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The Relevance of Fiscal Conditions for the
Success of European Monetary Integration ^{1/}

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Abstract

The paper argues that international differences in fiscal conditions influence the relative attractiveness of locating production facilities in different countries and could prove to be a troublesome source of instability for the European economies. Even though physical capital movements tend to occur slowly, divergent fiscal conditions can exert pressures on exchange rates in the short run, and the monetary policy reactions induced in a fixed exchange rate regime may affect real wage rates and/or employment levels. The implications for tax harmonization and budget discipline are discussed. It is argued that monetary integration itself will not induce fiscal discipline.

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Summary

Discussions of the prerequisites for European monetary integration have emphasized the need to avoid disruptive flows of financial capital. By contrast, this paper argues that physical capital movements, in response to fiscal policies that influence the attractiveness of locating production facilities in different countries, could prove a troublesome source of instability for the European economies. A simple analytic framework is used to illustrate the hypothesis that even though physical capital moves slowly, changes in the relative attractiveness of accumulating physical capital in different countries can quickly exert pressures on relative prices and exchange rates. Moreover, the monetary policy reactions to these pressures in a fixed exchange rate regime may affect real wage rates and employment levels.

The paper goes on to discuss what these macroeconomic interactions imply for tax harmonization and budget discipline if economic stability is to be achieved. The experience of the United States, while not probed in depth, provides an important example of how state and local competition for industry appears to have proceeded without many major dislocations and how mechanisms appear to have been found for exerting reasonably effective discipline, in most cases, over state and local budget imbalances.

The paper emphasizes the importance of addressing fiscal issues in Europe by suggesting that effective budget discipline cannot be brought about by monetary integration alone. It also argues that the emergence of national debt-servicing problems in an integrated system of credit markets raises difficult lender-of-last-resort issues for the European Communities.

I. Introduction

While the progression toward monetary integration in Europe has elicited extensive discussion of the need to avoid disruptive flows of financial capital, it appears that much less attention has been paid to factors that might give rise to disruptive shifts in the location of physical capital (i.e., production facilities). To an important extent, physical capital moves in response to expected profitability which, in turn, depends importantly on fiscal conditions. In this context, one of the issues that deserves serious consideration is the question of how much the success of European monetary integration may depend on the harmonization of tax codes and on fiscal budgetary discipline.

To suggest that this issue needs serious attention is not to suggest that it has been overlooked. The academic literature of the early 1970s gave some attention to the issue, 1/ and fiscal policy issues in general have been receiving an increasing share of attention in analytic work on the European Monetary System. 2/ Moreover, the discussion of monetary integration by the Commission of the European Communities and its working groups has consistently emphasized the desirability of achieving "a sufficient degree of fiscal harmonization . . . , notably as regards the value-added tax, taxes likely to have an influence on the movement of capital and certain excise duties." 3/ It has also generally been recognized that the cohesion of an economic and monetary union will require some sacrifice of national autonomy over budgetary and fiscal instruments, as well as greater involvement of the Community in the area of structural and regional policies. 4/ Recently, the Commission has been considering proposals that cover the "taxation of business" in recognition that "the harmonization of capital taxation will become much more important, since the elasticity of capital movements in relation to differences in taxation will increase very significantly as those movements are liberalized." 5/

1/ See Corden (1972, 1973), Ingram (1973a), and the comments on Corden (1983) by Ingram (1973b), Murphy (1973), and others.

2/ See Tanzi and Ter-Minassian (1987), along with other papers collected in Cnossen (1987).

3/ "Report to the Council and the Commission on the Realization by Stages of Economic and Monetary Union in the Community," (generally referred to as the Werner Report), Bulletin of the European Communities, Supplement 11-1970, prepared by a working group under the chairmanship of Pierre Werner, Luxembourg: Office for Official Publications of the European Communities, October 8, 1970, p. 11.

4/ Ibid.

5/ See "The Economics of 1992," European Economy, No. 35, March 1988, p. 64.

This paper attempts to contribute to a better understanding of the implications of fiscal conditions for the success of a monetary and economic union. Section II uses a streamlined model to illustrate how divergent fiscal conditions can lead to physical capital movements and, in a multi-currency area, to pressures on exchange rates. The analysis focuses on how fiscal conditions influence the choice of where to locate production facilities. It is suggested that even though changes in fiscal conditions may only influence decisions on where to accumulate or refrain from replacing productive capital at the margin, such changes can exert strong pressures on exchange rates in the short run, and the monetary policy reactions that are induced in a fixed exchange rate regime may have significant effects on real wage rates and/or employment levels.

Section III addresses the implications of these considerations for tax harmonization and budget discipline. Section IV goes on to raise the issue of whether monetary integration itself would exert a desirable discipline over fiscal conditions. In this context, it is argued that the creation of a European central bank and a single European currency would not necessarily induce fiscal discipline and, without fiscal discipline, could give rise to credit crises and lender-of-last-resort problems. Section V provides concluding remarks.

II. The Influence of Fiscal Conditions on Monetary and Exchange Rate Stability ^{1/}

1. Preliminary observations

The movement toward greater monetary integration in Europe is proceeding in an environment in which economists remain quite ignorant about the causes of exchange rate instability. ^{2/} One piece of knowledge that has been acquired over the past decade is that monetary models of the month-to-month or quarter-to-quarter changes in exchange rates are inadequate: "If exchange rate changes were in truth explainable by changes in money supplies, either contemporaneous or anticipated, we would have much better results in our regressions than we do." ^{3/} This is not to deny the fact that policy authorities can influence exchange rates in the very short run by changing monetary conditions. But acquired wisdom essentially stops here: little is known about how factors other than monetary conditions may systematically influence the month-to-month or quarter-to-quarter behavior of exchange rates.

The discrediting of the monetary approach to exchange rate determination has focused attention on two alternative schools of thought. One

^{1/} This section draws heavily on Dooley and Isard (1988).

^{2/} See Isard (1987, 1988a) and Dornbusch and Frankel (1987) for recent discussions of the exchange rate literature.

^{3/} Dornbusch and Frankel (1987), p. 10. See also Meese and Rogoff (1983a, 1983b, 1985) and Boughton (1988).

view is that exchange rates predominantly reflect speculative forces that are unrelated to "fundamentals." The second view is that exchange rates are driven primarily by changes in fiscal policies or other nonmonetary shocks. 1/ The attractiveness of the latter view has given rise to a growing volume of research in which the effects of changes in various types of fiscal spending and tax parameters have been analyzed within different types of macroeconomic models. 2/

One of the ways that fiscal policy changes can generate exchange rate pressures is through effects on the relative attractiveness of accumulating physical capital in different countries. 3/ Recognition of this transmission channel focuses attention on two questions, both of which have the same answer. The first is the question of whether changes in the differentials between rates of direct taxation imposed by different countries tend to affect the relative attractiveness of accumulating physical capital in the different countries. The second is the question of whether divergent trends in fiscal budget imbalances change the relative attractiveness of accumulating physical capital in different countries. The answers to the two questions are the same in a forward-looking world, since rational investors will revise their expectations about rates of direct taxation in response to trends in fiscal budget imbalances--particularly in a world in which rates of indirect taxation are harmonized across countries. If the common answer to these questions is "yes," then a simple analytic framework suggests that a country that reduces its direct tax rates or moves into budget surplus should experience upward pressure on the foreign exchange value of its currency in the short run, other things equal. 4/

Several casual empirical observations suggest that the common answer to these questions is indeed "yes"--and hence that actual or expected changes in the after-tax returns on capital may be part of the story behind exchange rate movements. The rise and fall of the U.S. dollar during the 1980s coincided, broadly speaking, with changes in tax provisions that generated an initial increase and a subsequent decrease in

1/ A third school of thought--which has given rise to interesting research but is not widely regarded as a likely explanation of observed behavior--is that exchange rates reflect "rational bubbles" or self-fulfilling prophecies, as distinct from irrational speculative forces.

2/ See Frenkel and Razin (1987) and the many references cited therein.

3/ This channel of transmission has been emphasized by Dooley and Isard (1983, 1987, 1988).

4/ The analytic framework is sketched below and spelled out more extensively in Dooley and Isard (1988).

the expected after-tax returns on capital located in the United States. 1/ The emergence of strong upward pressures on the pound sterling during the first few months of 1988 coincided with strengthening anticipations of tax reductions, which were subsequently validated by the March Budget. 2/ And major shocks to the macroeconomic outlooks for either the heavily indebted developing countries or the oil exporting countries--which have important implications for expected returns on capital located in these countries--have consistently given rise to strong pressures on exchange rates and/or stocks of foreign exchange reserves.

It is important to emphasize that such an interpretation of these observations might not be valid if countries all adhered rigidly to the OECD double taxation convention based on the residence principle. Under this convention, the recipients of capital income would pay taxes to the governments of the countries in which they resided, regardless of the location of the capital, at whatever income tax rates were imposed by the countries in which they resided. In theory, therefore, the tax rate paid by a recipient of capital income would then be independent of the source of the income, so changes in the rates of direct taxation imposed by different countries would not affect the relative attractiveness to any individual investor of accumulating physical capital in different countries.

In reality, however, the international tax order provides opportunities for recipients of capital income to avoid taxation on income that is

1/ Expectations of tax reductions in the United States began to strengthen after the 1980 presidential election and were validated by the Economic Recovery and Tax Act of 1981, which legislated a phased liberalization of business taxation over a period of several years. Expectations of tax increases, which may have begun to strengthen after the announcement of the Treasury tax reform plan of December 1984, were validated by the Tax Reform Act of 1986. To note these correspondences, however, is not to suggest that the behavior of the dollar only reflected changes in the expected after-tax returns on capital. It would be difficult to argue that the dollar would have remained at its early 1985 peak levels in the absence of anticipated tax increases, although here it should be noted from the analysis below that an initial appreciation of the dollar in response to the 1981 tax measures could have been expected to have been eventually reversed, even without any subsequent tax increases.

2/ Anticipation of tax reductions strengthened as the sequence of monthly data on the public sector budget position repeatedly provided "news" of larger-than-anticipated budget surpluses in the context of repeated indications that the U.K. authorities were contemplating a reduction in taxes. Under the strategy that prevailed for monetary policy, the authorities initially resisted the upward pressures on the pound and were forced to tolerate strong growth of domestic financial aggregates. Subsequently, the pound was allowed to break through its "target ceiling" against the deutsche mark.

not effectively taxed at the source. It is relatively easy to identify the sales and expenses of a firm within a tax jurisdiction, and taxes imposed on wage and salary income and corporate profits at the source are relatively difficult to avoid. So are property taxes on structures and other tangible assets. But opportunities to avoid taxes on the incomes paid out to owners and creditors of firms are widely acknowledged. ^{1/} While some tax avoidance may involve evasion or cheating, there is also substantial scope for legally avoiding taxes on capital incomes. This is mainly related to various loopholes in, and differences between, national tax codes. These features provide scope for financial intermediaries to offer claims that provide nontaxable sources of income to investors, and to issue such claims from locations in which the own profits of the intermediaries are not subject to taxation.

In characterizing the implications of the present international tax order, informed economists generally distinguish between implications for the taxation of portfolio investment income and implications for the taxation of business income. With respect to the taxation of portfolio income, Bird (1988, p. 294) notes:

Since one universal truth of tax policy is that it is much more difficult to tax capital income on receipt than by withholding at source . . . and another is that international finance is fungible in the sense that the borderline between interest, dividends, royalties and other payments between components of the same firm is vague and shiftable . . . , the practical result . . . is often effectively to exempt international portfolio investment income from tax. . . . [It] is all too easy to create foreign subsidiaries and, with the help of friendly financial intermediaries, to rearrange the books of firms operating internationally so as to minimize taxes.

With respect to taxation of business income, which is more relevant for the analysis of this paper, Bird (1988) notes that even in cases where capital-exporting countries follow the residence principal, source-country primacy in the taxation of business income is attained through deferral of tax collections by capital-exporting countries until profits are actually repatriated, and through crediting against any tax due on repatriation the taxes already paid to the source country. To the extent that the present discounted values of any deferred tax collections by capital-exporting countries are likely to be dominated by taxes collected at the source, it seems appropriate to analyze the choice of where to locate production facilities under the assumption that the international tax order operates effectively as a source-based system. That is to say, it seems appropriate to assume that the relative attractiveness of locating production facilities in different countries will indeed be affected by

^{1/} See Bird (1988).

changes in the relative rates at which business income is taxed at the source by different host countries. ^{1/}

2. Diagrammatic analysis

The observations discussed in the previous section suggest that if members of the European Communities allow their rates of direct taxation to diverge significantly--or if divergent fiscal budget imbalances give rise to expectations of divergent rates of direct taxation--then the relative attractiveness of expanding productive capacity in different countries may change significantly over time. This section presents an analysis of what such developments could imply for monetary and exchange rate stability.

It is instructive to approach the analysis from perspectives provided by the types of diagrams that are familiar from the pure theory of international trade. This approach provides inferences on how a change in the relative "endowments" of a mobile factor of production--in this case, physical capital--would affect the market-clearing relative prices of tradable and nontradable goods in a world in which factors of production were fully employed. By imposing a fixed nominal exchange rate on the analysis, inferences about relative price behavior can be used to draw implications for the absolute prices of tradable and nontradable goods in a full-employment world. Then, with these perspectives as a benchmark, the full-employment model can be set aside to speculate on how macroeconomic behavior would differ if prices (or real wages) were inflexible downward.

For purposes of developing the main points in a streamlined manner, consider a world in which each country produces two goods: a nontradable good and a tradable good that is homogeneous across countries. There are two factors of production, labor and capital. Nontradable goods (or services) are produced from labor alone while tradables are produced by labor and capital together. The tradable good may be either consumed or accumulated as capital. The private sector of each country is treated as a single behavioral unit that supplies labor, invests in physical capital, conducts international trade, and plans its intertemporal consumption stream to maximize the expected present discounted value of its utility subject to its budget constraints. Governments are empowered to impose taxes and absorb goods, but to avoid complicating the analysis it is assumed that they maintain balanced budgets and do not issue debts.

It is convenient to set the stage with an initial stationary state equilibrium in which all countries are identical, all tax rates and government spending levels are zero, and private agents do not own any

^{1/} As Hartman (1985) notes, however, the extent to which a change in the home country tax rate affects the scale and location of a firm's investments may depend on whether the firm has unrepatriated foreign source earnings that can be reinvested.

physical capital located outside the countries in which they reside. The implications of changing the relative attractiveness of accumulating capital in different countries can then be explored by analyzing how the situation changes in the simple case in which the government of one of the countries--the "home country"--imposes an unanticipated source-based tax on domestic production.

Figure 1 illustrates the initial stationary-state production and consumption possibilities in the home country before the tax is imposed. The vertical and horizontal axes measure units of nontradable goods (N) and tradable goods (T). The solid curves AB and AC represent the net production possibilities frontier and the gross production possibilities frontier, respectively. The net production possibilities frontier is an envelope of the net production possibilities curves (the dashed curves) associated with different levels of the capital stock (K_1 and K_2 , $K_1 < K_2$). These net production possibilities curves reflect gross production possibilities net of the tradable goods that must be allocated for replacement investment if capital stocks are to be held stationary. The strictly convex shapes of these curves reflect the assumption that the marginal product of labor is positive in both sectors, nonincreasing in the nontradables sector, and strictly diminishing in the tradables sector. The relative positions of the intercepts on the vertical axis reflect the assumption that capital depreciates at a positive rate as a function of time; thus, the amount of labor that must be allocated to produce tradable goods for replacement investment in the stationary state, and that is thus not available to produce nontradables, is an increasing function of the level of the capital stock. The relative positions of the intercepts on the horizontal axis reflect the assumption that the marginal product of capital is strictly positive up to a point but eventually declines to zero; thus, the gross production possibilities frontier intersects the horizontal axis at a finite point. Under normal assumptions about production technology, a clockwise movement along either the net or the gross production possibilities frontier is associated with an increase in the capital stock. Under normal assumptions about consumer preferences, the initial stationary-state equilibrium levels of consumption and the capital stock are defined by the unique point of tangency (at X) of the net production possibilities frontier and the family of concave indifference curves. The equilibrium gross production level is defined by point Q, with replacement investment corresponding to the horizontal distance between X and Q.

Now consider how production and consumption possibilities are affected by the imposition of a source-based tax in the home country. Specifically, assume that the home country government begins to collect and consume a fraction τ of the domestically produced output of each good, thereby providing an incentive for home country residents to allow the domestic capital stock to decline (by not undertaking replacement investment) and to begin to accumulate capital abroad (by exporting tradable goods that can either be installed as, or exchanged for, capital goods in foreign countries) as a nontaxable source of output and income. For

present purposes, the analysis is restricted to the interesting case in which labor is immobile. 1/

Since the home country capital stock is predetermined in the short run (at the initial equilibrium level K_2), the gross production possibilities frontier in the short run--before paying taxes--corresponds to the locus AQD in Figure 1, where the segment QD is parallel to the net production possibilities curve associated with K_2 at a horizontal distance corresponding to the initial equilibrium level of replacement investment. Figure 2 shows the AXB and AQD loci from Figure 1, together with an EF locus that corresponds to the points on AQD after subtracting taxes. The EF locus represents the frontier of after-tax consumption points that are feasible in the short run in the absence of any replacement investment at home and also in the absence of any exports for purposes of acquiring capital in foreign countries. The locus GH--shifted horizontally leftward from EF--corresponds to the short-run consumption possibilities frontier that is consistent with a level of exports equal to the horizontal distance between H and F. The optimal short-run consumption point on this frontier is shown at Y, the point of tangency with the family of indifference curves. If preferences are homothetic, the ratio of non-tradables consumption to tradables consumption will generally be higher at Y than the initial equilibrium ratio at X. 2/ Consistently, the ratio of the (shadow) price of tradables to the (shadow) price of nontradables--corresponding to the (absolute) slope of the indifference curve at the consumption point--will generally be higher at Y than in the initial equilibrium at X.

By contrast, in the new long-run equilibrium both the ratio of non-tradables consumption to tradables consumption and the ratio of the price of tradables to the price of nontradables will generally be lower than their initial equilibrium levels if preferences are homothetic. This can be inferred from Figure 3, which shows the initial stationary-state consumption (and net production) possibilities frontier AXB together with an EI locus that corresponds to the points on AXB shifted toward the origin by the proportionate amount of the tax. 3/ The opportunity to

1/ The next section will relax the full-employment assumption and consider the implications of labor migration. For the extreme case in which both factors were perfectly mobile, a country that raised taxes could wind up losing its entire capital stock and labor force.

2/ This result requires that GH have a more negative slope than AXB at their respective points of intersection with the ray OX. It may be noted that the slope of AXB at X equals the slope of AQD at Q. Accordingly, the result will always hold if the tax is imposed on production after allowance for depreciation, since then the slope of AXB at X will equal the slope of EF at its intersection with OX, which is less negative (under the assumptions that make the net production possibilities curves strictly convex) than the slope of GH at its intersection with OX.

3/ The proportionate shifting of the frontier from AXB to EI assumes that the tax is imposed on production net of an allowance for depreciation.

FIGURE 1

Initial Stationary-State Production and Consumption
Possibilities for the Home Country

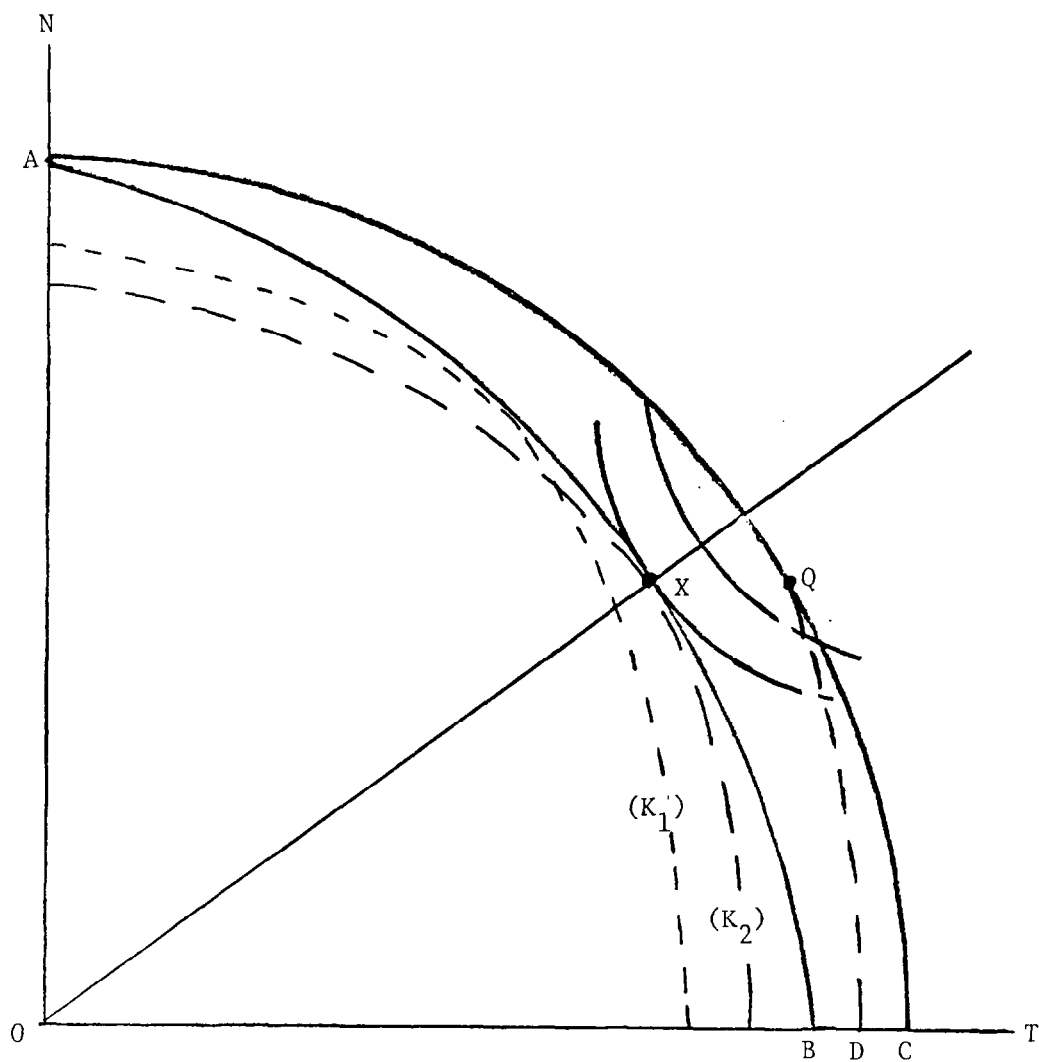


FIGURE 2

Production and Consumption Possibilities for the Home Country
in the Short Run After the Tax Is Imposed

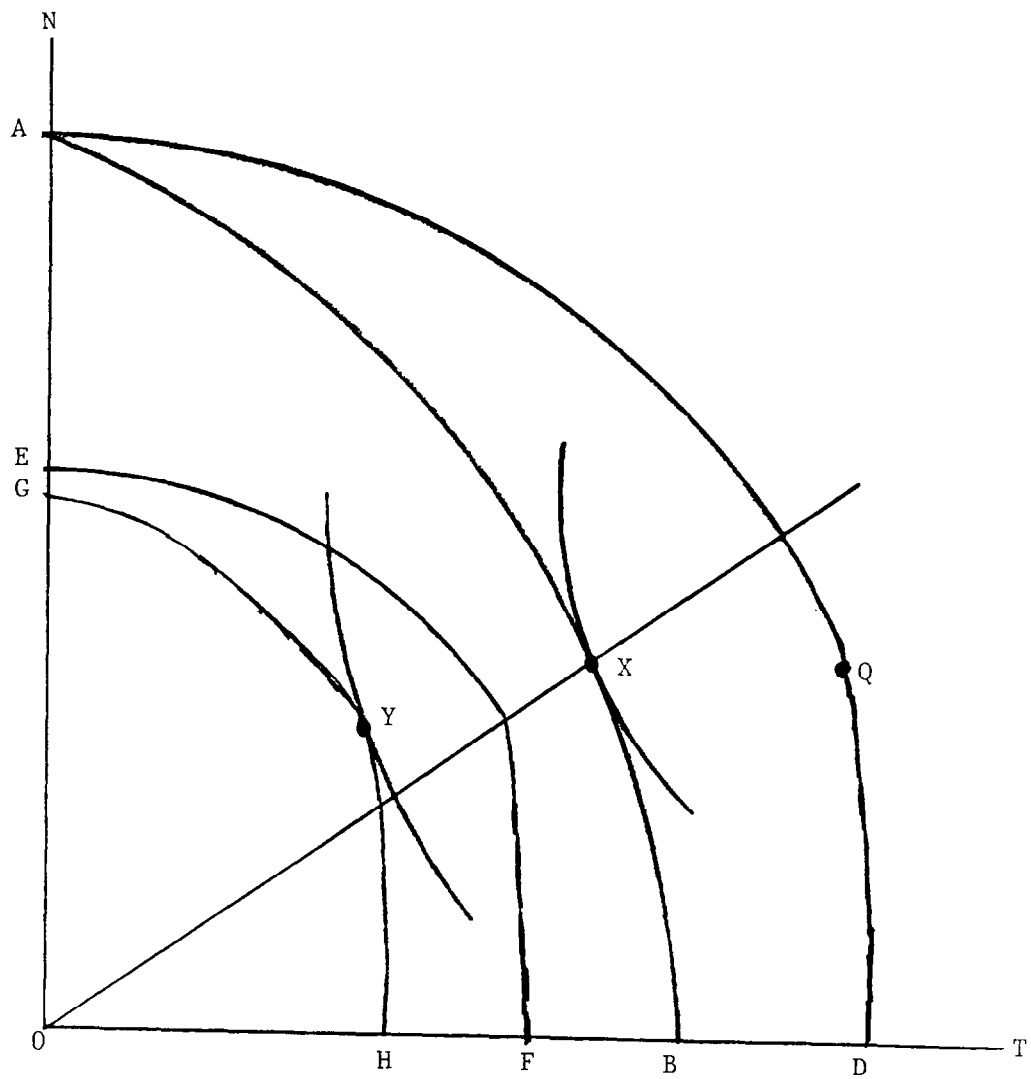
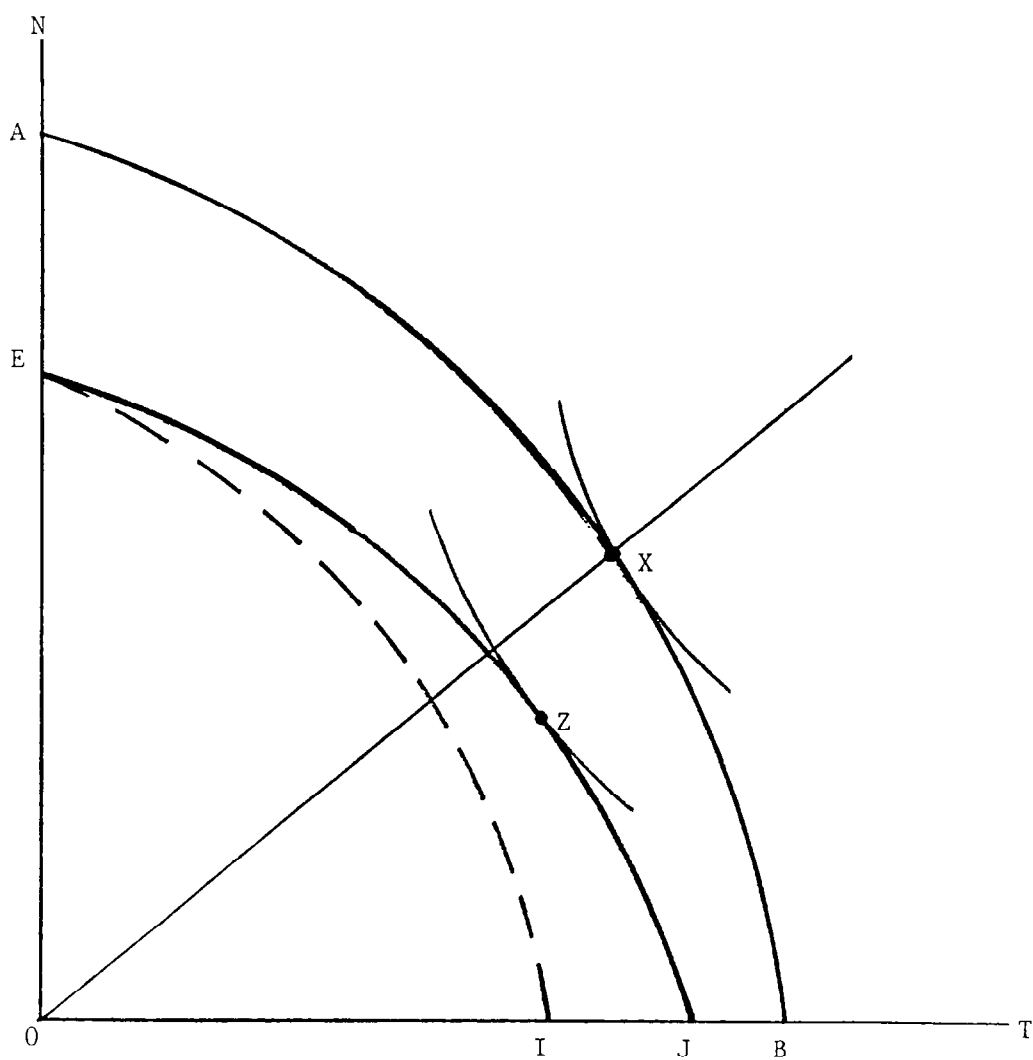


FIGURE 3

Production and Consumption Possibilities for the Home Country
in the Long Run After the Tax Is Imposed



accumulate capital abroad, and to avoid paying taxes on tradable goods produced abroad, implies that the consumption possibilities frontier in the new stationary-state equilibrium will lie outside of EI with a shape and position like EJ, and that the new equilibrium consumption point Z will lie below the ray OX if preferences are homothetic. Thus, the imposition of the production tax will generally raise the relative price of tradable goods in the home country in the short run but lead to a lower relative price in the long run.

3. The case of a fixed exchange rate regime

The previous analysis has illustrated that a change in a source-based tax on production can generate changes over time in the relative market-clearing prices of tradable and nontradable goods in a full-employment world in which labor is immobile. The framework used to illustrate this point was intentionally simplified by adopting a number of restrictive assumptions. Of interest, however, is not the precise nature of the relative price dynamics that follows from specific assumptions, but rather the general inference that any change in tax codes that affects the relative attractiveness of accumulating capital in different countries can generate changes over time in market-clearing relative prices in a full-employment world in which labor is immobile. ^{1/} So can any event that leads to revisions in expectations about future tax rates or that otherwise affects the relative attractiveness of accumulating capital in different countries.

This section extends the analysis to a world in which the instruments of monetary policy are used to maintain a fixed nominal exchange rate. The first objective is to consider what a fixed exchange rate regime would imply for the behavior of absolute price levels in a full employment world in which labor was immobile. The second objective is to consider what might happen if prices were not sufficiently flexible to preserve full employment without migration of labor.

The analysis of these issues is not very complicated. If the home country has little influence over the world market price of tradable goods, a fixed exchange rate regime will tend to stabilize the home currency price of tradables and force the home currency price of nontradables to adjust by whatever amount is required to achieve the market-clearing level of relative prices. Thus, in the example in the previous section, an increase in the home country tax rate will put the home currency price of nontradables under downward pressure in the short run and under upward pressure in the longer run. If wages appropriately reflect the marginal product of labor in the nontradables sector, the real purchasing power of the wage rate over any "standard" consumption bundle

^{1/} In practice, links between changes in tax codes and the relative attractiveness of investing in different countries may depend importantly on how productively tax revenues are used by governments.

of tradables and nontradables must decline in the short run if full employment is to be maintained without labor migration.

What if frictions in the labor market (or elsewhere) prevent the non-tradables price or the real wage rate from declining? The answer is that part of the labor force will become unemployed, and that the unemployment may persist unless labor begins to migrate.

These arguments do not spell out the mechanism through which the monetary authorities prevent the home country currency from depreciating following the increase in the home country tax rate. In reality, the normal mechanism would involve an increase in home country interest rates which, in many macroeconomic models, would lead to declines either in activity and employment or in the real wage rates consistent with unchanged activity and employment levels.

III. Implications for Tax Harmonization and Budgetary Discipline

It is important to emphasize that, when characterized broadly, the inferences drawn from the previous analysis can also be derived from other macroeconomic frameworks and are simply the obverse forms of widely accepted arguments that are familiar from discussions of how to assign monetary and fiscal policies to the objectives of achieving internal and external balance. If monetary policy is assigned to the external objective of maintaining a fixed exchange rate, fiscal policy must be adjusted to maintain internal balance in response to unanticipated shocks. But by the same token, if monetary policy is assigned to the exchange rate, unanticipated adjustments in fiscal policy can disrupt a situation of internal balance. ^{1/}

An implication of the previous analysis is that divergent fiscal conditions within the European Communities--whether arising from unharmonized rates of taxation or from divergent fiscal budget positions--can affect the relative attractiveness of locating production facilities in different countries, thereby giving rise to divergent pressures on either real wage rates or unemployment rates in different

^{1/} From a related perspective, unanticipated adjustments in fiscal policy can undermine the "assignment" or strategy for monetary policy; see Isard (1988b). It is generally perceived, for example, that the shift to an expansionary fiscal stance in the United States in the mid-1960s, and the consequent rise in U.S. inflation, played a large role in bringing on the collapse of the Bretton Woods system of fixed exchange rates; see Solomon (1977, pp. 100-104). And it is also widely perceived that fiscal policy played a large role in undermining the flexible rate system that prevailed during the 1973-85 period by generating wide swings in dollar exchange rates during the 1980s, thereby contributing to conditions which have led to a re-emergence of exchange rate stabilization objectives in association with the process of international policy coordination.

countries. From one point of view, the sensitivity of real wages and employment to fiscal conditions may have beneficial effects. In particular, it may help induce countries to refrain from unproductive public spending (which tends to create expectations of tax increases), and it may also provide greater scope for countries to stimulate employment and real wages through tax reductions. But the stronger pressures to curtail fiscal spending and the scope to resort to beggar-thy-neighbor tax reduction policies may be a source of strains on the political viability of the monetary union. These considerations suggest that serious attention should be given to the issues of whether to seek to harmonize rates of direct taxation and how to impose discipline over fiscal budget imbalances.

Tax harmonization, in this context, is a concept that is difficult to define precisely but that has the connotation of setting tax rates in a manner that does not provide strong incentives for tax bases to shift from one tax jurisdiction to another. Thus, tax harmonization does not necessarily mean absolute equality of tax rates among countries. ^{1/} For example, if different countries start out with different unit costs of noncapital factors of production (e.g., labor and land), countries with relatively high noncapital costs could attract and retain capital by maintaining relatively low tax rates but would be likely to lose their capital stocks if forced to raise their tax rates to the levels prevailing in other countries. Similarly, harmonization does not necessarily mean time invariant tax rates, since adjustments in fiscal incentives may be important for preventing capital from shifting in response to exogenous developments that have different effects on different regions.

The issue is complicated further by the fact that in addition to depending on explicit tax rates and the unit costs of noncapital factors of production, the returns on capital can be influenced by various forms of subsidies and tax breaks for capital formation, which may be difficult to limit through regulations alone. What may be required, accordingly, is agreement on a set of broad understandings relating to the conditions under which, and the amounts by which, countries may adjust tax rates and subsidies to increase the relative attractiveness of locating production facilities within their borders.

The experience of the United States provides some perspectives on competition for industry. A study by Benson and Johnson (1986) presents empirical evidence that capital formation within the different states is negatively related to the relative levels of state and local taxes, while also suggesting that interstate competition for industry tends to keep states' taxes in line with one another. These perspectives are encouraging in the sense of pointing to an important case in which competition for industry appears to have proceeded without major dislocations.

^{1/} See Corden (1972, p. 34).

The experience of the United States has also been positive in pointing to mechanisms that, by and large, appear to have been successful in imposing discipline over regional budget imbalances. At the state level, the mechanisms have involved balanced budget requirements, which prevail to different degrees of stringency in 49 of the 50 states, and constitutional debt restrictions, which prevail in 30 states. 1/ At the local level, most states impose limits under which the extent to which local governments may issue debt is tied to the property tax base. 2/

On the surface, the limits on state and local borrowing do not appear to provide adequate budgetary discipline; indeed, these limits "have been breached by a mushroom-like development of ingenious devices." 3/ More specifically, the limits only apply to general obligation bonds backed by the "full faith and credit" of government units. The most important device for circumventing the debt restrictions has been the revenue bond, a form of nonguaranteed debt. 4/

While revenue bonds have been used extensively to finance "disguised" budget deficits, such disguised deficits do not typically give rise to expectations of future tax increases. This is because the interest and principal on revenue bonds are payable from the earnings of specific enterprises. Thus, revenue bonds are not likely to be seen as creating future strains on government budgets (and needs for higher future tax rates) as long as they are issued to finance productive capital formation. 5/

There are important examples, of course, in which the mechanisms for disciplining state and local budgets in the United States have not been successful in averting fiscal crises. The case of New York City in the mid-1970s is a prominent example.

1/ See Advisory Commission on Intergovernmental Relations (1987a) for descriptive information and econometric evidence on the effectiveness of these mechanisms.

2/ See Advisory Commission on Intergovernmental Relations (1987b), Table 80, pp. 120-125.

3/ Aronson and Hilley (1986), p. 7.

4/ Ibid, p. 177.

5/ To put the point more positively, fiscal deficits--whether disguised or undisguised--are sometimes constructive. A classic case emphasized by Ingram (1973b, p. 190) is the Puerto Rican example, "in which a local government (a regional government, perhaps) has financed an enormous number of public works, electric power installations, road systems, schools, plants and buildings to attract industry. It has been a net capital importer on government account--a net borrower in the New York capital market--for about twenty to twenty-five years. . . . [but] does not seem to be running into . . . [problems] simply because it is creating real wealth in the process of carrying out this adjustment process."

It is also important to recognize that state and local budget discipline in the United States has been facilitated by the functioning of the federal fiscal system, in which the relative levels of both federal tax collections from, and outlays to, individual regions help to offset or compensate for cyclical and secular differences in regional incomes and public expenditure needs. ^{1/} To a considerable extent, the burden of addressing cyclical or structural problems of individual regions has fallen on the federal budget, thereby easing the pressures on state and local budgets. Indeed, without the federal superstructure, the strains on regions impacted by adverse shocks would multiply as losses of state and local tax revenues under balanced budget restrictions led to reductions in state and local government expenditures.

The U.S. experience may provide a useful "stylized" framework for the European Communities to consider. In particular, it might be attractive to consider a system in which all debts issued by member country governments would be tied specifically to productive investment projects and left to stand unguaranteed and on their own, while adequate resources were also channeled into a supranational agency for responding to regional differences in budgetary needs.

IV. Will Monetary Integration Induce Fiscal Discipline?

In considering measures that are necessary or desirable for imposing fiscal discipline, it is relevant to ask whether monetary integration itself will impose constraints on the ability of fiscal authorities to raise revenues, and what that might imply for fiscal budgetary discipline. In this connection, it is widely perceived that the loss of monetary autonomy will have important implications for the extent to which fiscal deficits can be financed through the creation of reserve money. This loss of seigniorage will be especially large for those countries that have had both relatively high inflation rates and relatively high required reserve ratios. Part of the loss of seigniorage will be associated with a reduction in monetary expansion to a rate compatible with the low inflation rates that can be expected to prevail in the EMS under the leadership of the Bundesbank; indeed, the convergence of inflation rates among EMS countries during the 1980s has already narrowed considerably the discrepancies in the shares of GDP that fiscal authorities command through seigniorage. In addition, the movement toward a unified market in financial services will bring pressure for the harmonization of reserve requirements for commercial banks, which will also result in a seigniorage loss for countries that have relatively high required reserve ratios.

The reduced scope to finance fiscal deficits through money creation raises the issue of whether countries will take actions to adjust their fiscal imbalances or simply turn to greater bond financing. The removal

^{1/} Kenen (1969) has emphasized the importance of such mechanisms in his analysis of optimum currency areas.

of capital controls and the integration of European financial markets will facilitate bond financing by making it easier for a country to sell debt in the financial markets of other European countries. To some extent, the issuance of public debt will be restrained by the risk premiums that borrowers must pay on international credit markets, but without additional effective political or institutional mechanisms for promoting discipline over bond-financed fiscal deficits, cross-border credit exposures could become large.

It is important to emphasize that the creation of a European Central Bank (ECB) would not, by itself, provide an effective institutional mechanism for promoting fiscal discipline. One significant implication of an ECB would be that control over monetary growth and total central bank credit would be centralized in one institution instead of being dependent on the interplay of balance of payments flows and the monetary policy of the center country, as is currently the case in the EMS. Similarly, financial conditions in the individual EC countries would be controlled directly by one institution instead of being influenced indirectly--through market arbitrage--by conditions in the center country. The centralization of monetary control within an ECB would remove (or greatly reduce) the option for national central banks to exercise monetary discretion. ^{1/}

Although these considerations imply that the creation of an ECB would make a qualitative difference in the way that total credit for the EC was determined, there is nothing inherent in the operation of an ECB that would serve to limit the size of bond-financed fiscal deficits. In a system with an ECB, national central banks operating as regional subsidiaries might be free to issue liabilities and extend credit subject to certain constraints, much like commercial banks, and would thereby compete with each other for the volume of central bank credit that was consistent with any required reserve ratios. A fixed stock of monetary reserves supplied by the ECB, combined with a system of required reserve ratios, could limit the size of national central bank balance sheets, thereby limiting the extent to which national central banks could monetize fiscal deficits. Nevertheless, unless constraints were imposed on the extent to which fiscal authorities could issue debt, credit expansion could run rampant through public borrowing. Moreover, the threat of running out of monetary reserves would not serve to exert effective discipline over fiscal policy, since it would not effectively constrain the international payments positions of member countries. Countries could avoid running out of monetary reserves--without taking appropriate actions to rein in domestic credit expansion or to adjust international payments positions--either through direct public borrowing from nonresidents or

^{1/} The establishment of a single currency and the creation of an ECB would also affect the nature of market uncertainty in ways that could prove to be important. The establishment of a single currency would eliminate exchange rate uncertainty, while the centralization of monetary control would change the nature of monetary policy uncertainty.

through issuing public debt to semi-public firms or private residents (e.g., domestic banks) in exchange for assets borrowed abroad.

Of course, member countries would be competing with each other in credit markets, and would be forced to pay interest rate premiums consistent with the risks that lenders perceived in their policies, their indebtedness positions, and their prospective economic performances. Moreover, the ECB could influence the volume of credit through its influence on the general levels of nominal and real interest rates.

Nevertheless, without "rules of the game" for fiscal policy, 1/ there would be scope for conflicts over the distribution of credit among EC countries, and for Community-wide difficulties if individual countries developed debt-servicing problems. Such conflicts and difficulties might be even more severe under a single currency system than under a multiple currency system in which concerns about the policies and creditworthiness of individual countries were transmitted--as early warning signals--into pressures on exchange rates.

History has repeatedly demonstrated that the need for monetary authorities to perform a lender-of-last-resort function is not obviated by the fact that private credit markets require interest rate premiums consistent with the perceived risks associated with different debtors. Even though risk premiums may provide appropriate compensation for the ex ante expected values of any loan losses, unanticipated changes in macroeconomic conditions are inevitable and may very well lead eventually to debt-servicing problems for any members of the EC that develop large debts. Ex post, it could be costly or politically difficult for the EC as a whole to refuse to assist a member with debt-servicing difficulties in the face of major uncertainties about the prospect of domino effects in an integrated system of credit markets. Just as the federal government in the United States was led to play a major role in putting together a financial rescue plan for New York City and State during the mid-1970s, so too would the EC authorities find it difficult not to assist a member with debt-servicing difficulties.

This raises the issue of whether the EC should attempt to minimize the spillover effects of national debt-servicing problems through preventive measures--namely by establishing "rules of the game" for limiting the extent to which countries may issue debt. As discussed earlier, a "stylized" view of the experience of state and local governments in the United States suggests that consideration might be given to rules in which any debts issued by member country governments were linked explicitly to productive investment projects and left to stand unguaranteed and on their own.

1/ Corden (1972, p. 36) refers to the concept of "controlled financing" and notes that the Werner report issued in 1970 envisaged that "the margins within which the main budget aggregates must be held . . . will be decided at the Community level."

V. Concluding Remarks

This paper has been motivated by a concern that discussions of the prerequisites for European monetary integration have focused extensively on the need to avoid disruptive flows of financial capital without paying adequate attention to the causes and possibly adverse consequences of physical capital movements. Although physical capital movements tend to occur slowly as firms make decisions about where to locate new production facilities and where to shut down or refrain from upgrading depreciated facilities, changes in the relative attractiveness of accumulating physical capital in different countries can exert strong pressures on exchange rates and other "forward-looking" financial variables in the short run. In a fixed exchange rate regime, moreover, strong pressures on exchange rates, and the changes they induce in the settings of monetary policy instruments, are likely to be translated into strong pressures on real wage rates and/or employment levels.

To an important extent, the relative attractiveness (i.e., expected profitability) of locating production facilities in different countries can be affected by changes in fiscal conditions--in particular, by changes in differentials between the rates of direct taxation imposed by different countries, or by divergent fiscal budget imbalances that fuel expectations of changes in relative tax rates. This implies, on the one hand, that it may be important for the European Communities to consider mechanisms or guidelines to discourage unharmonized changes in tax rates and undisciplined budget positions. Yet it also points, on the other hand, to an opportunity to promote internal stability by differentiating fiscal policies across countries to offset any destabilizing influences of exogenous shocks. The latter point simply reflects the widely appreciated dictum that with monetary policy in each country oriented toward the "external objective" of maintaining a fixed exchange rate, fiscal policy must be used to maintain "internal balance." The former point recognizes the other side of the coin: as integration proceeds, it may become increasingly necessary to prevent divergent fiscal conditions from having a destabilizing influence on internal balance.

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