IMF PAPER ON POLICY ANALYSIS AND ASSESSMENT

© 1996 International Monetary Fund

This is a *Paper on Policy Analysis and Assessment* and the author(s) would welcome any comments on the present text. Citations should refer to a *Paper on Policy Analysis and Assessment* of the International Monetary Fund, mentioning the author(s) and the date of issuance. The views expressed are those of the author(s) and do not necessarily represent those of the Fund.

PPAA/96/7

INTERNATIONAL MONETARY FUND

Research Department

Fiscal Dimensions of EMU 1/

by

Paul R. Masson

June 1996

Abstract

The paper considers the fiscal criteria as conditions for qualifying for EMU membership, their role once EMU has begun, and the potential need for an EU fiscal authority. Viewed as qualifying criteria, the limits on deficits are consistent with fiscal adjustment that would be desirable on other grounds, though attempts to achieve them have been perversely associated in a number of cases with revenue increases, adding to already high fiscal burdens. Under EMU, the criteria will restrict the ability of countries to engage in stabilization policy, making desirable structural reforms to enhance economic flexibility, and some EU fiscal mechanism for cushioning regional shocks.

JEL Classification Numbers:
F33, H11, H87

1/ To be published in the "Policy Forum" section of the Economic Journal, Vol. 106 (September 1996). I am grateful to Tamim Bayoumi, Donogh McDonald, Jacques Mélitz, Jean Pisani-Ferry, Thierry Pujol, and Assaf Razin for helpful discussions.

Contents

		Page
I.	Introduction	1
II.	The Fiscal Criteria as Conditions for Admission	1
III.	The Interaction of Fiscal with Monetary Policy in EMU	5
IV.	How Would Fiscal Policy Work in EMU?	7
V.	Is Fiscal Federalism Desirable/Necessary in Europe?	11
VI.	Conclusion	15
Tables		
1.	EU Countries: General Government Deficit, Revenue, and Expenditure	4
2.	Selected EU Countries: Actual Minus Structural Deficits	9
References		17

I. Introduction

The issue of fiscal policy in a monetary union has once again become very topical, as the EU deadline for EMU approaches and as countries take seriously the need to meet the Maastricht fiscal criteria--but are by no means certain to succeed in attaining them by the time a first decision on participation is made. Moreover, Germany has thrown open the issue of whether the fiscal criteria are adequate to ensure the needed discipline, and has proposed more ambitious targets and monetary sanctions for non-compliance with the 3 percent deficit ceiling.

In this paper, I shall discuss what I consider to be the three essential issues with respect to fiscal policy and EMU: 1) the debt and deficit criteria as conditions for qualifying for EMU membership; 2) the need for fiscal discipline and policy coordination in EMU, and the role of the criteria in achieving them; and 3) the desirability of, and prospects for, creating a supranational fiscal authority in the EU to accompany monetary union. Naturally, these three issues have already achieved considerable attention in the literature, and I will not be able to do justice to that literature by providing a proper survey. Instead, I will provide my own views and be selective in my discussion of those of others.

II. The Fiscal Criteria as Conditions for Admission

Much has been made of the arbitrariness of the condition that government deficits should not exceed 3 percent of GDP, and gross public debt should be below 60 percent of GDP or declining at a sufficiently rapid pace. In addition, Buiter et al. (1992) argue that the deficit guideline is not sensible because it does not correct for cyclical factors and inflation, and they criticize the use of gross general government debt rather than a measure net of financial and real assets. Taking a somewhat different tack, De Grauwe (1995) has argued that all countries should be able to enter monetary union, but only have a vote on the monetary policy of the European Central Bank (ECB) if they satisfy certain conditions. It is true that the only real qualification for joining a monetary union is to want to do so and to be willing to accept the rules of the club. But part of the rationale for convergence criteria (the fiscal ones, as well as the criteria of low inflation and exchange rate stability) is that they indicate--by actions as well as words--that commitment to monetary union which will not be reversed when the going gets tough. In addition, the problems of conversion are lessened by a convergence of long-term interest rates; otherwise, there would be important capital gains for those who had contracted a high interest rate in a weak currency, only to be repaid in a strong one. The criteria have also served as a prod to politicians to address unsustainably large deficits, and have arguably improved the chances of achieving needed adjustment in such countries as Belgium and Italy.

It should also be recognized that in normal times the fiscal criteria are not particularly stringent. Until the mid 1970s, most countries would have satisfied the deficit criterion with ease, except during wartime, and (again outside of wartime) public debt, if above 60 percent, was almost always declining rapidly (Masson and Mussa, 1995). The severity of the 1992-93 recession in Europe was not expected, but it is still true that reducing deficits to 3 percent by 1997 (for a decision on the participants early in 1998) is not a particularly ambitious target for most countries if growth is at a satisfactory pace. However, the recent slowdown in Europe raises the very real possibility that a strict application of the deficit criterion as a condition for membership to EMU may imperil the whole project, by raising questions about the feasibility of the current schedule. In particular, some of the countries with a strong claim to be part of a "core group"--among which France, Germany, Belgium and the Netherlands--might find it difficult to satisfy the criterion on the basis of data for 1997.

Moreover, meeting the criteria has to some extent diverted policy attention away from other important structural problems. Indeed, it is striking that the measures taken to reduce deficits since EU "convergence programs" were formulated (starting in 1992) are preponderately tax increases rather than spending reductions (Table 1), 1/ while arguably the most serious fiscal problems are high tax burdens and too-generous social transfers--notably high pension replacement rates and early retirement dates, income support that discourages employment, and liberal health care reimbursement. So far, the process of meeting convergence plan targets in the face of shocks to output has focussed energies on the more flexible instrument--taxation--rather than a thorough-going reform of expenditures that requires difficult negotiations with unions, employers, and providers of social services. Social benefits have become "entitlements" or "*acquis sociaux*," and it is politically difficult to target them. In contrast to the very vocal protests of these interest groups, taxpayers have, in most

1/ Only the 12 countries that were European Community members in 1992 are considered.

Table 1. EU Countries: General Government Deficit, Revenue, and Expenditure

(As a percent of GDP)

	Deficit			Revenue			Expenditure		
	1992	1995	Difference	1992	1995	Difference	1992	1995	Difference
Belgium	-7.1	-4.5	2.6	46.4	47.7	1.3	53.4	52.2	-1.2
Denmark	-2.9	-1.7	1.2	58.6	59.9	1.3	61.5	61.6	0.1
France	-4.0	-5.1	-1.1	48.0	49.6	1.6	52.1	54.7	2.6
Germany	-2.9	-3.6	-0.7	46.7	47.0	0.3	49.6	50.6	1.0
Greece	-11.7	-9.0	2.7	39.7	45.0	5.3	51.4	54.0	2.6
Ireland 1/	-2.3	-2.1	0.2	38.8	43.0	4.2	41.1	45.1	4.0
Italy	-9.5	-7.0	2.5	46.5	45.6	-0.9	56.0	52.7	-3.3
Luxembourg	-0.9	1.0	1.9	45.0	46.0	1.0	45.9	45.0	-0.9
Netherlands	-3.9	-3.7	0.2	58.1	57.9	-0.2	62.0	61.6	-0.4
Portugal	-3.3	-5.5	-2.2	42.7	41.9	-0.8	45.9	47.5	1.6
Spain	-4.4	-5.9	-1.5	41.8	41.0	-0.8	46.2	46.9	0.7
United Kingdom	-6.3	-4.8	1.5	37.4	38.0	0.6	43.7	42.8	-0.9

Source: IMF, World Economic Outlook.

1/ Calculated on Maastricht definitions by IMF staff.

countries, constituted a diffuse and ineffective force. As a result, shares of government revenues in output, which are at levels close to or above 50 percent, have grown further since 1992 in most countries, while shares of government spending (including transfers) have declined little, if at all, during this period.

I would therefore argue that the fiscal criteria are not necessarily bad in themselves, but rather the difficulties have been with the measures taken to meet the criteria. Because the deficit target is so concrete, and the timetable for achieving it so precise, it has been addressed using the instruments that were most readily at hand. In addition, it has tended to swamp consideration of other problems, with the result that too little energy has been expended on other, arguably more fundamental, issues, such as inadequate labor flexibility and the need to adapt to changing technologies. 1/

III. The Interaction of Fiscal with Monetary Policy in EMU

Much ink has been spilled on the question of whether additional discipline needs to be imposed on fiscal policy once countries have entered a monetary union, in order to ensure that the European central bank will be able to deliver low inflation. Of course, its statutes already put primary focus on that objective, and prohibit bailouts of national governments. And rather than being in the position of a national central bank facing a single government, it will be facing fragmented national governments which are unlikely to be pushing the central bank in a single direction. It is also

---

1/ Sinn (1994) also argues that EMU is less important than Europe's industrial policy, protectionism, environmental policy, social policy, tax system, and its central expenditures.

true that governments will become borrowers in a single European currency in a vast capital market which will no longer be segmented, and in which market sanctions in terms of higher borrowing costs will be quickly and drastically imposed. In these circumstances, it can be expected that market discipline should work--in most circumstances. 1/ However, it seems inevitable that at times governments, especially those facing near-term elections or lacking majority support, will get into trouble, and it is not inconceivable that whatever its ex ante declarations to the contrary, the ECB would ex post try to avoid a major crisis by easing monetary policy. Fiscal rules can help make it less likely that it will be exposed to this dilemma, by inducing countries to take preventive measures before they reach the 3 percent deficit ceiling. However, it needs to be recognized that in the presence of a severe shock the deficit criterion would make it more difficult for a country to use fiscal stabilization, and might therefore increase the calls for a looser monetary policy.

The potential for trouble from a large government is also present through its effect on aggregate demand, as Courchene (1993) points out was the case in Canada when the province of Ontario was running expansionary fiscal policies in the late 1980s. Hence the logic for making fiscal discipline part of the Maastricht Treaty and applying the fiscal criteria to all countries that have proceeded to stage 3 of EMU. This is true of other monetary unions as well: federations typically have restrictions on the borrowing powers of their states or provinces, e.g. most U.S. states have balanced-budget provisions and in Germany a "golden rule" restricts the

---

1/ As it does in the case of US states; see Bayoumi et al. (1995).

deficits of the länder to investment spending. Canada, because it is unusual in the extent of decentralization, may be a good model of the pitfalls of fiscal indiscipline. The problem is not direct monetization of debt, but rather whether the policy mix is skewed to such an extent that monetary policy is inappropriately tight. Fiscal rules also help protect central banks from such an outcome.

IV. How Would Fiscal Policy Work in EMU?

It is interesting to speculate on how macroeconomic policy would actually operate if EU countries proceeded to EMU and needed to abide strictly by the debt and deficit criteria. How much would governments still retain the ability to use fiscal policy, for instance for stabilization purposes? One needs to distinguish between a (long) transition period and the steady state.

The transition period is constrained by two important factors that seriously limit governments' room for maneuver--even in the absence of the Maastricht fiscal criteria. First, the starting level of debt is undesirably high, quite independently of the 60 percent threshold, for a number of countries which are likely to qualify for EMU on the basis of the other criteria: for instance in Belgium (a debt/GDP ratio of 135 percent) and even in the Netherlands (80 percent). Thus, most European countries will need to run tight fiscal policies to achieve continual declines in those ratios. Second, starting in the second decade of the next century or so, demographic trends will lead to a sharp increase in the proportion of retirees in the population, putting upward pressures on pension plan deficits, increasing spending on medical care, and reducing the number of working age people (thus slowing economic growth and making it difficult to finance pay-as-you-go pension systems). The problem is severe, since calculated unfunded liabilities of public pension programs equal or exceed visible public debt for most countries (OECD, 1995). These pressures need to be anticipated by running down debt in the meantime, as well as by reducing public pension benefit levels, so as not to have a choice between imposing massive further tax increases and exceeding the Maastricht ceilings for deficits and debt. In any case, fiscal policies, given current benefit levels and projected demographic trends, are unsustainable. Thus, fiscal adjustment is essential, probably making it desirable to reduce fiscal deficits well below 3 percent for the next few decades.

In a steady state, and ignoring the transitional issues mentioned above, cyclical fluctuations will tend to cause deficits to vary--at least if automatic stabilizers are allowed to operate. If the deficit is not to exceed 3 percent (except in very exceptional circumstances), its mid-cycle or average level must be considerably lower. Historical experience shows that standard deviations of differences between actual and "structural" deficits have been about 2 percent of GDP, suggesting that on average deficits should be no more than 1 percent to rule out deficits in excess of 3 percent except very rarely (Table 2). A proposal to target budget balance is consistent with this analysis, allowing a cushion for cyclical fluctuations and exceptional circumstances.

It has further been argued that cyclical fluctuations in deficits should be allowed to occur to a greater extent in a monetary union than otherwise, because the monetary policy tool will not been available for

Table 2. Selected EU Countries: Actual Minus Structural Deficits

(In percent of GDP)

Country	Actual Minus Structural Deficit: Standard Deviation	Actual Minus Structural Deficit: Largest Value	Time Period
Austria	0.9	-1.2	1976-95
Belgium	1.7	-1.8	1979-95
Denmark	1.7	-3.5	1980-95
Finland	2.9	-6.6	1982-95
France	1.1	-2.6	1975-95
Germany	1.4	-2.1	1976-95
Ireland	1.2	-1.7	1980-95
Italy	1.2	-1.6	1978-95
Netherlands	1.5	-3.8	1980-95
Spain	1.7	-2.1	1980-95
Sweden	2.7	-5.2	1980-95
United Kingdom	2.3	-3.5	1978-95

Source: IMF, World Economic Outlook database.

national stabilization purposes (Masson and Mélitz, 1991). Moreover, the devaluations of the lira and pound sterling in 1992 and the subsequent performance of the economies of the United Kingdom and Italy have shown the value of this instrument in the European context--at least in exceptional circumstances. What remains to be seen is whether other aspects of flexibility in EU economies will develop over time, perhaps as a result of EMU: greater wage/price flexibility and enhanced labor mobility. The Maastricht Treaty has in itself done nothing to increase the flexibility of fiscal policy; on the contrary, it has imposed constraints on it. Even if countries start from positions of balance, it is quite possible that a series of negative shocks might push up deficits to the 3 percent ceiling, causing governments to impose additional (temporary) taxes and in effect offsetting the action of automatic stabilizers. In this case, governments might choose to forego any stabilization role, especially if the German proposal for a monetary sanction for exceeding the ceiling were imposed, unless it were generally agreed that exceptional circumstances prevailed (a possibility allowed for by both the Treaty and the German proposal). This then raises the issue whether other stabilization instruments are necessary at the EU level (see next section).

A related question is whether EU governments will be able to run different social programs in EMU. Here, the existence of a monetary union is not the real problem; rather, the important issue is whether labor mobility will be sufficient to promote competition among jurisdictions and lead to local public goods being financed solely by benefit taxation or user charges (Tiebout, 1956). While there will no doubt be some increase of mobility, it seems unlikely that choices of where to live will revolve principally on the government services offered and the tax rates faced; the desire to live and work in one's own language and culture will continue to be the dominant incentive. However, what increase in mobility that gradually occurs will lead to a rethinking of social protection systems in order to link benefits more closely to contributions (such as funded defined-contribution pensions, to make them portable across the EU).

It seems likely in any case that national fiscal policies in all their various aspects will be subject to much closer coordination--rather than just convergence of debt and deficit ratios. There will be important pressures to harmonize further those taxes whose tax bases are especially mobile and to address issues such as joint administration of tax collection. Among the issues are administering VAT as if the EU were one big country, sharing information on cross-border financial holdings or agreeing to a common withholding tax on interest income, and coordinating the collection of corporate taxes. 1/ To the extent that countries attempt to use fiscal policy to limit the effects of EU-wide shocks (in the absence of a federal fiscal policy), these efforts will need to be coordinated, given the size of spillovers resulting from trade linkages with EU neighbors.

V. Is Fiscal Federalism Desirable/Necessary in Europe?

Aside from the fundamental concern about abandonment of one's national currency, this has been the most contentious issue of the Maastricht debate. The MacDougall Report (1977) argued in favor of increasing the capacity of

---

1/ However, Eichengreen (1990) presents data showing that variation of tax rates can be substantial in a well established federation, namely the United States.

the EU institutions to use fiscal policy for both stabilization and redistribution; its recommendations were never acted on, and there is strong opposition in a number of countries to the idea of a federal EU. Sala-i-Martin and Sachs (1992) pointed to the United States as a currency union where the system of federal taxes and transfers provides a strong shock-absorber for variations in regional incomes--about 35 percent of the income shock, operating mainly through federal taxes. Von Hagen (1992), Goodhart and Smith (1993), and Bayoumi and Masson (1995) questioned the size of the estimated shock-absorbing capacity in the United States, distinguished between stabilization and redistribution, and provided data for other federations. However, all, except Von Hagen (1992), conclude that the U.S. federal system provides significant offsets to income shocks.

It seems clear that some role for fiscal policy in stabilizing regional (national) incomes will be desirable from an economic perspective in EMU, given the loss of the exchange rate instrument to parry asymmetric shocks, and in the light of a high degree of goods market integration but limited labor mobility. It is not necessary to argue that specialization in particular sectors will increase in the EU as a result of the single market and EMU, to maintain that asymmetric shocks will continue to be important--just as they are within, say, the United States or Canada. Labor mobility will not provide as large a safety valve for shocks as it does in those two federations. The question then is whether national governments can continue to perform stabilization functions adequately, or even increase them if necessary, when monetary union is formed.

As argued above, the flexibility of fiscal policy is likely to be restricted by the debt and deficit criteria, which might be most constraining precisely when stabilization is most needed, for instance in the context of a series of negative shocks. Furthermore, EU countries may not be able to self-insure against macroeconomic shocks to the extent that they do now, if financial markets do not allow governments to borrow to the extent that they do now, when they have lost their power to use the inflation tax. Looking at stabilization policy from the point of view of insurance also suggests that it would be more effective when performed at the supranational than at the national level (Bayoumi and Masson, 1996). If consumers are partially Ricardian (and face identical income streams within a region, but are subject to different shocks across regions), then a federal stabilization policy will be more effective than a regional one, since in the latter case consumers will anticipate paying the taxes needed to service and repay the resulting debt, while in the former there is some ex post redistribution from regions (or countries) facing positive income shocks to those having negative shocks. For this to correspond to insurance, the shocks should be as likely to affect one country as another, so that ex ante there is no presumption of being a gainer or a loser.

Several proposals have recently been put forward along these lines. In particular, Mélitz and Vori (1992), Majocchi and Rey (1993), Pisani et al. (1993), and Von Hagen and Hammond (1996) discuss possible systems of transfers to or from countries with different cyclical positions, based either on unemployment or income fluctuations. However, in order not to lead to persistent transfers to particular countries, the schemes would have to be designed in a way to distinguish between cycles and trends--a contentious issue even among economists. Another difficulty is the problem of moral hazard; the dangers of unemployment insurance schemes which are designed to limit regional mobility have been underlined in the Canadian context by Courchene (1993). Some of the politico-economic reasons why democratic governments might not choose to join in a risk-sharing arrangement are discussed in Alesina et al. (1995); for instance, moves to a federal system may increase political uncertainty and open the door to free riding in the administration of federal spending. For the above reasons there seems to be little or no official support for EU stabilization schemes.

Even less popular at present is the idea of large scale redistribution at the EU level. The EU budget is of the order of 1 percent of GDP, compared to some 15-30 percent for the central government in most federations. The Structural Funds do provide grants to poorer regions, and the Maastricht Treaty created the Cohesion Fund to make monetary union easier for the poorer, peripheral countries. Will this inevitably change as a result of monetary union? I have argued elsewhere that this is essentially a political choice rather than a consequence of the monetary regime. Moreover, in different federations the extent of redistribution differs considerably (Bayoumi and Masson, 1995). Thus, there is, to my mind, no presumption that redistribution must increase, except to the extent that it is the short-run consequence of stabilization policy.

VI. Conclusion

The requirement that governments limit their deficits and debt as condition for entering monetary union can be justified on the basis that current policies are unsustainable in a number of European countries. Given the strict timetable, however, the criteria may have produced a perverse focus on measures that could be implemented more easily--tax measures--rather than the needed structural reforms on the spending side. As a result, many European countries continue to face a high burden of taxation that is widely recognized as inhibiting employment. Also, too strict an application of the criteria could imperil monetary union in the current context of weak European growth if as a result some of the key countries do not qualify.

Though the question of whether the Maastricht criteria are appropriate entrance requirements for monetary union will eventually go away, the issue of how EU countries' fiscal policies will interact in EMU will not. As I have argued above, the use of fiscal policies for stabilization purposes will be limited in coming decades, by the size of existing debt stocks, by demographic trends, and, to some extent, by the Maastricht debt and deficit criteria themselves. This, and evidence about its greater effectiveness when spread over a wider economic area, suggest that an EU-wide stabilization policy acting as insurance for regional shocks may be desirable if a number of design questions can be resolved. To my mind, it seems inevitable in any case that there will be pressure to move away from independent fiscal policies toward some system where national sovereignty in this area is more limited. Whether this merely involves increasing harmonization of tax policies and coordination of the use of budgetary policies for stabilization purposes, or a move toward a federal Europe with important central fiscal powers, remains to be seen.

Much has been made of the so-called democratic deficit, and of whether progress toward the single market and monetary union has outstripped the institution-building that is needed to give citizens a voice in the decisions that are taken, and thus to enhance popular support for Europe. 1/ It could also be argued that public support for monetary union has suffered as a result of an "economic deficit," a lack of accompanying fiscal policy measures or other structural transformations that would compensate for the loss of monetary sovereignty and address existing economic problems. Examples, discussed above, would be an European-wide unemployment insurance scheme or measures to expand labor mobility. If monetary union is to be a success, that deficit will have to be reduced.

1/ To some extent the 1996 Intergovernmental Conference aims to make progress in that direction.

References

Alesina, Alberto, Roberto Perotti, and Enrico Spolaore (1995), "Together or Separately? Issues on the Costs and Benefits of Political and Fiscal Unions." European Economic Review, Vol. 39 (April), pp. 751-58.

Bayoumi, Tamim, Morris Goldstein, and Geoffrey Woglom (1995), "Do Credit Markets Discipline Sovereign Borrowers? Evidence from U.S. States." Journal of Money, Credit and Banking, Vol. 27 (4, Part 1), pp. 1046-59.

Bayoumi, Tamim, and Paul R. Masson (1995), "Fiscal Flows in the United States and Canada: Lessons for Monetary Union in Europe." European Economic Review, Vol. 39, pp. 253-74.

_____, and _____ (1996), "The Efficiency of National and Regional Stabilization Policies." Paper presented at a conference organized by CEPREMAP, "Should we Rebuild Built-in Stabilizers?" Paris, January 8-10, 1996.

Buiter, Willem, Giancarlo Corsetti, and Nouriel Roubini (1992), "'Excessive Deficits': Sense and Nonsense in the Treaty of Maastricht." CEPR Discussion Paper No. 750, December.

Courchene, Thomas J. (1993), "Reflections on Canadian Federalism: Are there Implications for European Economic and Monetary Union?" European Economy: The Economics of Community Public Finance, Reports and Studies, No. 5, pp. 123-66.

De Grauwe, Paul (1995), "The Easier Road to EMU." Financial Times, October 17.

Eichengreen, Barry (1990), "One Money for Europe? Lessons from the US Currency Union." Economic Policy, Vol. 10 (April), pp. 117-87.

Goodhart, Charles A.E., and Stephen Smith (1993), "Stabilization." European Economy: The Economics of Community Public Finance, Reports and Studies No. 5, pp. 417-55.

MacDougall Report (1977), Report of the Study Group on the Role of Public Finance in European Integration. Brussels: Commission of the European Communities.

Majocchi, Alberto, and Mario Rey (1993), "A Special Financial Support Scheme in Economic and Monetary Union: Need and Nature." European Economy: The Economics of Community Public Finance, Reports and Studies No. 5, pp. 457-80.

Masson, Paul R., and Jacques Mélitz (1991), "Fiscal Policy Independence in a European Monetary Union." Open Economies Review, Vol. 2, pp. 113-36.

Masson, Paul R., and Michael Mussa (1995), "Long-term Tendencies in Budget Deficits and Debt." In Budget Deficits and Debt: Issues and Options, pp. 5-55, Kansas City, Missouri: Federal Reserve Bank of Kansas City.

Mélitz, Jacques, and S. Vori (1992), "National Insurance against Unevenly Distributed Shocks." CEPR Discussion Paper No. 697. London: Centre for Economic Policy Research.

OECD (1995), Economic Outlook. Paris: Organization for Economic Cooperation and Development, June.

Pisani-Ferry, Jean, Alexander Italianer, and Roland Lescure (1993), "Stabilization Properties of Budgetary Systems." European Economy: The Economics of Community Public Finance, Reports and Studies No. 5, pp. 511-38.

Sala-i-Martin, Xavier, and Jeffrey Sachs (1992), "Fiscal Federalism and Optimum Currency Areas: Evidence for Europe from the United States." In M.B. Canzoneri, V. Grilli, and P.R. Masson, eds., Establishing a Central Bank: Issues in Europe and Lessons from the U.S. Cambridge: Cambridge University Press, pp. 195-219.

Sinn, Hans-Werner (1994), "How much Europe? Subsidiarity, Centralization and Fiscal Competition." Scottish Journal of Political Economy, Vol. 41 (Feb.), pp. 85-107.

Tiebout, Charles (1956), "A Pure Theory of Local Expenditures." Journal of Political Economy, Vol. 64 (October), pp. 416-24.

Von Hagen, Jürgen (1992), "Fiscal Arrangements in a Monetary Union: Evidence from the U.S." in Don Fair and Christian de Boissieux, eds., Fiscal Policy, Taxes and the Financial System in an Increasingly Integrated Europe. Deventer: Kluwer.

_____, and George Hammond (1996), "Insurance against Asymmetric Shocks in a European Monetary Union." Paper presented at a conference organized by CEPREMAP, "Should we Rebuild Built-in Stabilizers?" Paris, January 8-10, 1996.