eaton [1983], Kehoe [1986a], Hamada [1986] and Sibert [1988]. The Yaari-Blanchard OLG model has been applied to two-country models in Frenkel and Razin [1987], Obstfeld [1989] and Buiter [1989].

³van Huyck [1989] eliminates the central auctioneer and price-taking behavior from the Walrasian model. In the resulting model of "decentralized competition," pecuniary externalities have efficiency consequences.

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