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MONETARY UNION AND FISCAL POLICY DISCIPLINE

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ABSTRACT

Monetary Union and Fiscal Policy Discipline*

The possible emergence of a monetary union in Europe raises a number of new and difficult questions. A central concern is the implication for fiscal policy-making. Fiscal policy assumes an increased importance once the monetary policy instrument is lost. The Delors Report has suggested that there may be a bias towards less discipline. This paper, which focuses on the longer run, is a preliminary attempt at sorting out the issues. It considers how both the incentives and the constraints on fiscal policy may be affected. There is no Delors-type, clear-cut conclusion emerging. The most obvious conclusion is that eventually a monetary union requires some degree of fiscal federalism.

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NON-TECHNICAL SUMMARY

This paper investigates two key policy questions that emerge when a Monetary Union (henceforth MU) among the EC countries is contemplated. First, is there any presumption that, when the MU is established, rules must be adopted to limit national fiscal policy independence? Second, does the MU require an EC-wide fiscal policy?

These issues are often subsumed under the code-name of fiscal discipline. It is then asked whether the MU will strengthen, or instead weaken, member governments' incentives to adopt 'reasonable' fiscal policies. It is not clear, however, what reasonable, or indeed disciplined, fiscal policies really are. The approach taken here is to ask which fiscal policy actions may endanger the MU. This leads us to consider two different sets of issues. First, does the existence of a monetary union affect the various trade-offs faced by national member governments as they set fiscal policies? For example, it is sometimes feared that the MU may relax the budget constraint, i.e., discourage discipline. Second, does a MU increase the externalities that one country's fiscal policies impose on its partners? It is conceivable that the MU exacerbates existing externalities, or indeed produces new externalities, among national fiscal policies.

For the most part, the paper abstracts from 'short-term' effects, mainly income transmission. Accordingly, it is assumed that relative prices (and real wages, when they are introduced) are flexible and output is at the full employment level. As a result, the EMS is not essentially different from a flexible exchange rate system. Indeed, over the horizon considered here, changes in relative prices can be achieved in both regimes through exchange rate adjustments. The MU stands apart because it is the only regime where prices must do all the work to effect relative price changes. The importance of this distinction will appear more clearly in context.

The first section outlines the channels through which one country's fiscal actions affect the other members of the union. It shows that fiscal expansions are transmitted across the MU's member countries. When it is temporary, a fiscal expansion that boosts demand raises the interest rate. When the fiscal-policy change is permanent, the interest rate effect is ambiguous. But what does a *permanent* fiscal expansion really mean? In the very long-run horizon considered, and with the need to balance the government budget constraint, it represents merely an increase in the size of the government, both on the expenditure and revenue sides. Similarly, the effect on relative prices (domestic versus foreign goods, or traded versus non-traded goods) depends on the distinction temporary-permanent. Temporary fiscal actions improve the terms of trade, while the effect of permanent changes is ambiguous.

These results occur independently of the existence of a MU. A MU introduces an important change as it forces the equality of real exchange rates and pushes terms-of-trade changes onto prices. As far as interest rates are concerned, in a non-EMU, fiscal policy effects can be 'bottled-up' in the country of origin. The expanding country faces higher (*ceteris paribus*) real rates, matched by a real appreciation. In a MU, the effect is absorbed by the MU-wide interest rates, in proportion of course to the relative size of the country of origin: the terms of trade effects substitute for interest rate effects. Not only should terms-of-trade changes be larger, but the absence of the exchange rate mechanism within a MU forces prices and wages to adjust in the shorter run, with potentially larger income flows.

This analysis is used to answer the central questions: does the existence of a MU provide incentives for larger public deficits, and does it introduce a bias towards monetary financing rather than debt financing? The interest rate linkage has a number of implications for a MU. While much of the linkage arises because of financial integration, the creation of a MU alters its nature. As long as currencies differ, real interest rates can differ by the amount of expected real depreciation. Thus in a country that undertakes a fiscal expansion – not money-financed – the real interest rate can increase because an immediate exchange rate appreciation generates the expectation of a future real depreciation, the well-known overshooting principle. In a MU, however, over the longer-run horizon adopted here, nominal and real interest rates must be equalized for the same class of assets. Thus a MU is likely to lead to a government-specific increase in public bond rates, the more so the less easy it becomes to tax resident households and corporations. This means a tighter budget constraint.

The opposite conclusion is reached when the monetization option exists. In a non-MU, monetization means inflation and depreciation, a loss in terms of trade which affects all residents. In a MU, monetization must affect the whole union. The outcome depends on the rules that the MU adopts for the operation of its monetary authorities. Fiscal laxity can be avoided by agreeing on money-creation rules, while leaving national fiscal authorities free to set domestic fiscal policies.

The paper also examines the issue of tax competition. Tax competition exists with or without a MU. The interesting question is whether the elimination of exchange risk strengthens a country's taxing independence. The paper uses recent work on the US experience to conclude that the MU effect on tax competition, while undeniable, may remain quite limited, except of course for highly cosmopolitan financial assets. The direction of change, on the other hand, does not seem to be ambiguous.

A very different reason to raise the question of discipline arises because the fiscal actions of one country affect others. The existence of such externalities implies that reckless behaviour by one country may become unacceptable to its partners.

This is, of course, true independently of the existence of a MU. What must be understood clearly at the outset, however, is that in this sense, discipline may require that a country adopts a fiscal policy which may well be sub-optimal from its own viewpoint.

The existence of externalities means that each member country has a right to wish to control its partners' actions. If high real interest rates are undesirable, there is some support for the view that members of a MU which must share the same rate will want to limit expansionary policies elsewhere in the union. The implication of the terms-of-trade externality does not provide any presumption that fiscal activism, or simply budget deficits, should be curtailed. The first best would be policy coordination, with discretion applied as to what should be the proper coordinated response to particular shocks.

However, fiscal policy coordination is known to be hard to design and implement in practice. Two possible conclusions emerge. The first would reject any attempt at establishing fiscal policy rules within the framework of a MU, rather opting for soft and flexible forms of coordination, such as surveillance. The second would favour full policy coordination, as would occur within a federal budget. This seems to be an instance where the extremes dominate intermediate conclusions.

The paper concludes with a review of new fiscal-policy needs in a MU. With the monetary-policy instrument being lost, all the burden of macroeconomic policy-making will fall on the fiscal-policy instrument. The two instruments are plainly not interchangeable. The main conclusion is that fiscal policy will be called on to become an insurance transfer mechanism encompassing the whole of the MU. The paper sets out a number of economic principles that should guide such a momentous evolution. Over time, this calls for the devolution of a number of national taxes and transfer programme.

I. Introduction

This paper investigates two key policy questions which emerge when a Monetary Union (henceforth MU) among the EC countries is contemplated. First, is there any presumption that, when the MU is established, rules must be adopted to limit national fiscal policy independence? Second, does the MU require an EC-wide fiscal policy?

These issues are often subsumed under the code-name of fiscal discipline. It is then asked whether the MU will strengthen, or instead weaken, member governments incentives to adopt "reasonable" fiscal policies. It is not clear, however, what reasonable, or indeed disciplined, fiscal policies really are. The approach taken here is to ask which fiscal policy actions may endanger the MU. This leads us to consider two different set of issues. First, does the existence of a monetary union affect the various trade-offs faced by national member governments as they set fiscal policies? For example, it is sometimes feared that the MU may relax the budget constraint, i.e. discourage discipline. Second, does a MU increase the externalities that one country's fiscal policies impose on its partners ? It is conceivable that the MU exacerbates existing externalities, or indeed produce new externalities, among national fiscal policies.

Thinking about how fiscal policy could operate in a European monetary union is difficult for several reasons. First there is no real precedent. A number of federal states exist, but the expenditure and income shares of the central government are always large, normally at least as large as the share of local governments (Table 1). Such is not currently the case within the EC where the "federal" budget remains close to one percent of total GDP.

[Table 1 about here]

Second the macroeconomic theory of fiscal policy is in a state of flux. The older models in the Keynesian tradition are no longer accepted as they often postulate behavior neither theoretically justified nor well backed empirically. An example is the sensitivity of savings to interest rates, another is the determination of interest rates, both key building blocks in the IS-LM framework. Unfortunately, a replacement workhorse is not yet at hand, the alternative theories are still crude, analytically cumbersome, and in search of empirical validation.

Third, it is not clear how to capture the non-monetary aspects of a monetary union. We wish to retain elements of national differences such as price levels or interest rates as well as trade among several states, yet full goods and financial markets integration urges us to erase these differences. The realities of the EC suggest that we should start from a model of trade with imperfect competition. Yet the integration of fiscal policy in such models does not seem to have been achieved. As a result, the present paper is better seen as a tentative guess at what might emerge after much more research, both theoretical and empirical, is performed.[1]

The structure of the paper is as follows. The next section provides a general discussion of the channels of transmission of fiscal policy. This discussion prepares the ground for the central issue: whether fiscal discipline is enhanced or relaxed as we move from the current system of fixed and adjustable exchange rates to

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[1] This is an exercise which academic economists tend to avoid. It is indeed frustrating to make assertions which, one knows very well, are quite likely to be proved wrong. It is equally frustrating to see the rapid progress towards of a monetary union being shaped without input from this side of the profession. In the end, the choice is whether we should stay out of the debate because we know full well that we do not know enough, or whether we should jump in the water and provide what the current state of knowledge allows.

a monetary union. The discipline issue is broken down in two different components: the effect of the MU on national budget deficits (Section 3) and on externalities between member countries (Section 4). Then, in Section 5, it is asked whether the role of fiscal policy will be enhanced in a MU. The answer is largely positive, and t level. As a result,

the EMS is not essentially different from a flexible exchange rate system. Indeed in both regimes, over the horizon under consideration here, changes in relative prices can be achieved through exchange rate adjustments. The MU stands apart because it is the only regime where relative price changes require prices to do all the work. The importance of this distinction will appear more clearly in context.

For simplicity, growth is also assumed away, although an important issue concerns the juxtaposition of countries with different potential growth rates.

2. Long-term channels of externalities

2.1. A framework

This section outlines the channels through which one country's fiscal actions impact the other union's members. It serves as the frame of reference for the policy analyses of subsequent sections, and can be skipped by the reader impatient with technical aspects. An appropriate point of departure is the model developed by Frenkel and Razin (1987). The full model is presented in the Appendix, and only the key results are summarized here. Because budget deficits represent the government's dissaving, explicit intertemporal considerations are unavoidable. This brings about the necessity of describing the agents' own saving choice, hence explicit treatment of intertemporal decisions and of expectations. Expectations are best treated as rational, if only because of the arbitrariness of any alternative scheme.

As is well known, in models with intertemporal optimization and rational expectations, budget financing – i.e. tax policy – is irrelevant unless we introduce explicitly a mechanism for it to matter. By now, the so-called Ricardian proposition has been repeatedly disproved empirically[2] so that we do not want to start from a model which accepts it by assumption. A convenient way-out is to recognize that agents with finite horizon face the possibility of not paying the taxes which will eventually be levied to finance current public borrowing. Then public debt is (partly at least) private wealth. Conversely, because agents may die before fully paying out their debts, they face interest rates which are higher than those applicable to never-dying institutions such as the State.[3]

An appealing feature of the model of Frenkel and Razin is that it separates out time in between the present (period t=0) and the indefinite future (t not shown), where all variables assume their present discounted value. This allows us to consider the effects of current policy actions on both the "present" and the "future". The "present" actually extends beyond the standard Keynesian short-run period. It covers a period over which prices adjust and the economy returns to equilibrium employment. Steady state occurs in the "future", in period t: it is the horizon over which all stock variables (wealth, debt, etc...) stabilize.

We start with the one-country case which will make it easier to introduce the two-country version. The key equations of the model

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[2] For a recent survey see Bernheim (1987).

[3] There are other ways of eliminating Ricardian equivalence within models which accept rational expectations and intertemporal optimization: distortionary taxes, limited liabilities, credit rationing, etc... The finite life-time approach has been made tractable by Blanchard (1986).

are[4]:

$$(1) \qquad W_0 = A_0 + Y_0 - T_0 + \frac{\gamma R}{1 - \gamma R} (Y - T)$$

$$(2) \qquad (1 - \beta\gamma)W_0 + G_0 = Y_0$$

where A_0 is initial financial wealth, Y_t and T_t real output and taxes in period t and G_t represents real public spending. The parameter γ, $(0 \le \gamma \le 1)$ is the probability of being alive next period and $R = 1/(1 + r)$ is the average interest factor. Similarly $\beta = 1/(1 + \delta)$ where δ is the rate of time preference. In (1) total wealth W_0 is the sum of financial wealth and human capital, itself the present value of net-of-taxes income, discounted at a higher rate than $r = (1 - R)/R$ given the above-noted implication of finite life-time.

Equation (2) is the goods market equilibrium condition in period t $= 0$. Private spending is proportional to wealth, the usual permanent income feature of intertemporal models.[5] The coefficient of proportionality again reflect the finite life-time assumption (if life were to end for sure in period t $= 0$, with $\gamma = 0$ all wealth should be consumed right away).

If B_0 is the initial public debt in real terms, the government budget constraint is:

$$(3) \qquad B_0 \le (T_0 - G_0) + (R/(1-R))(T - G)$$

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[4] By Walras law, we need only one of the two periods equilibrium conditions.

[5] More precisely, permanent income implies that consumption is just a function of wealth. The fact that it is proportional to wealth results from the particular specification (logarithmic and time separable) of the utility function.

Because the government lives for ever, its interest factor does not include the premium γ. This is why budget financing matters: government borrowing cannot be substituted away one-for-one by the private sector.

The MU is characterized by the equality of nominal and real interest rates across countries. This characterization is the consequence of three assumptions: first, there is full capital mobility; second, over the horizon relevant here, inflation rates are the same across countries; third, systematic, *continuing*, relative price level changes are ruled out. It may be useful to briefly justify the last two assumptions. There is no doubt that inflation rates may differ in a MU. This, however, cannot be sustained as a permanent feature. In a model which overlooks the short term, it makes sense to simply assume inflation differentials away. If unexpected real shocks occur, they require relative price (or real wage) adjustments. Such changes are seen here as one-shot effects, which while spread overtime occur entirely within the period under consideration. Under these conditions, fiscal action by one country will impact the interest rate across the whole MU, and the one-country model may be seen as representing the whole union.

2.2. Interest rate linkages

2.2.1. Principles

The interest rate effect of fiscal policy depends on whether the fiscal action is temporary or permanent. When it is temporary, the direction is unambiguous: a temporary fiscal expansion which boosts demand raises the interest rate. The reason is clear. With fixed ouput (recall that prices are flexible), excess demand must be brought down, which requires the interest rate to rise in order to reduce private wealth and spending. This is true for any fiscal expansion, whether it is an increase in government spending or a tax cut, and whether it is financed (when need be) by borrowing or

taxes. (What is missing here is the role of money. If the nominal money stock is held constant, a price increase would also reduce private wealth and spending, thus alleviating, but not eliminating altogether, the pressure on interest rates. If the central bank accommodates the price increase, we are back in the no-money case.)

The result is robust to alternative specifications.[6] In particular, it extends to a multi-country model: the world interest rate rises, although obviously the extent of the increase will depend on the relative size of the country taking action.

When the fiscal policy change is permanent, the interest rate effect is ambiguous. A permanent expansion necessarily takes the form of a permanent increase in public spending, which must eventually be financed by taxes. The effect is ambiguous because private wealth, which must fall to eliminate the excess demand for goods, is already reduced by higher expected taxes. The question is whether it is reduced just enough to restore goods market equilibrium (in which case the rate of interest remains unchanged), or not enough (the interest rises) or too much (the interest rate falls). The result depends both on the timing of tax increases and on the relationship between the interest rate, the rate of time preference, and the parameter measuring the death rate (γ).[7] That we are unable to derive an unambiguous presumption should not be surprising. What does a *permanent* fiscal expansion

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It does not always survive, though, in Keynesian models where output can rise. Even then, for the interest rate to decline, financial markets must be imperfectly integrated, and quite significantly so. For an example, see Sachs and Wyplosz (1984).

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For example, if the increase in public spending is entirely financed by a temporary tax increase, the condition for an increase in the interest rate is $R<\beta\gamma$. If we assume that the rate of time preference is about equal to the interest rate $(R=\gamma)$ we have a decline in the interest rate.

really mean? In the very long run horizon under consideration
here, and with the need to balance the government budget
constraint, it merely represents an increase in the size of the
government, both on the expenditure and receipt sides.

2.2.2. Empirical evidence

The lack of supporting empirical evidence linking interest rates
to budget deficits is troublesome.[8] Many reasons have been
advanced. First comes the usual difficulty of disentangling in the
data different effects which may occur at the same time. As
stressed above, macroeconomic theory is too unsettled to provide
an undisputed guide to solving this econometric identification
problem. Second, measuring or estimating the real interest rate
requires making assumptions about the expected rate of inflation.
Similarly, the important distinction between permanent and
temporary fiscal actions requires an assessment of the private
sector's perceptions in this regard. Both requirements are
currently beyond our means of investigation.

Clearly, there is no attempt here to produce new original
empirical results on an already much-researched subject. More
modestly, Figure 1 presents some data on industrial countries. The
sample is determined by the availability of data on *net* public
debts, since this is the proper theoretical concept.[9] The figure
relates the level of the net public debt, and its change over the
period 1981-1989, to the ex-post real interest rate in 1989.[10] This
horizon is chosen so as to coincide with the "present" of the

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[8] See e.g. Blanchard and Summers (1985).

[9] The existence of credit rationing may justify dealing with gross
debts.

[10] The net debt figures are from the OECD, Economic Outlook. The
real interest rate is the difference between government bonds rates
and CPI growth, for the latest observations available in the
International Financial Statistics tape.

Frenkel-Razin model. This allows us to include in the sample
countries with different exchange rate regimes, i.e. both
countries on a flexible exchange rate regime and EMS members. As
suggested earlier, over this horizon, it is assumed that the two
systems do not behave in a fundamentally different manner, while
the MU would. That the assumption is not innocuous is probably
exemplified by the Spanish case.

The data visually suggest a (weak) positive association between
the two variables - especially when we consider *changes* in debt
levels - and this is confirmed by the correlations. Why should
changes matter more than levels is of course totally unclear.
Given the many observation and interpretation difficulties
mentioned above, it is probably fair to conclude that the link
between a temporary fiscal expansion and higher interest rates is
robust. Quantifying precisely such effects is, as stressed above,
unfortunately beyond current knowledge.

[Figure 1 about here]

2.3 Relative price effects

2.3.1. Internal prices
The previous section assumes that there exists only one good
throughout the union. A natural extension consists in introducing
two traded goods in order to study the effects of fiscal policy on
the terms of trade. To do si, we consider a two country version of
the above model. This also allows us to explicitly assume that the
two countries belong to a MU. With equation (1) also holding for
the other country (represented by starred variables), the two good
market clearing conditions for period t=0 are:

(4) $\qquad \alpha(1-\beta\gamma)W_0 + \alpha^*(1-\beta\gamma)p_0 W_0^* + G_{1,0} + G_{1,0}^* = Y_0$

(4*) $(1-\alpha)(1-\beta\gamma)W_0/p_0 + (1-\alpha^*)(1-\beta\gamma)W_0^* + G_{2,0} + G_{2,0}^* = Y_0^*$

where α and α^* represent, respectively, the home and foreign propensity to buy the domestically produced good (indicated by a 1 subscript, a 2 subscript denotes the good produced abroad). The relative price of foreign relative to home good prices is $p_t = P_{2,t}/P_{1,t}$. The two market clearing conditions are shown on Figure 2.

A temporary domestic fiscal expansion, financed by domestic borrowing, which requires a higher interest rate in both countries as seen in the previous section, brings us from point A to point B. The effect on the terms of trade p_0 in period $t=0$ is a *priori* ambiguous. If we assume a "preference habitat" behavior, i.e. if $\alpha > \alpha^*$, the outcome is normally[11] as drawn: the expanding country's terms of trade improve (p_0 falls). With a permanent change, the initial shift of each schedule is ambiguous, so that no presumption arises for the terms of trade.

2.3.2. External prices

It is possible to reinterpret the previous result with the home country representing the MU as a whole while the foreign country represents the rest of the world. Then a temporary fiscal expansion in one member country of the MU normally leads to a real exchange appreciation (an improvement in the terms of trade) for the MU. Of course, the magnitude of the effect is proportional to the size of the country taking action relatively to the MU as a whole.

The exact channel at work is different in this case, however. Within the union, the terms of trade of the expanding country

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[11] The exact condition is:
$(\alpha - \alpha^*)(1 - \beta\gamma)W_0^* < (Y_0 - G_{2,0} - G_{2,0}^*)[\alpha(Y-T) + \alpha^* p_0(Y^* - T^*)].$

improve because the price of the good domestically produced - and preferred for domestic consumption - rises relatively to the price of the good produced elsewhere in the union. Vis a vis the rest of the world, the currency of the expanding country must appreciate, therefore leading to an appreciation for the MU as a whole. The size of the effect is of course proportional to the relative size (within the union) of the expanding country.

2.3.3. Empirical evidence

We are mostly interested in documenting relative price effects within a MU. Unfortunately, the relevant empirical evidence is likely to be scarce as "local" fiscal action in existing federal states is not likely to be large enough to generate empirically measurable relative price effects. Supporting empirical evidence for external relative price effects could come from countries operating under freely floating exchange rates: a temporary fiscal expansion should lead to a real exchange rate appreciation. Figure 3 presents similar data as Figure 1 for a number of countries which are not all on a flexible exchange rate. This may explain why the link is so weak. Eliminating the EMS countries, yet keeping Germany to represent the EMS block, the correlation coefficient increases from 0.11 to 0.32, still not a powerful evidence. Much as for the interest rate effect, and for similar reasons probably, no hard evidence has turned up yet, although the result is widely accepted.

[Figure 3 about here]

2.4. Spillover effects of spending and taxing levels

A completely different set of externalities occur when one country's provision of public goods, or taxation level, affects "neighboring" countries decisions. In the US. a seizable

literature is devoted to the study of inter-state differences and evidence has been produced to support the notion of "copycatting" effects (see Case, Hines and Rosen (1989) and references therein). A number of reasons can account for such an externality. The most obvious one is labor mobility (although Case et. al. note that labor mobility is low even in the US: they report that in 1985 only 8.7 percent of Americans lived in a different state than they did five years earlier). Other reasons include mobility of establishments and political economy considerations. In all cases, the existence of a copycatting effect implies less fiscal policy independence, although it is totally unclear in which direction the effect influences the size of governments.[12] On one hand, there might be competition in the provision of public goods and services, thus pushing towards higher than optimal government sizes. On the other hand, there might competition for low tax rates, with the opposite effect on the size of governments.

Is such an effect at work in Europe as well? More to the point, would the existence of a MU would alter the copycatting effect? Theory is of little help here as many different factors have been identified above as potentially leading to copycatting. This is why we turn directly to the facts. A number of summary statistics, based on data on government disbursements presented in Table 1, are shown in Table 2. When all OECD countries in the sample are included, the variability of government spending is higher among different countries than within the US monetary union.[13] This would tend to show that a MU does increase the copycatting externality. However when the comparison is with the EC countries, we find less

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[12]   Naturally, it is not related to the fiscal stance, although one can imagine demonstration effects. As an example, we can wonder whether the fiscal consolidation which occurred in many EC countries in the eighties has not spread through such an effect.

[13]   The comparison with the US should be interpreted with some caution. The national data concern spending-GDP ratios while the data on US states concern absolute levels of spending per capita.

variability than in the US. The comparison between the old EC
members and the new EC definition points either towards
geographical proximity (and hence mobility of goods enhancing
mobility of establishments) or towards similarity in levels of
economic development, or maybe towards cultural similarities
affecting the electoral process.[14]

[Table 2 about here]

2.5. Summing up: the MU effect

Over the horizon considered here, fiscal policy effects mostly
operate through real interest rates and relative prices. How are
these effects affected by the existence of a MU? A MU introduces
an important change as it forces the equality of real exchange
rates and pushes terms of trade changes onto prices.

As far as interest rates are concerned, in a non-EMU, fiscal
policy effects can be "bottled-up" in the country of origin. The
expanding country faces higher (*ceteris paribus*) real rates,
matched by a real appreciation. In a MU, the effect is absorbed by
the MU-wide interest rates, in proportion of course to the
relative size of the country of origin: the terms of trade effects
substitute for interest rate effects. Not only should terms of
trade be larger over the horizon considered here[15], but the absence

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[14] Case et. al. (1989) find that the main criterion of proximity is
the proportion of Blacks in the state. This could suggest that
levels of income might indeed be at work, although they reject
this interpretation on empirical grounds. The cultural aspect is
common to both findings.

[15] It bears emphasizing that we do not consider the shorter-run
Keynesian horizon. Over the business cycle, the higher (nominal
and real) interest rate variability is matched, under flexible
rates, by wider (nominal and real) exchange rate fluctuations, as
exemplified by the Dollar and yen swings over the last decade.

of the exchange rate mechanism within a MU forces in the shorter run prices and wages to adjust, with potentially larger income flows.

The taxing and public spending level externality, is well documented in the US literature, but still in search of a complete interpretation. Mobility of establishments is likely to be an explanatory factor. The removal of exchange risk in a MU could reinforce this effect.

3. The budget constraint

3.1. Deficits and fiscal discipline

The first instance when fiscal policy can be deemed undisciplined occurs in the presence of budget deficits. However, not all deficits are necessarily unwarranted (much as government spending and taxing is not always "bad"). What is required are criteria separating good from bad policies.[16]

Budget deficits may arise because of cyclical conditions, either endogenously as the result of a reduced take-up in taxes, or exogenously as to counter cyclical fluctuations. Such short-term aspects are not considered here as they do not have longer term impact as long if the budget is cyclically balanced. The question then is whether there exists valid reasons to run deficits beyond the business cycle horizon. A number of reasons have been advanced in the literature and are now reviewed.

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[16] Much of the discussion on public spending and taxing rests on the assessment of the effectiveness of the provision of public goods as well on equity issues. This avenue will not be pursued further here as it belongs to different strands of theory: public choice and fiscal federalism. We only note that the size of government (spending and taxing) is not either a criterion of fiscal discipline or laxity.

3.1.1. "Good" deficits and debts

The oldest argument (Diamond (1956)) concerns the effectiveness of the capital stock in the long run. If the ultimate objective of an economic system is to ensure the highest possible level of per-capita consumption, there exists an optimal level of per-capita productive capital.[17] Levels of capital <u>above</u> this so-called golden rule level are deemed inefficient because it is possible to raise simultaneously per capita consumption of both current and future generations simply by reducing saving temporarily. The situation is different when the golden rule level <u>exceeds</u> the existing capital stock. This is the efficient case because further capital accumulation requires the current generation to reduce its consumption (i.e. welfare) for the benefit of future generations. As a result, the situation perpetuates itself forever if no generation is willing to incur the transitory cost. Such an intertemporal externality calls for government intervention. Diamond shows that, by building up the public debt level, the government can bring the economy (closer) to the golden rule.

Yet another rationale for changing the public debt structure - not necessary increasing its level - has been offered by Lucas and Stokey (1983) and Persson, Persson and Svensson (1985). The externality concerns the succession of different governments. If each government feels free to depart from the rules adopted by its predecessor, the public's attempt to protect itself from future taxes, including the inflation tax, results in further distortions. It can be shown that there exists an optimal structure of public claims and debts which makes it undesirable

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[17] This statement needs to be qualified in the presence of exogenous technological change, but the principles laid out in the text remain valid.

for future governments to depart from the path set by the current one. This is not a case for public deficits and debts.[18] It is, however, another indication that debts and deficits may serve a useful purpose.

Stiglitz and Weiss(1981) have shown how imperfect information easily leads banks to ration the volume of credit offered to their customers. Credit rationing of this sort is the socially inefficient outcome of a perfectly competitive banking system. This situation does not call for government borrowing in steady state or in presence of permanent adverse disturbances. Indeed, in the latter case, the optimal response is to reduce private spending, not to raise private borrowing in order to sustain unsustainable consumption levels. In presence of transitory adverse disturbances, however, it is optimal for affected agents to borrow now and repay later. Credit-rationed agents may be unable to do so, which opens up the case for budget deficits.[19]

More generally, market failures which have an intertemporal implication often call for socially desirable deficit spending. This includes externalities linked to the imperfect protection of patents, for which governments may invest in the development of new technologies, or the discovery of natural resources when private ownership cannot be efficiently protected, or else investment in the building-up of human capital which generates non-appropriable externalities.[20]

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[18] This view has some implications for MU to which we return below in Section 3.5.

[19] This can be seen as a rationale for Keynesian-type counter-cyclical fiscal policies.

[20] Another obvious case concern war efforts. Historically, this is when public debts have been most conspicuously built up. Of course, this is not to suggest that wars are Pareto superior outcomes...

In conclusion, budget deficits - possibly even long-lasting ones - are not necessary an indication of fiscal laxity. There exist a large number of reasons which make public deficits and debts socially desirable. Of course, this is not to say that *any* deficit is desirable.

3.1.2. The budget constraint

When the budget constraint (3) is not respected, the government is technically insolvent. However, this criterion is not easily made operational. The reason is that the constraint is fundamentally intertemporal: currently observed deficits $(G_0 - T_0)$ and debt levels B_0 need to be compared to future levels of spending and taxes. What matters is whether the path of possible present and future levels (as a percentage of GNP) of public spending and tax collections are compatible with constraint (3). Limits on spending relate to what is politically acceptable and to commitments already made in terms of retirement benefits, social health, export credits, etc... Similarly, limits on taxes are determined by distortionary and political considerations.

Putting precise numbers on such spending and taxing limits is an impossible task. Yet, before considering how the existence of a MU affects the budget constraint, it is informative to explore in a simple way what could be an acceptable steady state budget surplus. Table 3 provides some simple back-of-the-envelope calculations based on the budget constraint. Realism requires to allow for real GNP growth. This is done by rewriting (3):

(3')
$$b_0 + (g_0 - t_0) \le (r - \nu) \cdot (g - t)$$

end-of-period   steady-state
debt   primary surplus
                                (or present value)

where lower case variables represent ratios of the upper-case variables to the GNP, and ν is the real GDP's growth rate. The table shows for steady state surpluses $((g-t)$ in the right

hand-side of (3')) ranging from 3% to 10% of GNP, the maximum possible level of current end-of-period debt (the sum of current debt b_0 and current budget deficit (g_0-t_0), i.e. the left hand-side of (3')). The calculations are made assuming a real interest rate (r) of 5 percent, and real GNP growth rates (ν) of 0% and 3%. It would seem that a reasonable, rather conservative, limit would be in the 150%-250% range.[21]

[Table 3 about here]

How serious are these limits? Table 4 provides some indication. It shows 1989 values of the current debt plus primary deficit levels - i.e. $b_0 + g_0 - t_0$ - in the EC countries.[22] Some countries are close to the dangerous region. What is reassuring is that those with the highest debt levels have already switched to seizable primary surpluses. This would suggest that the budget constraint is taken seriously among most, if not all, EC countries.

[Table 4 about here]

3.2. The MU-fiscal discipline connexion

In this section it is asked whether the existence of a MU provide incentives for larger public deficits, and whether it introduces a bias towards monetary financing rather than debt financing. To answer these questions, we review the implications of the various effects described in Section 2.

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[21] For reference, one of the highest (gross) public debt ever recorded for an industrialized country is Britain's 300% level at the end of War War II.

[22] The actual debt figures underestimate a variety of implicit government commitments (e.g., future retirement benefits). For a thorough discussion of these issues and an attempt at quantification, see Bulter (1985).

The interest rate linkage has a number of implications for a MU. While much of the linkage arises because of financial integration, the creation of a MU alters its nature. As long as currencies differ, real interest rates can differ by the amount of expected real depreciation. Thus in a country which undertakes a fiscal expansion – not money-financed – the real interest rate can increase because an immediate exchange rate appreciation generates the expectation of a future real depreciation, the well-known overshooting principle.[23] In a MU however, over the longer-run horizon adopted here, nominal and real interest rates must be equalized for the same class for assets.

3.2.1. Default risk

We consider first the case when there exist good reasons to believe that the budget constraint (3) or (3') is not satisfied *ex ante*. For the time being, the option of monetizing the debt is excluded. Then, three options, and only three, are open. The first one is default, i.e. a tax levy on bondholders. The second one is an increase in the path of present and/or future taxes. The last one is a reduction in the path of public expenditures. The last two options imply that default is avoided, but if it is not known *ex ante* which solution will be adopted the public will form expectations with non-zero probabilities assigned to each of the three options.

To see what happens we return to the model of section 2. First, we note that in (1), initial financial wealth is:

$$(5) \qquad\qquad A_0 = B_0 + F_0$$

where B_0 and F_0 are, respectively, the initial public debt and

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external net asset position. Second, the violation of the government budget constraint is written as:

(6) $\qquad B_0 > (T_0 - G_0) + (R/(1-R))(T - G) = \bar{B}_0$

To restore (3), it is enough for the government to default on its debt from B_0 to $\bar{B}_0$. While default might mean eliminating the debt altogether, it is assumed that the bare minimum (cancellation by an amount $B_0 - \bar{B}_0$) may occur with probability a. Similarly, it is assumed that with probability b, taxes may be raised forever by:

$$\Delta T = \frac{1 - R}{R} (B_0 - \bar{B}_0)$$

Finally, the last possibility, expected to occur with probability $(1 - a - b)$, is to cut G by the amount $\Delta G = \Delta T$. Then, the expected wealth level is $\bar{W}_0$ such that:

(6) $\qquad W_0 - \bar{W}_0 = (B_0 - \bar{B}_0) \left[a + \frac{b\gamma(1-R)}{1 - \gamma R} \right] > 0$

In a closed economy, the fall in private wealth implies a reduction in consumption in both periods. As a result, the real interest rate must *fall* to restore goods market equilibrium. The fall in interest rate occurs only because, in the closed economy with no capital, there is no alternative asset available. With other assets available, if $a+b=1$, so that no spending cut is anticipated, private rates remain unaffected by the direct threat of default. The direct effect on the public bond rate is an *increase* of the real interest rate to $r \propto r^*+a\psi$, where $\psi = (B_0 - \bar{B}_0)/B_0$. There is a secondary effect, though: private interest rates must decline from the level implied by the direct effect to maintain goods market equilibrium. The end result is an increase in public bond rates and a decline in private borrowing rates.

If a+b<1, it matters which taxes may increase. If post-tax rates of return may be affected - through personal income taxes or corporate profit taxes - the direct effect on private borrowing must be an increase. Thereafter, all interest rates fall to restore goods market equilibrium as described above.

In an open economy, foreign assets provide the benchmark return ascribed to domestic private assets in the previous case. THe existence of a MU makes a difference, however. In a non-MU, we obtain a combination of post-tax private interest rates decline and an adverse shift in the terms of trade (real depreciation), possibly in the form of higher pre-tax interest rates. In a MU, pre-tax interest rates must be equal within the union - for the same risk-class - if asset-holders are taxed by their country of residence. Then public bonds become riskier if a+b =1; if a+b<1 stocks too become riskier as future dividends stand to decline if corporate profits are affected, as is likely. Depending upon the possible distribution of the stabilization burden, all domestic rates are likely to increase somewhat as the result of the direct effect. The burden of maintaining goods market equilibrium falls primarily on the terms of trade.

The conclusion is that a MU is likely to lead to a specific increase in public bond rates, the more so the less easy it becomes to tax resident households and corporations.This means a tighter budget constraint.

3.2.2. Monetization

Much the opposite conclusion is reached when the monetization option exists. In a non-MU, monetization means inflation and depreciation, a loss in terms of trade which affect all residents. In a MU, monetization must affect the whole union. The outcome depends on the rules that the MU adopts for the operation of its monetary authorities.

If national Central Banks continue to operate freely, it is well known that no equilibrium exists. Each Bank has an incentive to free-ride and issue the MU's currency, forcing the other banks to absorb the excess liquidity created. As a result, the budget constraint is relaxed and binding rules are necessary. It is important to note that such rules do not concern fiscal policy *per se*, only the monetization of deficits.

The Delors Report seems to reach a different conclusion as it proposes to tighten up fiscal discipline to avoid the free-riding problem. One interpretation position is that the report wishes to remove one key incentive for excessive money creation, implicitly *assuming* that, otherwise, national Central Banks are likely to behave in a concerted way. A superior solution, it seems, would be to agree on money creation rules[24], leaving national fiscal authorities free to set domestic fiscal policies. As noted above, except for monetization, a MU implies a tighter fiscal constraint.

3.2.3. Debts as a tool to constrain future governments

It has been noted above that a government may constrain future governments to a given path of policies by bequesting them a particular mix of liabilities and assets (maturity, nominal/real). The following has not been demonstrated but seems to be a reasonable conjecture. Because a MU implies restraints on monetary policy and seigniorage, it may alleviate the need of existing governments to engage in the build-up of the required liability/asset position. Given that the establishment of such a portfolio, while theoretically possible, is likely to be practically overly complex, substitute arrangements may be desirable.

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[24] This opens up another issue, beyond the scope of this paper, namely the desirability of maintaining national Central Banks in a MU. The presumption is that this is an unstable solution.

The implication for discipline is not immediate but an intuitive insight arises. Changes in the political persuasion of successive governments[25] may be harmful if only because they introduce a supplementary source of uncertainty in fiscal policies. If the MU is indeed a substitute for complex constraints on fiscal policy, it may alleviate the time-inconsistency difficulties encountered so far. Put differently, a MU may well turn out to foster *stability* - not necessarily discipline under this argument - in the pursuit of national fiscal policies.

3.3. The MU-Tax connection

This section asks whether a MU imposes a restriction on the ability of governments to raise taxes. Such a restriction may be seen as discipline if matched by a reduction in spending to satisfy (3). Alternatively, it may have the worrying implication of leading to a violation of (3). In the EC case, it is reasonable to assume that a decline in taxing power implies a decline in the size of governments.

3.3.1. Taxes on capital income
Through competition among tax systems, capital mobility tends to result in the reduction of national taxing abilities (Giovannini (1989)). One solution is an international agreement either on tax rules and rates, or on the reporting of capital incomes to the relevant tax authorities. Such an agreement, already ambitious for the EC countries as a whole, is outright illusory if all countries in the world are to be included. Thus, capital liberalization implies tax revenue losses. On the other side, tax evasion implies costs for the evaders in the form of reduced access to their assets. If tax heavens are widespread and located in countries

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[25] This literature is critically reviewed in Alesina (1988).

with which much trade is going on, the costs are limited. If tax
heavens are pushed out to remote islands, tax evasion becomes more
conspicuous and more costly.

Is the problem of tax evasion more acute under a MU? The
triggering factor is the liberalization of capital movements. The
existence of a MU enhances capital mobility within the union
because the exchange risk is eliminated. Outside the union – flows
towards tax heavens – nothing much is changed at first glance.
Yet, "overseas" financial institutions may more readily offer
accounts free of exchange risks in ECUs rather than in the various
currencies of the non-MU countries. This would deepen tax evasion.
On the other side, a wide MU may find it easier to negotiate tax
agreements with the other major financial centers.

Indeed, a threat of forbidding capital outflows is more credible
when coming from a zone wide enough to have little to lose in
terms of risk diversification and where individual countries needs
for external borrowing and lending are susceptible of being
satisfied within the zone. This point is made clear in Table 5 and
Figure 4. Table 5 shows OECD countries' current accounts (as a
percentage) of GDP over the period 1960-1988. Of interest is the
standard deviation, i.e. how much individual countries – or blocks
of countries – use the current account to smooth out disturbances.
Figure 4 plots these standard deviations against country sizes
(relative to OECD GDP in 1980). The negative link[26] is confirmed by
the   following   cross-section   regression   (t-statistics   in
parentheses):

$$\log \sigma(CA/GDP) = \underset{(6.41)}{0.67} - \underset{(-4.06)}{0.016} (GDP/GDP_{OECD})$$

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[26] The link between country size and current accounts has been
pointed   out   by   Sachs   (1981).   It   is   related   to   the
Feldstein-Horioka 'puzzle'.

These results support the view that the larger the currency area the less is the current account used to face disturbances. Put differently, it is less costly for larger zones to forego external capital mobility. Thus, a European monetary union is in a better position to negotiate, with the traditional support of the US on this matter, an agreement with tax heavens to reduce tax avoidance activities.

[Table 5 and Figure 4 about here]

3.3.2. Taxes on goods, corporate, and labor income

Different VAT rates open up the scope for arbitrage, mostly in border areas and through catalogue sales. Different rates of taxation of labor income may provide incentives to resettle in jurisdictions with more favorable tax treatment. The same applies to decisions on the location of production.[27] The key effect of a MU relevant for this issue is the elimination of the exchange risk. For EMS member countries, already accustomed to a great deal of exchange rate stability, the MU effect is likely to be trivial.

This tendency is mitigated by general equilibrium considerations, which are briefly listed. First, if lower corporate tax receipts are offset by higher labor income taxes, labor costs may rise. Second, pre-tax labor costs adjust endogenously as a result of the resulting changes in labor demand, with similar effects on land prices. Whether the offset is complete, more than complete, or less than complete, is an empirical matter which would require detailed analysis. Third, if public spending is reduced to match lower tax receipts, the effect of less public goods on firms' location decisions needs to be assessed.

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[27] What really matters are taxes net of subsidies. There exist numerous incentives offered by regions or states to attract foreign investments.

3.3.3. Assessment

Tax competition exists with or without a MU. The interesting question is whether the presumption that the elimination of exchange risk strengthens a country's taxing independence. The US experience is a natural test bed for Europe. Table 6, borrowed from Eichengreen (1990), shows that tax pressures differ less among US states than among EC countries. Along exchange risk, this pattern may be explained by the lower intra-EC labor mobility. That taxes differ across US states suggests that the MU effect on tax competition, while undeniable, may remained quite limited, except of course for highly cosmopolitan financial assets. The direction of change, on the other side, does not seem to be ambiguous.

[Table 6 about here]

4. Externalities

A very different reason to raise the question of discipline arises because fiscal actions by one country affects other countries. The existence of such externalities implies that reckless behavior by one country may become unacceptable to its partners. This is true of course independently of the existence of a MU. Once again, the question is what difference does it make within a MU. What must be understood clearly at the outset, though, is that, in this sense, discipline may require that a country adopts a fiscal policy which may well be suboptimal from its own viewpoint.

The potential list of externalities has been analyzed in Section 2, and they will be considered one by one in the rest of this section. Presumably, the level of externalities depends upon how tightly linked the different countries are. As the EC countries move towards tighter links, it is entirely reasonable that this issue be raised. The general point is that externalities lead to

suboptimal outcomes in the absence of some coordinating mechanism.[28] As coordination is often too complex to be organized on a case by case basis, i.e. to be negotiated when the need arises, it may take the form of *binding* rules. Such rules, indeed, must be binding to avoid two sorts of undesirable side-effects. They could, at times, lead to clearly inferior outcomes, for example when particular disturbances occur. Then, even if on average they do well, rules may be questioned, and dropped.[29] The other problem concerns the possibility that some countries be tempted to free-ride, i.e. to take advantage of the fact that other countries apply the rules to obtain particular advantages.

4.1. Interest rate externalities

A temporary fiscal expansion by one union member implies higher interest rates for all union members (Section 2.1). The magnitude of the effect is of course related to the relative size of the country initiating fiscal action. In a non-MU, the transmission may be blocked by a real appreciation, and accompanied by a higher interest rate. Thus each union member country will tend to overlook the burden imposed on the other members, hence an inefficiently higher tendency to run expansionary fiscal policies. Except in the unlikely instance where default is threatening, discipline amounts to imposing a constraint more severe than (3) on grounds external to each individual country.[30]

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[28] In game-theoretic terms, we reach a Nash equilibrium. It is always possible to have all country better off by imposing a judicious form of cooperation, even if it imposes additional constraints. Of course, there is always the risk of imposing mistaken constraints...

[29] A classic example is the recourse to tariffs and competitive devaluations in the thirties. While free trade was recognized as generally superior, interest groups could appeal to the gravity of the situation to obtain the abandonment of the principle.

[30] A distinction between discipline and reputation in the case of monetary policy is developed along these lines in Wyplosz (1989).

4.2. Terms of trade externalities

The terms of trade externality, both internal and external, implies that a government will tend to overlook the impact on other countries of its fiscal policy actions. This does not mean however that expansionary changes are any more problematic than restrictive ones. The correct implication is that any national fiscal policy action tends to underestimate the implications for other countries. It is a case, therefore, for coordination or for less independent action. This very general remark applies independently of the exchange rate regime. What matters here is the difference that a MU makes in this respect. The key is the channel through which relative prices change.

For relative prices *within* the zone of interest, the result is immediate. In a non-MU, the most likely channel is the exchange rate. In a MU, it can only be through prices. Thus, given the complexity of adjusting the whole array of a country's prices[31], the inefficiency costs of a MU are higher than in a non-MU. The conclusion is that, on this criterion, more attention indeed should be devoted to fiscal policy coordination. Lacking coordination, however, there is no presumption that it would be desirable to limit the extent of fiscal policy actions.

For relative prices between the zone and the rest of the world, the exchange rate channel remains unaffected. This does not eliminate the externality, however. In a MU what happens is that a country's fiscal action changes the real exchange rate of the whole union, hence its current account. In a non-EMU, the effect would be limited to the country initiating the fiscal action.

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[31] This complexity has been Friedman's central argument in favor of flexible exchange rates. The EMS, inasmuch as it allows for realignments, satisfies Friedman's criterion.

Hence, once again, we find an externality which suggests the increased need for fiscal policy coordination.

The recommendation that externalities calls for coordination is unfortunately quite vague. We would like to know whether there is a tendency for externalities to call systematically for fiscal restraint or activism. As has been made clear by Canzoneri and Gray (1985), to answer that question requires much more precise knowledge on: 1) the sign of transmission effects; 2) the nature of the shocks which call for fiscal correction. In general, nothing more definite can be said. In the following section, an attempt is made at progressing somewhat, with more emphasis on the shorter-run horizon so far eliminated from the analysis.

4.3. A shorter-run view on the terms of trade[32]

The terms of trade externality works through two different channels: a depreciation improves one country's current account at the expense of its partners; an appreciation lessens the inflation pressure, also at the partners' expense. This decomposition is an illustration of the general ambiguity which emerges regarding the bias likely to emerge in the absence of coordination. In this section, we put bring more content to bear and consider the case of a supply-side shock.

A country faced with an adverse supply shock will want to worsen its terms of trade (depreciate in a non-MU) in order to support output, and to improve the terms of trade (appreciate in a non-MU) in order to avoid inflation. If the relative effect of the terms

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32 This section follows Cohen and Wyplosz (1990). The arguments are developed there for the general case, not the particular case of a MU. It seems that there is no particularly stronger case for coordination implied by the MU, except maybe that integration is likely to develop further, or that it may be a good time to aim at a more ambitious form of coordination.

of trade on the current account is large (respectively, small) relative to the effect on inflation, the country will want to achieve a real depreciation (resp. a real appreciation). If all members are hit by the same shock, they cannot achieve a terms of trade advantage - in whatever direction turns out to be desirable from the domestic point of view - vis a vis each other: as they engage in such efforts, they keep undermining each other, which results in an efficient outcome. It remains, however, that they can jointly act vis a vis the rest of the world.

Cooperation means forfeiting terms of trade advantages within the MU, but jointly setting monetary and fiscal policies in order to achieve the desired terms of trade effect vis a vis the rest of the world. If, for example, the inflation effect is stronger, the MU should seek a joint real appreciation, hence a policy mix including fiscal expansion and tight money.[33] If, within the MU the current account effect dominates, and is larger than the inflation effect vis a vis the rest of the world, coordination requires larger deficits than individual countries would seek spontaneously. Of course, with a different ranking of the size of terms of trade effects, the opposite conclusion will emerge: coordination would call for fiscal restraint.

If, we consider the case where the shock hits asymmetrically (positive in some countries, negative in the others), the conclusions are exactly reversed: fiscal restraint is needed when the terms of trade externality dominates the inflation externality within the MU and relatively to the rest of the world; fiscal activism must be encouraged with the opposite ranking of terms of trade effects.[34]

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[33] This can be seen as a rationalization of the Volker-Reagan policy in the early eighties.

[34] The intuitive explanation is that, with asymmetric shocks, countries are pulled apart and do not internalize the fact that

4.4. Conclusion

The existence of externalities means that each member country has a right to wish to control its partners' actions. If high real interest rates are undesirable, there is some support for the view that members of a MU which must share the same rate will want to limit expansionary policies elsewhere in the union. The implication of the terms of trade externality does not provide any presumption that fiscal activism, or simply budget deficits, should be curtailed. The first best would be policy coordination, with discretion applied as to what should be the proper coordinated response to particular shocks.

However, fiscal policy coordination is known to be hard to design and implement in practice. When faced, with this observation, two possible conclusions emerge. The first one would call against any attempt at establishing fiscal policy *rules* within the framework of a MU, rather opting for soft and flexible forms of coordination, such as surveillance. The second conclusion would be to favor *full* policy coordination, as would occur within a federal budget. This seems to be an instance where the extremes dominate intermediate conclusions.

5. New fiscal policy needs in a Monetary Union

5.1. Adjustment without exchange rates

There is a general perception that fiscal policy will assume an increased role in a MU. This view rests on the observation that the monetary policy instrument being lost, all of the burden will

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non-coordinated policy actions will further pull them in opposite directions.

fall on the fiscal policy instrument. Given that the two instruments are not interchangeable – in any usual model –it is not clear what to make of this observation.

A useful starting point is to ask what differences does it make to operate under rigidly fixed exchange rates. What are the functions which are lost? Exchange rate changes are required to modify the relative prices of broad categories of goods (domestically produced versus foreign, traded versus nontraded) or of assets (by country or currency of issuers). If good and asset prices were perfectly flexible, nothing would be lost in giving up the exchange rate. As asset prices typically are as flexible as exchange rates, the usefulness of exchange rates arises from price rigidities. Importantly, because price rigidities are only a transitory phenomenon, there cannot be permanent effects of exchange rate changes. In passing, we note that the exchange rate is a poor substitute for price flexibility as: 1) it affects broad categories of relative prices; 2) it affects broad category of asset prices which may not need to change.

This is well-known of course and recalled here to introduce the next question: how can we substitute for the functions of the exchange rate lost in an EMU? There exists, in principle, some combinations of taxes and subsidies which would exactly replicate the function of the exchange rate, but such policies are normally forbidden under EC rules. Consequently, fiscal policy can only alleviate some of the most undesired effects of the lack of exchange rate instrument.[35]

For example, if shifts in productivity or tastes result in excess supply of some domestically produced goods, quantities will adjust

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[35] Given the traditional view that policy instruments are scarce (in the sense of Tinbergen), fiscal policy cannot even be entirely devoted to this task.

first in the presence of price rigidities. Much the same occurs in the presence of exogenous increase in domestic costs of production. An exchange rate depreciation helps, but imperfectly as it is unlikely to affect only, and in the right proportion, the goods in question. On the other side, disturbances resulting in an excess demand for some goods, are more quickly met by price increases. Thus, an important asymmetry arises, which suggests that a MU is likely to penalize more heavily countries undergoing adverse demand and supply disturbances. The implication is that fiscal policy will be needed to reduce the effects of temporary deviations of relative prices from their equilibrium levels.

5.2. Endogenous price and wage flexibility?

There remains the possibility that the creation of a MU may soften the degree of rigidity of prices. There is no agreement, in general, on the source of price rigidities (even on the existence of such rigidities). This is not the place to review the literature, theoretical and empirical. A recurrent theme concerns the price-wage mechanism and the key role of expectations regarding the monetary validation of increases. Under this view, a non-accommodative monetary policy may well speed up the adjustment of price and wages towards their equilibrium levels. If individuals (firms and unions) know that they will bear the costs of quantity adjustments because of the lack of monetary adjustments, they internalize (some of) the costs of their actions. Whatever the institutional form of the MU's monetary authority, it is bound to be less responsive to individual countries' idiosyncrasies, and thus to promote some internalization of resistance to relative price adjustments. In that case, the need for stabilizing fiscal action may turn out to be lessened, rather than enhanced as is usually presumed.

5.3. The insurance role of "Federal" fiscal policies

5.3.1. The need for insurance

Consider the case hit by an adverse shock, such a productivity shock or a shift of resources away from its domestically produced goods and services. From what precedes, two implications should be clear. In the long run, its terms of trade will have to decline, and this is true independently of the belonging to a MU. In the shorter run, the relative price effect is likely to necessitate some firms to scale down (or even go bankrupt) and some additional unemployment to emerge. Thus, a number of agents will be directly hurt by the loss of the exchange rate instrument. Facing such a risk, agents normally would buy an insurance. Because insurance of this kind typically does not exist, it is usually provided by he state. This transfers the cost, and the risk, at least partly to the other domestic agents. They, in turn, require an insurance. This is one role of monetary and/or fiscal policies.

Those externalities which lead to price and wage rigidities provide the rationale for government intervention. Unless the MU impacts very strongly the wage and prices setting mechanism, fiscal policy will see its role as a stabilizing instrument increased. The loss of the exchange rate instrument may further force adjustments away from relative prices and onto quantities. The apparent asymmetry, which results in slower downward than upward price adjustments implies that adversely hit countries may face a more severe contraction than the expansion in favorably hit countries. An important task for fiscal policy is to eliminate circumstances when a country would have an incentive to break away from the MU. Presumably, a MU carries with it welfare gains – this is a complex issue beyond the scope of this paper which assumes that a MU *is* desirable. Care must be taken, however, that the implied costs do not exceed the benefits, since the option of leaving the MU will always exist.[36]

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[36] There could be non-negligible (political) fixed costs in leaving

What is required, therefore, is a mechanism whereby fiscal policy acts as a substitute - albeit very imperfect - for the exchange rate instrument. This role should be understand as follows. First, it must correspond to the *additional* risk generated by the existence of a MU, no more. Second, it must be an insurance targeted at those agents whose situation is made worse. Third, it should respect the essential principle of subsidiarity, as exposed in the Padoa-Schioppa Report. To recall, this principle holds that public actions should be enacted at the most decentralized level possible. In the following, some guiding principles are laid out.

5.3.2. Principles

First, it is important to emphasize that the insurance scheme should cover the risks - more precisely the portions of the risks - *due to the existence of the MU*, not the risks which would have occurred to the same extent in the absence of the MU. Of course, this is easier said than done. Identifying the risks to be insured, and the proper level of coverage is an impossible task. So we should recognize that a perfect scheme is out of reach and concentrate instead on avoiding the more obvious pitfalls.

Second, we need to recognize that it is individuals who are hit, not states or regions. Unfortunately, identifying the individuals one by one is impossible. One way out could be to decentralize the insurance functions to states or regions, on the ground that identification is easier at the more decentralized level. This is one merit of the subsidiarity principle.

Third, the scheme should be clearly seen as an insurance: premia are paid against occasional and contractual payments to cover

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the MU, but one can always imagine sufficient costs of remaining within the MU to offset the benefits and the fixed costs of exit.

hardships. The systemic nature of the risks to be covered – those due to the existence of the MU – implies a pooling of resources at the union level and a clear redistribution scheme.

Fourth, the insurance scheme must be intertemporally efficient. The corresponding fund does not have to balance its budget every period (month, quarter, year or decade), since disturbances may not occur evenly over time. One solution is the constitution of a fully-endowed fund, but such a fund would imply a transfer across generations which does not seem warranted. More appropriate redistributions can be organized through successive surpluses and deficits financed by borrowing.

Fifth, we need to face the moral hazard aspect of insurance schemes. Potential beneficiaries should not have an incentive to act in a way which increases their chances of being net recipients. Similarly, there exists an adverse selection risk, whereby 'well-behaved' participants refuse to join the scheme if they perceive that it can be manipulated by higher risk participants. Capture by interest groups needs to be avoided.

5.3.3. The US example
It is useful, at this stage to draw some lessons from the closest approximation to the European Monetary Union, namely the case of the US.
Recent work by Eichengreen (1990) and Sachs and Sala-i Martin (1989) establishes the following points. First, unemployment rates – an important measure of quantity adjustments in presence of price and wage rigidities – differ across US states and tend to be persistent. In Europe, they differ even more across states, and are even more persistent. This observation has two implications: a monetary union like the US with a large federal budget does not eliminate quantity adjustments; even a high degree of labor mobility is not enough to eliminate regional imbalances. Second, interstate transfers in the US amount to about 2% of the US GNP,

about 20% of states' and 40% of local spending. Third, when a US
region undergoes a decline in its income, about 40% of the loss is
compensated for through the federal budget, mainly through the
progressivity of the income tax system. Eichengreen puts the same
figure at 1% for the EC.

Fourth, the US system of fiscal federalism works along two routes:
federal matching grants channel funds to states and local
governments, while progressive federal income taxes and welfare
payments operate at the individual level. As is well known, the US
system is far from perfect, with considerable politicking involved
in dealings involving state and local governments. In contrast,
transfers organized around individuals are remarkably free of
controversies, beyond the inevitable amount of fraud which
surrounds any tax and transfer system.

5.3.4. Implications for a blueprint

a) Priority should be given to operate through the tax
system, especially its progressive aspects.

b) Once tax revenues are increased, public outlays must
rise commensurably.

c) The subsidiarity principle suggests to channel
spending to existing national transfer systems.[37]

d) In all cases, spending should be directed in priority
towards individuals affected by the adverse implications
of the MU. Examples of programs are: unemployment
benefits[38], educational grants[39], health programs.

e) The size of the fund will, realistically, have to
increase progressively. As it starts on a small scale,

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[37] If these systems are deemed ineffective, this might be a
propitious time to envision overhauls.

[38] This has been advocated by Bean et al. (1989).

[39] For a similar proposal see Danthine et al. (1990).

its effectiveness will require a steeper progressivity than when the steady-state size is reached.

5.3.5. Comments

The mere emulation of US fiscal federalism would imply a fund of about 2% of the union's GNP. But the EC is not the US. Labor mobility is considerably lower, and should not be increased, at least in the coming years as it would entail major welfare costs. The same cultural and historical reasons which hamper labor mobility are bound to affect the attachment to a monetary union, i.e. to reduce the costs of breaking away in the event of a major adverse shock. Finally, initial conditions differ more in the EC than the current it is reasonable to expect varying degrees of adjustment to disturbances, and potentially more diverse disturbances too. The implication is that the insurance fund should be of a significantly larger size than the US interstate transfers.

Since many such transfer systems already exist in all EC states, *transferring* some resources to the federal level should not add to the fraud problem. As for the moral hazard problem it is best dealt with through incentive schemes such as matching supports: individuals and/or states receiving support bear clearly identifiable portions of the insured risk. As for adverse selection, participation to the scheme, be it at the the individual or national level, should be made compulsory, much like taxes.

The risk of capture by political interests is considerable. This is why transfers from agents to agents are of paramount importance. In this respect, the existing structural funds do not provide an adequate insurance channel. Their logic is different and should be clearly kept separate from the need for insurance. Indeed, the building up of an *esprit de corps* requires a feeling of equity. As the MU imposes the severe constraint of abandoning

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the exchange rate instrument, the need for social cohesion *within
the union* may grow. Given the existing disparities in terms of per
capita income, levels of infrastructure, or quality of education –
to take some of the most obvious examples – some form of
redistribution of opportunities is bound to be required to
maintain popular support, even though such transfers raise the old
question of trading off allocative and productive efficiency.

6. Conclusion

The creation of a monetary union in Europe will seriously affect
the conduct of national fiscal policies. The Delors Report points
out the need to restrict them, setting a binding ceiling on budget
deficits, presumably on the ground that discipline is jeopardized.
The present paper finds cases where indeed some such risk exists.
Yet, there are numerous instances where fiscal discipline may
actually be enhanced. Under two separate definitions of what
discipline may really mean, it appears that extreme caution should
be exercised before setting binding *rules*. On the other side,
everything points towards the heightened need for coordination in
the area of fiscal policy.

Gone the exchange rate instrument, fiscal policies may well be
called upon to provide a substitute way of dealing with national
shocks. The guiding principle suggested is that of an insurance
program, linking individual agents throughout the union. Over
time, this calls for the devolution of a number of national taxes
and transfer programs.

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APPENDIX

THE FRENKEL-RAZIN MODEL

The key feature of this model in the tradition of Blanchard (1985) is to derive aggregate behavior from the individual behavior of mortal agents. Each period is born a cohort of size normalized to one. Each individual has aprobability γ of leaving to the next period. Thus at time $t > s$, the size of the cohort is, by the law opf large numbers, γ^{t-s}. The total size of the population is:

$$\sum_{s=-\infty}^{t} \gamma^{t-s} = \frac{1}{1-\gamma}$$

A1. Individual behaviour

Each individual can borrow or lend at the market interest rate r. If a_t is her financial wealth at time t, her expected wealth at time $t+1$ is $E_t a_{t+1} = \gamma a_{t+1}$. If income, taxes and spending are, respectively y_t, τ_t and c_t, the budget constraint is:

(A1) $\gamma a_{t+1} = (1+r_t)(a_t + y_t - \tau_t - c_t)$

With a logarithmic utility function the agent's problem is to maximize:

$$E_0 \sum_{t=0}^{\infty} \beta^t \ln(c_t) = \sum_{t=0}^{\infty} (\beta\gamma)^t \ln(c_t)$$

subject to (A1). The first order condition is:

(A2) $c_{t+1} = \beta(1+r_t)c_t$

Repeated substitutions of (A1) and (A2) yield:

(A1') $\quad a_t + y_t - \tau_t + c_t + \sum_{j=1}^{\infty} \dfrac{y_{t+j} - \tau_{t+j} + c_{t+j}}{(1+r_t)..(1+r_{t+j-1})} = 0$

(A2') $\quad c_t = \dfrac{c_{t+1}}{\beta \ (1+r_t)}$

If we define human wealth as follows:

$$\gamma h_{t+1} = (1+r_t)(h_t - y_t + \tau_t)$$

(A1') and (A2') yield:

(A3) $\quad c_t = (1-\beta\gamma)w_t$

where total wealth $w_t = a_t + h_t$ follows the following:

(A4) $\quad \gamma w_{t+1} = (1+r_t)(w_t - c_t)$

A2. Aggregate behaviour

Each individual can be indexed by the date of birth s of the cohort to which she belongs: $c_{s,t}$ and $w_{s,t}$. Aggregate values are therefore:

$$C_t = \sum_{s=-\infty}^{t} \gamma^{t-s} c_{s,t} \quad \text{and} \quad W_t = \sum_{s=-\infty}^{t} \gamma^{t-s} w_{s,t}$$

Assuming that per-capita income y_t is constant, aggregate income is $Y = y/(1-\gamma)$ and we have:

(A5) $C_t = (1-\beta\gamma)W_t$

together with:

(A6) $W_t = A_t + H_t$

(A7) $A_{t+1} = (1+r_t)(A_t + Y_t - T_t - C_t)$

(A8) $\gamma H_{t+1} = (1+r_t)(H_t - Y_t + T_t)$

Note that aggregate financial wealth accumulates at the rate $(1+r_t)$, in contrast with individual financial wealth and agggregate human capital which accumulate at the rate $(1+r_t)/\gamma$. The reason is that while those who die indeed see their wealth, financial and human, lost. Newborns, who receive no financial wealth when they arrive are endowed with the same human capital as those who died.[1]

A3. Time aggregation

We now lump together periods t=1 through ∞ by assuming that all exogenous variables remain constant. With $Y_t = Y$ and $T_t = T$, it is clear from (A8) that H_t remains constant and:

(A9) $H = \dfrac{Y-T}{1-R\gamma}$ where $R = 1/(1+r)$

and $H_0 = Y_0 - T_0 + \dfrac{\gamma R}{1-\gamma R}(Y-T)$

This gives the value of period t=0 wealth W_0 in equation (1) in the text. Substituting (A5), (A7) and (A8) into (A6), we obtain:

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[1]   Blanchard (1985) and Frenkel and Razin (1987) provide a different interpretation in terms of a life insurance.

(A10) $\qquad W_{t+1} = (1+r_t)\beta\gamma W_t + (1-\gamma)H_{t+1}$

If we divide (A10) by $\prod\limits_{j=0}^{t} (1+r_j) = 1/R^{t+1}$ and sum up:

$$\sum_{t=0}^{\infty} R^{t+1}W_{t+1} = \beta\gamma \sum_{t=0}^{\infty} R^t W_t + (1-\gamma) \sum_{t\ 0}^{\infty} R^{t+1}H_{t+1}$$

Since for $t \geq 1$, $H_t = H = (Y - T)/(1 - R\gamma)$, we get:

$$(1-\beta\gamma)\sum_{t=1}^{\infty} R^t W_t = \beta\gamma W_0 + (1-\gamma)\frac{R}{1-R}\frac{Y-T}{1-R\gamma}$$

This equation can be used with (A5) to obtain the second aggregate period $t \geq 1$ good market equilibrium condition:

(A11) $\qquad \beta\gamma W_0 + (1-\gamma)\frac{R}{1-R}\frac{Y-T}{1-R\gamma} = \frac{R}{1-R}(Y - G)$

under the assumption that $G_t = G \ \forall t \geq 1$.

Table 1. Government disbursements as percent of GDP/GNP

	1960		1987	
	State and local	General government	State and local	General government
Austria	8.6	34.4	1.5	47.7
Belgium	3.5	27.8	5.4	46.6
Canada	14.0	25.7	30.4	39.5
Finland	9.7	29.7	17.2	39.8
France	4.0	34.5	8.0	49.3
Germany	14.2	35.0	16.9	44.4
Greece	3.9	21.1	5.2	38.0
Ireland	9.4[a]	35.3[a]	12.7[b]	43.1[b]
Italy	5.3[a]	28.4[a]	12.1	39.3
Japan	9.4[a]	20.6[a]	13.4	33.2
Netherlands	12.1[a]	42.0[a]	16.8	53.4
Norway	15.5[c]	48.7[c]	16.9	53.7
Portugal	1.5[d]	30.5[d]	1.9[b]	37.6[b]
Spain	1.6[e]	18.5[e]	7.3[b]	35.0
Sweden	18.7[a]	46.6[a]	23.6	61.8
Switzerland	11.4	23.3	18.2	34.6
UK	7.0	29.9	10.9[b]	41.3[b]
US	8.8	26.3	13.3	32.2

Table 2. Dispersion of general government disbursement
1987 (% of GDP/GNP)

	Mean	Standard Dev.	Min	Max	C.V. (%)
All countries	42.8	8.0	32.2	61.8	18.7
EC - old[a]	45.3	4.8	39.3	53.4	10.7
EC - all[b]	42.8	5.7	35.0	53.4	13.4
US States	-	-	-	-	16.3

Table 3. Solvency limits: some simple examples
(% of GDP)

	Maximum acceptable steady-state primary budget surplus (assuming a 5% real interest rate)					
	3%		5%		10%	
	no growth	3% growth	no growth	3% growth	no growth	3% growth
Limit debt + primary deficit	60%	150%	100%	250%	200%	500%

Table 4. Net public debt plus primary budget deficit
1989 (% of GDP/GNP)

	Total	Net public debt	Primary deficit
Belgium	119.8	122.3	-3.4
Denmark	17.2	20.6	-3.4
France	23.8	24.7	-0.9
Germany	19.8	22.1	-2.3
Greece[a]	84.8	76.1	8.7
Ireland[a]	122.2	126.0	-3.8
Italy	97.1	95.0	2.1
Netherlands	56.2	56.4	-0.2
Spain	29.5	29.8	-0.3
UK	24.7	28.9	-4.2

Note: a) Gross public debt, which makes the figures hardly
meaningful.

Table 5. Current Accounts: 1960-1988
(% of GDP)

	Mean	Standard deviation
Belgium	0.02	1.9
Denmark	-2.8	1.3
France	0.3	1.0
Germany	1.1	1.5
Greece	-3.0	1.8
Ireland	-4.4	4.3
Italy	0.2	1.6
Netherlands	1.3	1.8
Portugal	-2.8	5.1
Spain	-0.4	1.9
UK	-0.3	1.6
Austria	-0.4	1.2
Norway	-2.3	4.5
Sweden	-0.7	1.4
Switzerland	2.1	2.8
Australia	-2.6	1.96
Canada	-1.3	1.1
Japan	1.0	1.6
US	-0.2	1.3
EC	0.2	0.8
OECD Europe	0.1	0.7
OECD Total	0.1	0.5

Source: OECD, NIA.

Table 6. Taxes in US States (% of personal income)

	Effective Indiv. Income Tax Rate	Effective Corporation Tax Rate	Sum of Effective Indiv. and Corp. Rates	Total Tax Revenue
New England	0.022	0.009	0.030	0.067
Middle Atlantic	0.027	0.006	0.033	0.065
East North Central	0.020	0.006	0.026	0.065
West North Central	0.020	0.004	0.024	0.063
South Atlantic	0.018	0.004	0.022	0.070
East South Central	0.011	0.004	0.016	0.069
West South Central	0.005	0.001	0.006	0.068
Mountain	0.015	0.003	0.018	0.076
Pacific	0.022	0.007	0.030	0.098
Mean	0.018	0.005	0.023	0.071
Stand. Dev.	0.006	0.002	0.008	0.010
Coef. of Var.	0.345	0.427	0.346	0.141

Source: Eichengreen (1989)

real interest rate

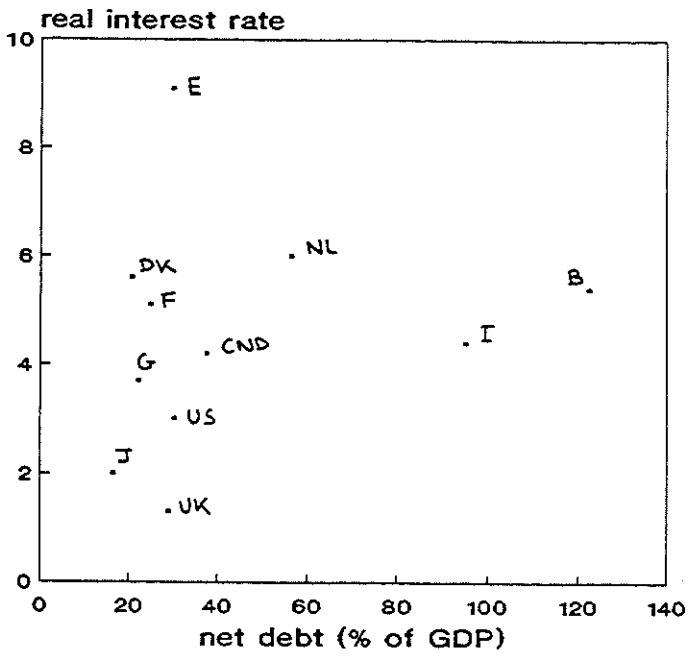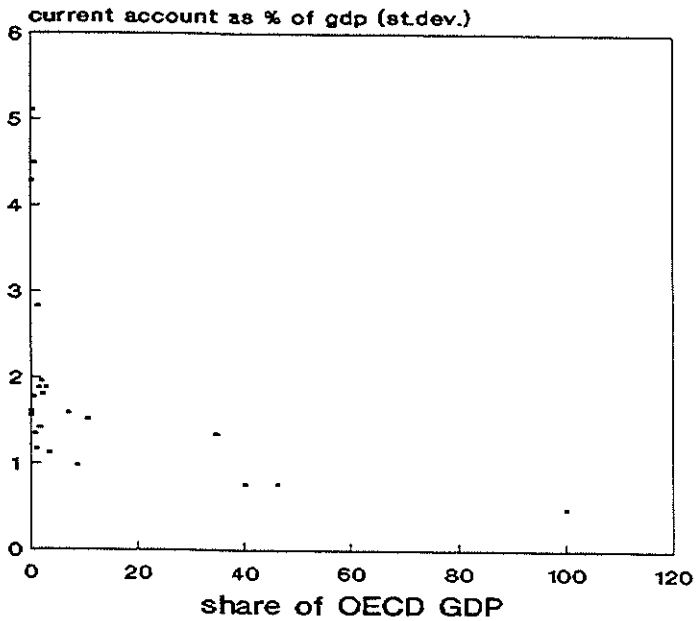Figure 1. Debt levels and real interest rates (1989)

Figure 2

change in real exchange rate (%)
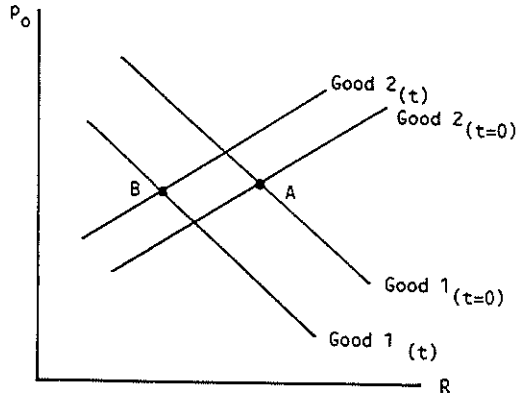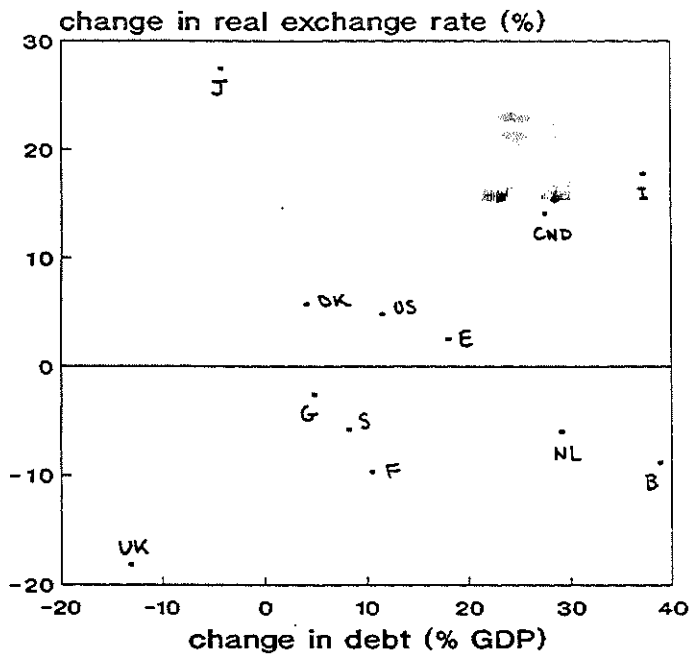
Figure 3. Changes in net debts and in real exchange rates (81-89)

current account as % of gdp (st.dev.)

share of OECD GDP

Relative GDP sizes in 1980
St. dev. of CA/GDP over 1960-1988

Figure 4. Current account (standard deviation) and country size