University of California Berkeley

CENTER FOR INTERNATIONAL AND DEVELOPMENT
ECONOMICS RESEARCH
Working Paper No. C92-004

The Political Economy of Fiscal Policy After EMU

Barry Eichengreen

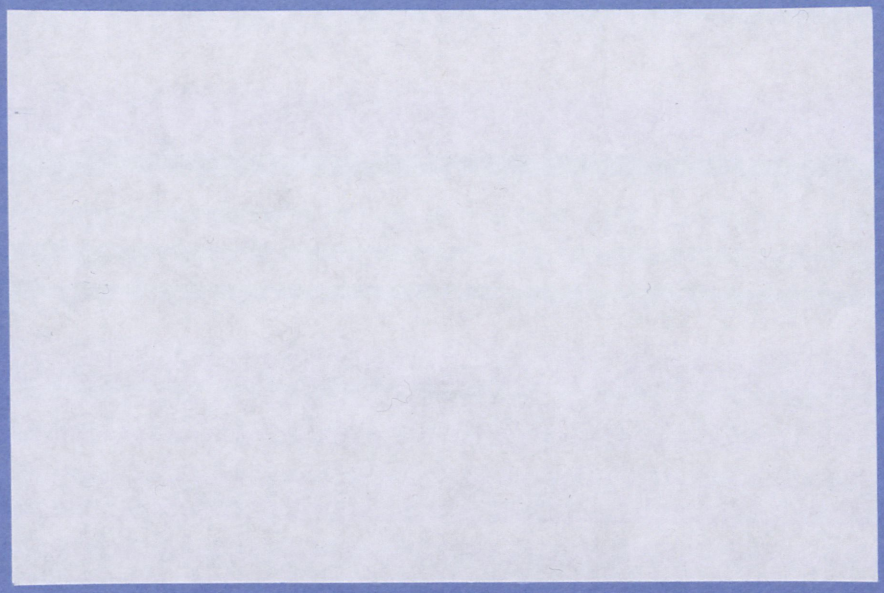
University of California at Berkeley

December 1992

Department of Economics

iber

CIDER



CIDER

CENTER FOR INTERNATIONAL AND DEVELOPMENT ECONOMICS RESEARCH

The Center for International and Development Economics Research is funded by the Ford Foundation. It is a research unit of the Institute of International Studies which works closely with the Department of Economics and the Institute of Business and Economic Research. CIDER is devoted to promoting research on international economic and development issues among Berkeley faculty and students, and to stimulating collaborative interactions between them and scholars from other developed and developing countries.

INSTITUTE OF BUSINESS AND ECONOMIC RESEARCH

Richard Sutch, Director

The Institute of Business and Economic Research is an organized research unit of the University of California at Berkeley. It exists to promote research in business and economics by University faculty. These working papers are issued to disseminate research results to other scholars.

Individual copies of this paper are available through IBER, 156 Barrows Hall, University of California, Berkeley, CA 94720. Phone (510) 642-1922, fax (510) 642-5018.

UNIVERSITY OF CALIFORNIA AT BERKELEY

Department of Economics

Berkeley, California 94720

CENTER FOR INTERNATIONAL AND DEVELOPMENT ECONOMICS RESEARCH
Working Paper No. C92-004

The Political Economy of Fiscal Policy After EMU

Barry Eichengreen

University of California at Berkeley

December 1992

Key words: European Monetary Union, fiscal federalism, Maastricht, European integration
JEL Classification: F33, F36, H87, F4

Abstract

This paper considers the implications for fiscal policy of European Monetary Unification. Following an introduction, Section II describes and critiques the fiscal provisions of the Maastricht Treaty on Economic and Monetary Union. Section III considers the case for formal fiscal restraints and presents evidence on their effectiveness. Section IV presents a parallel analysis of the debate over fiscal federalism.

Forthcoming in *Stato e Mercato* (Winter 1992/93). I thank Morris Goldstein and Geoffrey Woglom for data, and Graham Schindler for research assistance.

functioning monetary union.

This paper takes stock of the debate over fiscal policy and EMU and presents new evidence on some of its aspects. Section II provides a critical review of the Maastricht Treaty's fiscal provisions. Section III considers the case for formal fiscal restraints and presents evidence on their effectiveness in an existing monetary and economic union, the United States. Section IV presents a parallel analysis of the debate over fiscal federalism. The concluding section then returns to the implications for EMU.

II. Fiscal Policy in the Maastricht Treaty

The Maastricht Treaty contains two classes of fiscal provisions: articles regarding the conduct of fiscal policy during Stage II (the transitional phase), and those concerned with the stance of fiscal policies during Stage III (when EMU comes into full operation).

The second stage of EMU will commence on January 1, 1994 (the first stage having begun on July 1, 1990). By the beginning of Stage II, member states are to have abolished all restrictions on capital movements and to have adopted multi-year programs designed to insure the international convergence of their public finances.[1] They are required to have fortified the independence of their national central banks. In addition, members are to avoid "excessive deficits." Excessive deficits will be said to exist if the ratio of the planned or actual deficit of all levels of government exceeds 3 per cent of GDP and if in addition one of the following two criteria is not met: either the deficit ratio has not declined "substantially and continuously" to a level "close to" that 3 per cent ceiling, or that ratio cannot be regarded as "exceptional and temporary and...close to" the 3 per

cent threshold. A related precondition requires governments to avoid the accumulation of excessive debts. The ratio of total government debt to GDP is said to be excessive if it exceeds 60 per cent and is not "sufficiently diminishing and approaching the 60 per cent level at a satisfactory pace..." In the event that one or both of these conditions obtains, the Commission, after taking into account the share of the deficit accounted for by capital expenditures and other relevant considerations including the longer-term budgetary and economic position of the state, may declare that an excessive deficit exists, and so report to the Council of Ministers.[2] The Council, after entertaining any observations that the member state may wish to offer, may then vote by qualified majority to confirm the Commission's determination that an excessive deficit exists.

On the basis of such reports, the Council will ascertain whether each member state and whether a majority of members satisfy the preconditions for participation in the third stage of EMU. By December 31, 1996 at the latest the European Council must decide, by qualified majority vote, whether a majority of member states satisfies the conditions for the adoption of a single currency, and if so when Stage III will commence. If, by the end of 1997, the date for inaugurating Stage III has not been set, it will begin automatically on January 1, 1999, so long as even a minority of member states qualifies.

In addition to creation of a single currency and the founding of an ECB, Stage III like Stage II contains fiscal provisions. The Council of Ministers is to coordinate the economic policies of the member states and to formulate "broad guidelines" for those policies. If necessary, it may submit recommendations to states whose policies threaten to jeopardize EMU. The

Treaty prohibits excessive deficits in Stage III as well as Stage II, and the Council retains responsibility for assessing whether they exist.

Is there a coherent rationale for these restraints on and oversight of national fiscal policies? Consider first the case for fiscal restraints in Stage III. The question is whether economic and monetary integration will bias deficit spending toward the excessive, irrespective of cyclical conditions. Canzoneri and Diba (1991) model the problem in a particularly simple and appealing way. They assume that deficit spending leads to the accumulation of debt that must be serviced through the imposition of distortionary taxes. If capital is immobile internationally, that debt will be held at home; only domestic interest rates will rise as a result of additional public spending, and only domestic residents will suffer additional distortionary taxation. A government concerned with the welfare of domestic residents will take into account the consequences for future distortionary taxation of its current spending and set the level of government expenditure accordingly. But as financial markets become integrated internationally as a result of economic union, interest rates will move together at home and abroad. Deficit spending which drives up interest rates at home will drive up interest rates abroad as investors shift from assets with low yields to assets with higher ones. Some of the costs of additional spending by the domestic government will be borne by foreign residents, since foreign governments will also be forced to levy additional distortionary taxes to pay now higher interest charges on their outstanding debt. In noncooperative equilibrium, public spending will be too high.[3]

Note that it is financial integration, rather than monetary union, that leads uncoordinated fiscal policies to be set at increasingly inefficient

levels in the Europe of the future.[4] When monetary union is added to the analysis, member states may have an even stronger incentive to spend and borrow excessively, insofar as they can anticipate a bailout from the new monetary authority. Imagine a situation where a state has spent excessively and is confronted with the need to impose costly distortionary taxes. The central bank, in deciding the amount of seigniorage revenues to contribute to that state's budget, will solve the Ramsey-Phelps optimal taxation problem, equalizing on the margin the costs of distortionary taxes and seigniorage revenues (where the cost of additional seigniorage is the deadweight loss associated with agents' reduction in holdings of money balances due to inflation). Faced with a government engaged in high levels of spending, it will create additional inflation.

In principle, this same problem arises with existing national governments and national central banks, but it is more severe in a monetary union. In a monetary union, some of the deadweight loss associated with seigniorage will be borne by the residents of other states, which encourages state governments to reduce distortionary taxes and to finance their deficits with additional seigniorage. If several member states play this game noncooperatively, each will increase its deficit spending in an effort to secure a larger share of the central bank's seigniorage revenues, producing not only larger overall deficits but also higher levels of inflation.

These problems, which are familiar from the literature on international policy coordination, are best solved by coordinated reductions in government spending. The question is whether such coordinated reductions can be achieved. Article 103 of the Maastricht Treaty instructs member states to "coordinate [their economic policies] within the Council." The Council,

acting by a qualified majority on a recommendation from the Commission, is to draft guidelines for the economic policies of member countries and to submit its recommendations to the European Parliament. The Council will then monitor economic developments in member countries and make recommendations to national governments in the event that the latter's policies are inconsistent with those guidelines.

What makes it plausible that such recommendations will have teeth is that they come with sanctions attached. The Council may discipline countries failing to correct excessive budget deficits by forcing them to publish additional information before issuing bonds and securities. It can instruct the European Investment Bank to halt lending to the country concerned, require the country to make non-interest-bearing deposits with the Community, and impose fines.

Are additional constraints on national fiscal policies justified in the transitional phase? The debt and deficit ceilings of Stage II are sometimes justified on the grounds that a smoothly-functioning monetary union requires the exclusion of governments lacking fiscal discipline, and that the Maastricht Treaty's debt and deficit ceilings can be used to distinguish disciplined from undisciplined governments.

Neither premise is transparent. It is not obvious that the inclusion of countries inclined toward deficit spending poses a threat to viable monetary union. The Canzoneri and Diba model can in fact be extended to analyze this problem. Consider a situation in which there exist two types of governments: one whose preference for public spending coincides with the citizenry's, a second which attaches greater utility to its spending than does the public at large. The second government -- the one lacking fiscal discipline -- will

engage at the expense of the general welfare in a higher level of public spending financed by a higher level of distortionary taxation. The central bank, even if it is interested in the utility of the public rather than that of government officials, will increase the rate of money creation, since it maximizes the public welfare by balancing the costs of higher distortionary taxation against the deadweight loss from additional seigniorage (as argued above). It will print more money and turn over the proceeds to the government in order to moderate the extent to which distortionary taxes have to rise.

Thus, whether or not the central bank is independent, it will not find it optimal to follow a zero inflation rule, and any claim to this effect will not be credible. Even an independent central bank will fail to achieve low inflation in the presence of a government that lacks fiscal discipline. Thus, an inclination toward excessive deficit spending on the part of participating governments may jeopardize the ECB's commitment to price stability.

If the independent central bank could credibly precommit to zero inflation, welfare would be enhanced. The deadweight loss associated with the reduction in real money balances would be eliminated, and additional fiscal discipline would be imposed on the government, since the cost of financing its expenditure (with distortionary taxes alone) will have been raised. In these circumstances, the government's lack of fiscal discipline is diminished rather than exacerbated by economic and financial integration and by the establishment of an ECB, and inadequate fiscal discipline has no implications for the efficiency of monetary policy. Thus, in the presence of a binding commitment to zero inflation on the part of the ECB, there is no need to impose additional preconditions, fiscal or otherwise, on participating governments.

The case for fiscal preconditions must rest, therefore, on the notion that a zero inflation rule is impractical. Rules may be impractical because the contingencies which they incorporate are based on private information, in which case they lack credibility (Canzoneri, 1985). Assume that, for the reasons described above, it is desirable to form a monetary union only of countries possessing fiscal discipline. Do the Maastricht Treaty's debt and deficit ceilings adequately differentiate such countries from their less disciplined counterparts? Since governments lacking fiscal discipline will be inclined to run larger deficits, fiscal criteria defined in terms of the deficit share of GDP are the obvious way of distinguishing them from their more disciplined counterparts. There is no reason, however, why governments possessing fiscal discipline (with the same taste for government expenditure as the public) would be expected to keep their deficit spending below any arbitrary faction of national income. They will wish to run deficits in periods when the marginal utility of public and private spending is high. When the marginal utility of private spending is high, the marginal cost of taxation is high as well, and governments wishing to maximize the welfare of domestic residents will run deficits, accumulating debt that is serviced and/or repaid in subsequent periods when the marginal utility of public and private spending is low (Frenkel and Razin, 1987). From this perspective, a 3 per cent deficit limit is entirely arbitrary. If the marginal utility of spending rises dramatically (because, for example, incomes fall dramatically), it may be optimal for even a disciplined government to run larger deficits than this.

The same argument applies to the public debt limit of 60 per cent of GNP. The appeal of this criterion, relative to the deficit threshold, is that

it allows governments to run deficits in some periods and surpluses in others, as fiscally disciplined governments facing stochastic shocks to national income will generally wish to do. It attempts to distinguish disciplined and undisciplined governments according to the magnitude and persistence of those deficits, as reflected in the level of public debt. Once again, however, the particular threshold selected at Maastricht -- 60 per cent of national income -- is entirely arbitrary. There is no reason that a fiscally disciplined government faced with a run of bad realizations of a stochastic income process would no choose to run deficits that cumulatively exceeded this threshold.

Even if all observers could agree on the appropriate levels at which to set these debt and deficit ceilings, these simple criteria might still be inadequate to differentiate between governments possessing and lacking fiscal discipline. As Backus and Driffill (1985) show, when the public is imperfectly capable of distinguishing between disciplined and lax governments, a government lacking fiscal discipline may wish to masquerade as its more disciplined counterpart. It will emulate the policies followed by more disciplined governments, until a final period (in this context, the moment when it is irrevocably determined who may enter EMU) when it reveals its true type by pursuing lax policies.

Under what conditions is this masquerade likely to occur? In the Backus-Driffill model, governments lacking discipline are most likely to continue emulating their more disciplined counterparts if they begin with a good reputation. Since the public believes with high probability that the government possesses fiscal discipline, it will not demand higher wages and higher interest rates on government debt in anticipation of higher future public spending and inflation until the government reveals its true type. The

better the government's initial reputation, the longer the public will confer on it these benefits, and the longer the government is likely to delay in revealing its true type. Hence convergence criteria like those adopted at Maastricht are likely to be relatively efficient at ascertaining the true type of government currently possessing questionable reputations, but much less capable of providing useful information about governments whose current reputations are relatively good.

To recapitulate, the provisions of Article 103 of the Maastricht Treaty, designed to coordinate national fiscal policies within EMU in order to prevent the adoption of excessively expansionary budgets (the incentive for which increases with economic and monetary integration) seem well designed to achieve their intended goal. In addition to exhortations, the Council of Ministers is empowered to impose sanctions on governments failing to modify their policies in the desired direction. In contrast, provisions associated with Stage II, designed to avoid excessive deficits, are unlikely to be as effective. Their arbitrary nature undermines their credibility. They are likely to discriminate only imperfectly between fiscally disciplined and undisciplined governments, since they provide an obvious incentive for the latter to masquerade as the former. This is a particular problem in the case of governments currently possessing good reputations but inclined toward undisciplined spending policies.

III. The Need for and Effectiveness of Fiscal Restraints

The alternative to guidelines and recommendations for deterring member states from running excessive budget deficits is formal fiscal restraints. Fiscal restraints are widespread in existing monetary unions. Two types are

prevalent in the U.S.: so-called balanced-budget requirements limiting the deficits that state governments are permitted to run, and public debt ceilings that limit debts that states are permitted to accumulate. As of 1987, 46 states had balanced-budget requirements of some sort, while the constitutions of some 30 states limit the power to issue debt.

It is not obvious that these restrictions, whether statutory or constitutional, effectively limit the deficits or debts they are designed to control, or that either type of restriction reduces the rate of return public obligations command. Most studies of fiscal restraints in fact conclude that they have little if any impact on fiscal performance. In the most recent such study, von Hagen (1991) compares levels of state debt per capita and debt/income ratios in states with and without debt limits, finding that the differences between the two groups are statistically insignificant. He finds similarly that balanced-budget requirements do not have a statistically significant impact on state debt per capita.

There are good reasons to reconsider this question. For one, most work on the issue, including that of von Hagen, utilizes bivariate tests, in which the level of debt in states with and without fiscal restraints is compared without controlling for other determinants. Indeed, the one recent study which considered the question in a multivariate framework (ACIR, 1987) reported statistically significant effects on both deficit spending and debt per capita. Moreover, von Hagen considered the impact of balanced-budget restrictions on the level of debts, not on the budget deficits to which they are most immediately directed. Finally, the data on state general obligation yields recently obtained by Goldstein and Woglom (1991) allows us to analyze for the first time the impact of fiscal restrictions on the cost as well as

the quantity of borrowing, providing a check on the robustness of the results.

The econometric analysis reported here utilizes pooled time series-cross section data for the 50 states for the years 1985 through 1989 (the most recent five years for which data are currently available). I employed the specification estimated by ACIR (1987) on state level data for 1983.[5] The per capita general fund surplus (or deficit) is assumed to depend on agricultural output per capita, the per cent of state population aged 54 or older ("elders"), federal aid to the state per capita ("grant") and a dummy variable equalling one for states in the south. Grants should enter with a positive sign insofar as they permit politicians to replace deficit spending with spending out of federal aid. The dummy variable for southern states should enter negatively if the region, as sometimes asserted, is fiscally conservative. Agricultural output should similarly display a negative sign if farm states are fiscally conservative.

As shown in Table 1, the signs of the coefficients on these variables are as predicted, although statistical significance varies. A number of the alternative measures of balanced-budget restrictions are significantly associated with larger surpluses (smaller deficits). Three such measures are considered. The first is a dummy variable equalling one for states prohibited from carrying over a deficit into the next fiscal year ("Balance1"). The second is an index (ranging from 1 to 10) constructed to capture the relative stringency of state balanced-budget requirements ("Balance2").[6] The third, not considered by ACIR, is a dummy variable equalling one for states whose governors must sign a balanced-budget by statutory or constitutional law ("Balance3"). The first two equations of Table 1 show that "Balance1" and "Balance3" have a significant effect on budget deficits. Their coefficients

Table 1

The Effect of Fiscal Restraints on the General Fund Budget Balance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
C	41.93	46.23	25.30	-50.46	58.13	0.34	3.13	28.83	27.75
	(1.10)	(1.02)	(0.52)	(-0.53)	(0.51)	(31.19)	(0.19)	(1.46)	(1.38)
BALNC1	-	23.43	-	-	23.81	-	-	24.15	-
		(2.06)			(1.97)			(2.00)	
BALNC2	-	-	3.16	-	-	3.44	-	-	3.34
			(1.63)			(1.68)			(1.63)
BALNC3	19.65	-	-	20.45	-	-	20.98	-	-
	(2.13)			(2.19)			(2.26)		
ELDERS	-5.01	-2.08	-1.48	-4.48	-2.10	-1.62	-5.83	-2.92	-2.33
	(-2.05)	(-0.74)	(-0.53)	(-1.82)	(-0.73)	(-0.56)	(-2.30)	(-0.99)	(-0.79)
GRANT	0.12	0.02	0.02	0.13	0.02	0.02	0.12	0.01	0.02
	(3.15)	(0.37)	(0.46)	(3.30)	(0.41)	(0.49)	(3.19)	(0.31)	(0.39)
ITEM	-	-	-	-4.53	-2.10	-6.14	-10.56	-5.99	-9.47
				(-0.36)	(-0.14)	(-0.39)	(-0.81)	(-0.38)	(-0.59)
SOUTH	-28.38	-40.38	-36.45	-24.33	-44.54	-40.82	-15.33	-39.30	-36.16
	(-2.55)	(-2.91)	(-2.67)	(-1.86)	(-2.90)	(-2.66)	(-1.11)	(-2.45)	(-2.26)
TEL	-	-	-	-9.47	-12.80	-12.31	-5.95	-10.62	-10.36
				(-0.96)	(-1.07)	(-1.02)	(-0.59)	(-0.87)	(-0.85)
YEAR	-	-	-	0.04	0.01	0.01	0.01	0.003	0.01
				(0.97)	(0.15)	(0.18)	(0.84)	(0.06)	(0.11)
YPC	-	-	-	0.002	-0.001	-0.001	0.004	0.0003	-0.0003
				(0.67)	(-0.37)	(-0.48)	(1.46)	(0.08)	(-0.09)
AGRIPC	0.01	0.01	0.01	-	-	-	0.01	0.01	0.01
	(1.56)	(1.31)	(1.18)				(1.94)	(1.16)	(1.03)
1986	-12.94	-10.92	-11.12	-13.27	-10.43	-10.34	-14.00	-10.78	-10.60
	(-0.92)	(-0.65)	(-0.66)	(-0.92)	(-0.61)	(-0.60)	(-0.98)	(-0.63)	(-0.62)
1987	-9.21	-2.92	0.17	-11.53	-1.86	2.28	-13.68	-2.94	1.27
	(-0.64)	(-0.17)	(0.03)	(-0.79)	(-0.11)	(0.13)	(-0.94)	(-0.17)	(0.07)
1988	2.37	18.53	19.60	-1.40	21.06	22.77	-6.72	17.98	20.12
	(0.17)	(1.10)	(1.16)	(-0.09)	(1.16)	(1.26)	(-0.44)	(0.98)	(1.10)
1989	15.56	29.21	26.74	9.94	33.01	31.19	3.13	28.83	27.75
	(1.10)	(1.71)	(1.56)	(0.61)	(1.70)	(1.58)	(0.19)	(1.46)	(1.38)
N	242	250	250	242	250	250	242	250	250
R-Squared	0.14	0.09	0.08	0.17	0.09	0.08	0.18	0.09	0.09
F-Statistic	5.34	2.58	2.39	3.91	1.88	1.78	3.94	1.84	1.73

Note: t-statistics in parentheses.
Source: see text.

differ from zero at the 95 per cent confidence level. The positive signs suggest that states whose governors must sign balanced budgets and states that cannot carry over deficits run larger surpluses (smaller deficits). The coefficient on "Balance2," in the third equation, while also positive is not significantly different from zero. Since this index is an increasing function of "Balance1," "Balance3" and other weaker fiscal requirements as well, its insignificance suggests that it is mainly the more stringent restrictions that have noticeable effects on deficits.

The next three equations report the ACIR's alternative specification, which drops the insignificant measure of agricultural production and adds three additional regressors. The first is a dummy variable for states with tax and/or expenditure limitations ("Tel"), which typically limit appropriations to a share of personal state income. These limitations should enter with a negative sign unless they are set at such high levels as to be inoperative. The second new variable, the year in which statehood was granted ("Year"), should enter positively if special interest groups grow more entrenched over time and their lobbying leads to larger deficits.

The coefficients on the additional variables are consistent with these predictions, although none is significantly different from zero at standard confidence levels. None of the coefficients on the balanced-budget restrictions is much affected by the addition of these variables. "Balance1" and "Balance3" remain significant at the 95 per cent level, while "Balance2" is now also significantly different from zero (at the 90 per cent level). When agricultural output is added to this augmented specification, however, the coefficient on "Balance2" slips back below the 90 per cent confidence level.[7] Thus, I conclude that balanced-budget restrictions are in fact

conducive to budget balance, but only if they are relatively stringent.

Some advocates of restrictions on deficit spending argue that these laws are important for limiting the level of public expenditure as well as the size of the deficit.[8] I therefore estimated the determinants of own-source spending per capita, again utilizing a specification that follows ACIR (1987). Additional determinants of spending include a dummy variable for states whose governors have line item vetoes ("Item"), assumed to have a negative effect on the level of spending, and the size of the state legislature ("Size"), included on the grounds that larger legislatures experience higher transactions costs. If transactions costs have a negative effect on legislative output and it is assumed that the lower the legislative output the higher the budget deficit, this variable should enter negatively.

Both predictions are supported by the point estimates in Table 2, although the coefficient on "Item" is not significantly different from zero. Importantly, none of the balanced-budget restrictions has a significant effect on the level of per capita spending. Although the coefficients for states whose governors must sign a balanced budget and on the ACIR index are negative as predicted, neither differs significantly from zero. Thus, even if balanced-budget restrictions, when sufficiently stringent, are in fact conducive to budget balance, they do not affect the level of public spending, implying that their impact on policy operates mainly on the tax side.

Table 3 turns from balanced-budget requirements to debt limits, again employing a variant of the ACIR specification. The dependent variable is the full faith and credit debt of state governments. Contrary to the bivariate comparisons of von Hagen (1991), these multivariate tests indicate that constitutional debt limits exert a downward influence on state debts per

Table 2

The Effect of Fiscal Restraints on Own-Source Spending

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
C	-253.67	281.72	366.47	-390.63	196.42	307.48	-238.51	295.20	406.45
	(-1.23)	(0.98)	(1.18)	(-1.80)	(0.65)	(0.96)	(-1.08)	(0.94)	(1.23)
BALNC1	-	50.10	-	-	57.58	-	-	50.95	-
		(0.72)			(0.83)			(0.74)	
BALNC2	-	-	-2.46	-	-	-4.19	-	-	-4.46
			(-0.21)			(-0.36)			(-0.38)
BALNC3	-12.40	-	-	-11.49	-	-	-15.39	-	-
	(-0.28)			(-0.25)			(-0.34)		
ELDERS	-23.38	-101.23	-98.46	-33.60	-108.85	-105.77	-24.88	-103.96	-100.85
	(-1.97)	(-6.70)	(-6.60)	(-2.89)	(-7.31)	(-7.15)	(-2.08)	(-6.76)	(-6.62)
ITEM	-	-	-	66.41	77.13	76.54	100.85	97.14	98.26
				(1.06)	(0.88)	(0.87)	(1.60)	(1.09)	(1.09)
SIZE	-1.81	-2.65	-2.73	-1.61	-2.51	-2.67	-1.83	-2.68	-2.84
	(-4.53)	(-4.60)	(-4.76)	(-3.83)	(-4.19)	(-4.42)	(-4.31)	(-4.37)	(-4.61)
SOUTH	95.29	155.43	165.28	132.00	171.46	185.31	75.60	141.51	152.54
	(1.53)	(1.80)	(1.93)	(2.20)	(2.04)	(2.23)	(1.20)	(1.62)	(1.76)
TEL	-	-	-	-42.08	-61.64	-63.36	-70.70	-79.20	-81.81
				(-0.87)	(-0.91)	(-0.93)	(-1.44)	(-1.14)	(-1.16)
YPC	0.10	0.15	0.14	0.11	0.15	0.15	0.10	0.15	0.14
	(7.33)	(7.90)	(7.75)	(8.83)	(8.80)	(9.54)	(7.10)	(7.83)	(7.60)
AGRIPC	-0.05	-0.03	-0.03	-	-	-	-0.07	-0.04	-0.05
	(-2.02)	(-0.85)	(-0.91)				(-2.58)	(-1.24)	(-1.31)
1986	-20.82	-66.01	-64.01	-23.04	-66.96	-64.48	-19.73	-65.59	-63.20
	(-0.30)	(-0.69)	(-0.67)	(-0.33)	(-0.70)	(-0.67)	(-0.29)	(-0.69)	(-0.66)
1987	-21.45	-82.77	-81.69	-30.04	-86.50	-86.64	-17.81	-80.75	-81.21
	(-0.31)	(-0.85)	(-0.84)	(-0.43)	(-0.89)	(-0.89)	(-0.26)	(-0.83)	(-0.83)
1988	-59.22	-185.61	-179.67	-80.03	-195.28	-189.21	-47.64	-177.51	-171.16
	(-0.80)	(-1.82)	(-1.76)	(-1.09)	(-1.93)	(-1.87)	(-0.65)	(-1.73)	(-1.68)
1989	898.09	724.98	736.64	868.05	708.88	722.85	909.91	733.61	748.19
	(11.40)	(6.60)	(6.67)	(11.16)	(6.55)	(6.62)	(11.58)	(6.67)	(6.76)
N	241	249	249	241	249	249	241	249	249
R-Squared	0.70	0.61	0.61	0.70	0.61	0.61	0.70	0.61	0.61
F-Statistic	53.09	36.72	36.60	47.41	33.44	33.31	45.09	30.86	30.77

Note: t-statistics in parentheses.
Source: see text.

Table 3

The Effect of Fiscal Restraints on the Levels of Debt

	(1)	(2)	(3)
C	964.39	-1153.36	-1084.98
	(2.26)	(-1.45)	(-1.39)
DBTLIM	-293.95	-255.19	-224.90
	(-3.11)	(-2.81)	(-2.53)
ELDERS	-107.23	-53.51	-34.47
	(-5.39)	(2.54)	(-1.61)
GRANT	-	1.57	1.66
		(5.11)	(5.60)
ITEM	-	-147.69	-85.16
		(-1.26)	(-0.73)
SIZE	-	-1.88	-2.32
		(-2.45)	(-3.06)
SOUTH	-62.78	282.96	201.12
	(-0.53)	(2.42)	(1.72)
TEL	-	81.64	24.17
		(0.91)	(0.27)
YEAR	-	0.18	0.22
		(0.53)	(0.67)
YPC	0.10	0.15	0.13
	(3.74)	(6.36)	(5.34)
AGRIPC	-0.09	-	-0.15
	(-1.87)		(-3.21)
1986	63.62	4.28	5.28
	(0.53)	(0.04)	(0.05)
1987	135.02	66.23	77.34
	(1.09)	(0.58)	(0.69)
1988	-147.80	-301.42	-255.90
	(-1.23)	(-2.46)	(-2.12)
N	200	200	200
R-Squared	0.34	0.44	0.47
F-Statistic	12.06	12.29	12.69

Note: t-statistics in parentheses.
Source: see text.

capita. The coefficients on the debt-limit variable are significantly less than zero at the 99 per cent confidence level; a point estimate of -250 implies that the presence of a debt limit reduces state debt per capita by $250 dollars.

Table 4 shifts the focus from quantities to prices, considering the impact of debt and deficit limits on the yields on state bonds (rather than on stock or flow supplies). A previous study by Goldstein and Woglom (1991) examined the effect of debt limits on yield spreads, finding that debt limits reduced borrowing costs. The other principal variable included in their analysis was the outstanding debt. A problem with this approach, as these authors note, is simultaneity bias: the level of debt is likely to affect the cost of borrowing, but the cost of borrowing is also likely to influence the decision to borrow. Adequate instruments are difficult to obtain. Hence I take a different approach to estimation: rather than attempting to estimate a pair of structural equations representing the influence of the debt burden on the cost of borrowing and the cost of borrowing on the quantity of borrowing, I estimate the associated reduced forms. I solve the structural equations for the quantity of borrowing and the yield and relate these reduced forms to other (exogenous) variables utilized in the ACIR study. This approach is more likely to produce an unbiased point estimate of the relationship of interest, namely the impact of fiscal restrictions on interest rates.[9]

The dependent variable in this analysis is the difference in basis points between the yield on 20 year general obligation bonds for a specific date and that on a 20 year New Jersey general obligation bond for the same date, again for the years 1985 through 1989. The debt limit variable, in the first three columns of Table 4, has the anticipated negative sign in two of

Table 4

The Effects of Fiscal Restraints on State Bond Yields

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
C	-14.13	-48.70	-47.22	-11.56	-17.56	-2.51	-53.16	-40.54	-29.61	-52.77	-34.55	-27.73
	(-1.23)	(-2.04)	(-1.97)	(-1.02)	(-1.70)	(-0.23)	(-2.14)	(-1.85)	(-1.30)	(-2.12)	(-1.61)	(-1.22)
BALNC1	-	-	-	-	-12.52	-	-	-14.64	-	-	-17.55	-
					(-4.75)			(-5.77)			(-6.63)	
BALNC2	-	-	-	-	-	-1.53	-	-	-2.03	-	-	-2.08
						(-3.62)			(-4.88)			(-4.97)
BALNC3	-	-	-	-0.14	-	-	0.14	-	-	0.15	-	-
				(-0.05)			(0.05)			(0.05)		
DBTLIM	0.16	-2.68	-2.96	-	-	-	-	-	-	-	-	-
	(0.06)	(-1.00)	(-1.09)									
ELDERS	0.94	1.20	1.29	0.73	1.48	1.03	1.25	1.71	1.47	1.30	2.13	1.61
	(1.43)	(1.89)	(2.00)	(1.05)	(2.39)	(1.66)	(1.84)	(2.94)	(2.49)	(1.87)	(3.65)	(2.68)
GRANT	0.04	0.03	0.03	0.04	0.04	0.03	0.03	0.04	0.03	0.03	0.04	0.03
	(3.72)	(3.20)	(3.29)	(2.73)	(4.56)	(3.53)	(2.50)	(4.34)	(3.13)	(2.51)	(5.02)	(3.29)
ITEM	-	0.80	1.31	-	-	-	0.34	0.92	3.65	0.60	2.62	4.35
		(0.24)	(0.38)				(0.10)	(0.30)	(1.13)	(0.17)	(0.85)	(1.32)
SOUTH	3.89	1.32	0.78	4.19	9.53	5.87	2.18	5.64	2.07	1.92	4.75	1.43
	(1.24)	(0.38)	(0.22)	(1.28)	(2.99)	(1.91)	(0.59)	(1.74)	(0.64)	(0.51)	(1.49)	(0.44)
TEL	-	6.53	6.29	-	-	-	6.58	5.79	6.58	6.44	4.80	6.25
		(2.45)	(2.35)				(2.41)	(2.36)	(2.62)	(2.33)	(1.98)	(2.48)
YEAR	-	0.03	0.03	-	-	-	0.03	0.02	0.03	0.03	0.03	0.03
		(2.52)	(2.57)				(2.36)	(2.57)	(2.55)	(2.38)	(2.79)	(2.61)
YPC	-	-0.001	-0.002	-	-	-	-0.001	-0.002	-0.002	-0.001	-0.003	-0.002
		(-1.95)	(-2.15)				(-1.35)	(-3.48)	(-3.06)	(-1.38)	(-4.63)	(-3.30)
AGRIPC	0.0002	-	-0.002	0.0008	-0.002	0.0007	-	-	-	-0.001	-0.007	-0.003
	(0.12)		(-0.89)	(0.33)	(-0.74)	(0.35)				(-0.38)	(3.13)	(-1.23)
1986	-1.04	0.90	0.96	-0.99	-1.35	-0.94	0.68	1.10	1.24	0.71	1.33	1.31
	(-0.26)	(0.23)	(0.25)	(-0.24)	(-0.35)	(-0.25)	(0.17)	(0.31)	(0.34)	(0.17)	(0.38)	(0.36)
1987	-0.26	1.40	1.65	-0.13	-0.47	-1.92	0.89	1.98	-0.44	1.01	2.85	-0.21
	(-0.06)	(0.35)	(0.41)	(-0.03)	(-0.12)	(-0.49)	(0.21)	(0.54)	(-0.12)	(0.24)	(0.80)	(-0.06)
1988	-3.26	-0.28	0.33	-3.41	-3.41	-4.22	-1.45	1.10	-0.41	-1.17	3.32	0.30
	(-0.81)	(-0.07)	(0.08)	(-0.82)	(-0.90)	(-1.08)	(-0.33)	(0.29)	(-0.11)	(-0.26)	(0.88)	(0.08)
1989	-6.74	-2.43	-1.62	-6.27	-7.27	-5.62	-3.41	-0.74	0.64	-3.10	2.17	1.65
	(-1.64)	(-0.54)	(-0.36)	(-1.43)	(-1.89)	(-1.42)	(-0.73)	(-0.18)	(0.15)	(-0.65)	(0.53)	(0.38)
N	200	200	200	192	200	200	192	200	200	192	200	200
R-Squared	0.08	0.17	0.17	0.06	0.18	0.14	0.14	0.29	0.26	0.14	0.33	0.27
F-Statistic	1.90	3.21	3.02	1.23	4.63	3.48	2.43	6.44	5.49	2.24	6.98	5.20

Note: t-statistics in parentheses.
Source: see text.

three cases but is indistinguishable from zero. Thus, while debt limits influence the quantity of debt outstanding, they do not appear to influence the required rate of return.[10] The balanced-budget variables, in the remaining columns, generally have a negative impact on yields. In contrast to debt limits, then, balanced-budget requirements significantly affect both yields and borrowing on the margin.[11]

Notwithstanding these nuances, the results for U.S. states generally confirm that fiscal restrictions have a significant impact on fiscal outcomes.

IV. The Debate Over Fiscal Federalism

Whether borrowing by states within a monetary union throws off negative externalities and therefore must be restrained, or the mobility of factors of production within the union limits the borrowing capacity of state and local jurisdictions, alternative mechanisms for transferring resources to depressed regions may be warranted. Herein lies the case for fiscal federalism. Sachs and Sala-i-Martin (1990) have revived the argument, due to Ingram (1959), that fiscal federalism is an important concomitant of monetary union in the United States, and that its absence in Europe will imply regional problems following the transition to EMU. They estimate that the federal fiscal system in the U.S., by reducing federal tax liabilities and increasing inward transfers, offsets roughly 35 per cent of a state's income loss when it experiences a recession. Purchasing power is stabilized, diminishing regional problems that can no longer be redressed using the exchange rate.

Using data for U.S. census regions, Sachs and Sala-i-Martin estimate regressions relating tax and transfer payments to movements in pretax personal income (both measured relative to the national average). The elasticities

from these regressions are then used to estimate the size of the stabilization effect on income.[12] They find that federal tax liabilities decline by roughly 25 cents for every dollar by which regional income falls short of national income, and that inward transfers rise by roughly 10 cents. Thus, the stabilization effect occurs mainly on the tax side. It is substantial.

These results have been challenged on a variety of grounds. von Hagen (1990) emphasizes the need to distinguish transfers extended in response to temporary and permanent declines in state incomes. Most inter-state transfers in the U.S., he argues, are permanent transfers designed to offset long-standing differences in state incomes, not temporary transfers extended for cyclical reasons. Once permanent and temporary transfers are distinguished, he suggests, one finds that transfers extended in response to cyclical fluctuations in state income are relatively small.[13]

Bayoumi and Masson (1991) have considered this refinement using data for Canada as well as the U.S. They regress each region's per capita personal income net of taxes and transfers on its per capita personal income inclusive of taxes and transfers.[14] Both regressors are normalized by the analogous national average. This equation measures the relationship between personal income before and after federal fiscal flows, with the slope coefficient capturing the size of the offset. For the U.S., the estimated coefficient of 0.80 indicates that, on average, federal fiscal flows reduce long-term income inequalities by 20 cents on the dollar. Thus, Bayoumi and Masson's estimate, while smaller than that of Sachs and Sala-i-Martin, still suggests a substantial stabilization effect.

To get at the different response to temporary and permanent income fluctuations, they then estimate the same regression on detrended data (first

differencing all variables to remove the trend). Regressions on differenced data produce a coefficient of 0.72, suggesting that the stabilization of short-term fluctuations, which comes to 28 cents on the dollar, is even larger than the response to long-term differentials. This plausibly reflects the linkage between federal transfers and poverty, which is correlated with the cycle. That the largest change in coefficients when detrended rather than trended data are used occurs when personal income is adjusted not for taxes but for social insurance, transfers and grants is consistent with the notion that the grant and transfer component of federal programs is particularly responsive to the cycle.

A similar analysis for Canada yields evidence of an even larger response to permanent income differentials. Personal direct taxes provide an estimated 5 cents on the dollar of redistribution, while transfers and grants provide 15 cents each. Thus, the offset to long-term income differentials is 35 per cent, nearly twice the figure produced by analogous estimates for the United States. This large transfer and grant effect reflects Canada's more extensive social service and regional equalization mechanisms.

In contrast to the results for the U.S., the response in Canada to short-term personal income fluctuations is smaller -- almost exactly half the response to long-term differentials. Thus, equalization payments, which reflect the unusual extent of regional inequality and are extended in response to long-term rather than temporary income differentials, play a larger role in the Canadian fiscal system than in the United States. Offset of temporary income fluctuations, though still substantial, is less important than in the United States.

While documenting the need to distinguish equalization payments designed

to moderate persistent income differentials from stabilization or insurance effects, this research affirms the importance in existing monetary unions of fiscal transfers extended in response to temporary income fluctuations. Does the EC have the capacity to undertake comparable functions? So long as the Community budget remains little more than 1 per cent of EC GNP, it is hard to see how it could evolve into a fiscal mechanism with the redistributive capacity of the U.S. and Canadian federal budgets. As far back as 1977 the MacDougall Report suggested, on essentially these grounds, that an EC budget of no less than 5 per cent of Community GNP was needed for the viability of monetary union (European Commission, 1977). Another relevant comparison, federal government spending as a share of consolidated government expenditure, is 69 per cent in Belgium, 64 per cent in the U.S., 61 per cent in Germany, 42 per cent in Canada and 30 per cent in Switzerland; by comparison, the EC budget is no more than 5 per cent of the consolidated government spending of member countries.[15] Again, the implication is that the EC budget, as it presently stands, possesses very limited redistributive capacity.

If the case for fiscal federalism is granted, which of the many EC programs should take up the slack? Williamson (1990) has proposed an EC-wide unemployment insurance system as a means of regional coinsurance. This may create a number of problems, however. Consider the following example (from Eichengreen, 1990b). National labor unions seeking to maximize the wage bill set the level of real wages, subject to which firms then choose the level of employment. Unions will trade additional unemployment for higher wages when their unemployed members receive more generous unemployment benefits. If the cost of those benefits is shifted from the national level to the Community, it is no longer a transfer exclusively from employed to unemployed residents of a

given country. The union has an incentive to raise its wage demands, producing more unemployment. Not only does insurance thereby encourage the outcome, unemployment, whose effects it is designed to mitigate, but the magnitude of the distortion increases with the extent of fiscal federalism.

The structure of unemployment insurance funds in the U.S. minimizes this problem. Each state administers its own insurance trust fund. States also pay a fraction of their payroll taxes into a Federal Unemployment Trust Fund, from which they are permitted to draw when their own trust funds move into deficit. Significantly, however, states must pay interest on the funds they borrow. This minimizes their the capacity to shift the cost of unemployment benefits onto neighboring jurisdictions within the federal system.

Another potential conduit for fiscal transfers is the EC's Structural Funds. Targeted at depressed regions within the Community, these funds were recently doubled in size. Spain and other Mediterranean members of the EC have lobbied for expanding them further as a precondition for EMU. However, the principal function of the Structural Funds is transferring resources to regions where incomes are persistently below the EC average. Structural Fund receipts are inelastic with respect to temporary disturbances. Using historical data, Gordon (1991) estimates that a $1 fall in a member state's per capita income increases Structural Fund transfers by at most 1 U.S. cent. Since the size of the Structural Funds has recently been doubled, one might wish to double this estimated effect. Still, unless their administration is fundamentally reformed, they are an unlikely source of regional coinsurance. For them to substitute for U.S.-style fiscal federalism, it will be necessary to increase not only the scale of the Structural Funds but also their elasticity with respect to current income fluctuations. This, however, would

fundamentally alter their raison d'etre, something that the current recipients would resist.

One skeptical reaction to all these arguments is that monetary unions like the United States acquired a common currency long before they developed fiscal federalism. U.S. fiscal federalism is a 20th century innovation. Is fiscal federalism really an essential concomitant of monetary union, or does U.S. history prove otherwise?

Advocates of fiscal federalism would respond that the economic conditions that make fiscal coinsurance a necessary concomitant of monetary union were not as prevalent a century ago. This case is not as straightforward as it might seem. One such argument, that 19th century labor markets were less structured and wages more flexible, reducing the unemployment response to cyclical fluctuations, finds little support in the data.[16] Nor is it plausible that regional disturbances were less idiosyncratic before the 20th century. The 19th century U.S. economy's regional specialization and dependence on interregional trade heightened the scope for shocks to affect different regions differently. For example, shocks to the price of primary commodities (like cotton and tobacco) relative to that of manufactures had very different effects on New England and the South.

Perhaps the main difference between the pre- and post-fiscal-federalism eras lies in the extent of interregional labor mobility. Because of high transport costs (compared to the 20th century), the migratory response to temporary fluctuations in one region's fortunes relative to another's was small by today's standards. Regional problems could be severe, but until the dust bowl days of the 1930s they did not unleash large-scale migrations. The social and political strains associated with large-scale migrations were

minimized. The need for fiscal transfers to reduce the incentives for migration was consequently diminished.

For connoisseurs of the literature on optimum currency areas, this is an ironic conclusion. Mundell argued that exchange rate changes (and by implication, fiscal federalism) were least necessary where a high degree of labor mobility facilitated adjustment. The conclusion here is that high labor mobility may make fiscal federalism more rather than less desirable when the decision is made to give up the exchange rate as an instrument of adjustment. In the absence of both exchange rate changes and fiscal transfers, adjustment could take place through labor mobility, but only at high political and social cost. Hence the argument for fiscal federalism to limit labor flows and the associated costs.

V. Conclusions and Implications for EMU

The fiscal clauses of the Maastricht Treaty are among its most controversial provisions. They make approval by the Council of Ministers of the fiscal policies of member states a precondition for admission to EMU. Following admission, they empower the Council to recommend modifications of the fiscal policies of participating countries and to apply sanctions against governments failing to take the recommended actions.

In this paper I have argued that the second set of provisions is better justified than the first and more likely to achieve its stated objective. The debt and deficit ceilings adopted as criteria for admission to Stage III might plausibly be violated by fiscally disciplined governments. Fiscally lax governments may be able to masquerade as their more fiscally-disciplined counterparts at low cost during the relatively short transitional period. To

the extent that the European Commission and the EMI are empowered to interpret the so-called convergence criteria flexibly, the conditions are correspondingly less likely to distinguish states possessing and lacking fiscal discipline, and are therefore less capable of achieving their desired objectives.

The provisions governing fiscal behavior in Stage III are easier to justify and defend. With the integration of European commodity and financial markets as a result of the Single Market Program will come increasing international spillovers of national fiscal policies. Insofar as national fiscal policies are excessively expansionary because financial and monetary integration shifts some of the costs of deficit finance to neighboring countries, central bank independence alone will not help. Statements by central bank governors, however independent, that they will refuse to monetize government debts will not be regarded as credible because such refusal is contrary to the central bank's self interest. Other measures to restrain excessive spending, such as the treaty's provisions for coordinating national fiscal policies through the Council of Ministers, are therefore justified. The sanctions at the Council's disposal will confer on it leverage to internalize the international externalities associated with national policies.

What the Maastricht Treaty fails to say about fiscal policy is as significant as what it says. It says nothing about fiscal federalism and EMU. Existing monetary unions, such as the U.S. and Canada, rely on fiscal federalism to compensate for the absence of internal exchange rates that can be adjusted in response to regional problems. The treaty contains no provision for fiscal federalism, and the small size of the EC budget relative to the consolidated budgets of member states leaves the Community with a long

way to go before it can undertake fiscal federalism on a North American scale. That the U.S. and Canada adjust to region-specific shocks through interregional labor flows, which are unlikely to be matched by labor mobility between EC countries, underscores the contrast.[17] This suggests that the restraints on national fiscal and monetary policies that will come with EMU may leave member states without adequate options for dealing with national macroeconomic problems.

Notes

1. In addition, countries are required to have joined the Exchange Rate Mechanism of the European Monetary System and to have taken other steps to have insured the convergence of inflation rates.

2. The European Monetary Institute, a predecessor of the European Central Bank, will be set up at the beginning of Stage II. According to Article 109j of the Treaty, the EMI will collaborate with the Commission in reporting to the Council of Ministers on the fiscal performance of member states.

3. One objection to this conclusion is that it is based on over-strong assumptions about international transmission. Canzoneri and Diba, in the model from which this discussion is drawn, assume perfect substitutability of goods produced at home and abroad. In alternative models with imperfect substitutability (viz. van der Ploeg, 1989), fiscal policy in noncooperative equilibrium may be inadequately rather than excessively expansionary. If fiscal expansion leads to real appreciation (as it will upon relaxing the assumption of perfect substitutability), it will stimulate exports and increase employment in neighboring countries, swamping the negative effect of higher interest rates. Empirical studies (Roubini, 1989; Masson and Melitz, 1991) suggest that fiscal spillovers are predominantly negative: that the interest rate effects emphasized in the text dominate. Even if the opposite is true, the case for fiscal coordination will remain (although not the justification for fearing "excessive deficits").

4. It can be argued, of course, that monetary union is itself a consequence of financial integration. With the removal of capital controls, the argument goes, the European Monetary System of the 1980s, which reconciled divergent national policies with stable exchange rates through the maintenance of barriers to cross-border capital movements, was no longer viable. The only remaining options were floating exchange rates and monetary unification. Given Europe's aversion to floating, EMU followed.

5. One variable considered by the ACIR, mineral production per capita, is omitted because it is not available on a year-by-year basis.

6. This index is constructed by assigning point values to balanced-budget restrictions of two sorts and summing the totals for the two categories: the first category assigns one point if the requirement is a statutory provision, two points if it is constitutional; the second category assigns values to the specific features of the requirement (one point if the Governor only has to submit a balanced budget, two points if the legislature only has to pass a balanced budget, four points if the state may carry over a deficit but it must be corrected in the next fiscal year, six points if the state cannot carry over a deficit into the next biennium, and eight points if the state cannot carry over a deficit into the next fiscal year).

7. Given this ambiguity about the significance of "Balance2," the ACIR index, I considered individually the effects of its other components, defining dummy variables equaling one for states that cannot carry over a deficit into the next biennium, for states that may carry over a deficit but must correct it in

the next fiscal year, for states whose legislatures only have to pass a balanced budget, and for states whose governor must only submit a balanced budget. Adding these variables to the basic specification, in addition and in lieu of "Balance1" and "Balance3," provided no indication that any of these measures had a discernible effect on deficit spending.

8. See ACIR (1987), p.52.

9. This conclusion follows only if final restrictions are exogenous with respect to the interest rate. This assumption seems relatively innocuous. Note that there is no paradox in the fact that several of the exogenous variables enter with opposite signs in the equations explaining the level of debt and the yield. Consider for example the coefficient on the share of the state population aged 65 or older, which enters negatively in the equations explaining debt per capita but positively in those for yields, and visualize a (upward sloping) supply curve and (downward sloping) demand curve stock-of-debt/yield space. If a high share of the elderly shifts the supply curve of debt to the left (on the grounds that the elderly demand fewer social services or support politicians who are fiscally conservative), but simultaneously shifts the demand-for-debt curve to the right (on the grounds that the elderly prefer government bonds to riskier assets), albeit by a relatively small amount, we would observe the variable "Elders" entering the debt and deficit equations negatively and the yield equations positively.

10. This would follow if the quantity of debt is not an important predictor of default risk.

11. This is plausible if default risk increases with the rate of growth of the debt rather than with its average level.

12. Real energy prices and a time trend are also included as determinants of state tax liabilities, and an effort is made to control for simultaneity due to the dependence of state income in taxes and transfers.

13. By my reading, von Hagen's econometric results do not support this conclusion. To recover the response to temporary income fluctuations, he expresses all variables in growth rates rather than levels. He finds that a one per cent change in the growth rate of state income leads to a one per cent change in federal tax payments; since federal taxes are approximately a third of state income, the implied elasticity is about a third, almost exactly Sachs and Sala-i-Martin's estimate. This interpretation is also consistent with the provisions of the federal tax code, according to which the average marginal tax rate on personal income is about a third.

14. A constant term is also included.

15. Van Rompay, Abraham and Heremans (1991), p.115.

16. A recent contribution to this literature is Allen (1992).

17. The importance of labor mobility to regional adjustment in the U.S. has been emphasized by Blanchard and Katz (1992).

References

Allen, Steven (1992), "Changes in the Cyclical Sensitivity of Wages in the United States, 1891-1987," American Economic Review 82, pp.122-140.

Advisory Commission on Intergovernmental Relations (1987), Fiscal Discipline in the Federal System, Washington, D.C.: ACIR.

Backus, David and John Driffill (1985), "Inflation and Reputation," American Economic Review 75, pp.530-538.

Bayoumi, Tamim and Paul Masson (1991), "Fiscal Flows in the United States and Canada: Lessons for Monetary Union in Europe," unpublished manuscript, International Monetary Fund.

Blanchard, Olivier and Lawrence Katz (1992), "Regional Evolutions," Brookings Papers on Economic Activity (forthcoming).

Canzoneri, Matthew (1985), "Monetary Policy Games and the Role of Private Information," American Economic Review 75, pp.1056-1070.

Canzoneri, M. and B. Diba (1991), "Fiscal Deficits, Financial Integration and a Central Bank for Europe," Journal of the Japanese and International Economies 5, pp.481-503.

Eichengreen, Barry (1990), "One Money for Europe? Lessons from the U.S. Currency and Customs Union," Economic Policy 10, pp.117-187.

Eichengreen, Barry (1992), "Is Europe an Optimum Currency Area?" in Herbert Grubel (ed.), European Economic Integration: The View from Outside, London: Macmillan.

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

Frenkel, Jacob and Assaf Razin (1987), Fiscal Policies in the World Economy, Cambridge, Mass.: MIT Press.

Glick, R. and M. Hutchinson (1992), "Fiscal Policy in Monetary Unions: Implications for Europe," Open Economies Review (forthcoming).

Goldstein, Morris and G. Woglom (1991), "Market-Based Fiscal Discipline in Monetary Unions: Evidence from the U.S. Municipal Bond Market," unpublished manuscript: International Monetary Fund.

Gordon, James (1991), "Structural Funds and the 1992 Program in the European Community," unpublished manuscript, International Monetary Fund.

Ingram, James (1959), "State and Regional Payments Mechanisms," Quarterly Journal of Economics 73, pp.619-632.

Masson, Paul and Jacques Melitz (1991), "Fiscal Policy Independence in a European Monetary Union," Open Economies Review 2, pp.113-136.

Mundell, Robert (1961), "A Theory of Optimum Currency Areas," American Economic Review LI, pp.657-665.

Roubini, Nouriel (1989), "Leadership and Cooperation in the European Monetary Union: A Simulation Approach," NBER Working Paper No. 3044.

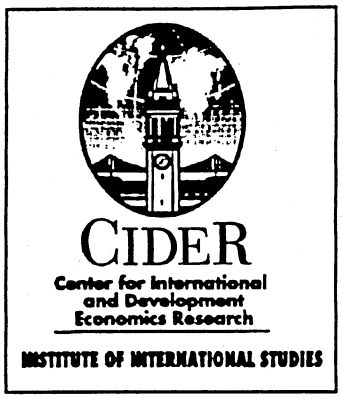
Sachs, Jeffrey and Xavier Sala-i-Martin (1991), "Federal Fiscal Policy and Optimum Currency Areas," unpublished manuscript, Harvard University

van der Ploeg, Frederick (1989), "Fiscal Aspects of Monetary Integration in Europe," CEPR Discussion Paper No. 340.

van Rompay, Paul, Filip Abraham and Dirk Heremans (1991), "Economic Federalism and the EMU," The European Economy, Special Issue No. 1, pp.109-135.

von Hagen, Jurgen (1991), "Fiscal Arrangements in a Monetary Union: Evidence from the U.S.," unpublished manuscript, Indiana University.

Williamson, John (1990), "Britain's Role in EMU," unpublished manuscript, Institute for International Economics.



Center for International and Development Economics Research

The Center for International and Development Economics Research is funded by the Ford Foundation. It is a research unit of the Institute of International Studies which works closely with the Department of Economics and the Institute of Business and Economic Research (IBER). All requests for papers in this series should be directed to IBER, 156 Barrows Hall, University of California at Berkeley, Berkeley CA 94720, (510) 642-1922.

Previous papers in the Economics Department Working Paper Series by CIDER authors:

90-134	"The Constrained Asset Share Estimation (CASE) Method: Testing Mean-Variance Efficiency of the U.S. Stock Market." Charles Engel, Jeffrey A. Frankel, Kenneth A. Froot, and Anthony Rodrigues. January 1990.
90-135	"International Nominal Targeting (INT): A Proposal for Overcoming Obstacles to Policy Coordination." Jeffrey A. Frankel. January 1990.
90-137	"Japanese Finance: A Survey." Jeffrey A. Frankel. March 1990.
90-142	"The Financial System and the Economic Crisis of the Interwar Years." Barry Eichengreen. June 1990.
90-144	"Before the Accord: U.S. Monetary-Financial Policy 1945-51." Barry Eichengreen and Peter M. Garber. June 1990.
90-145	"The Impact of Permanent and Temporary Import Surcharges on the U.S. Trade Deficit." Barry Eichengreen and Lawrence H. Goulder. June 1990.
90-146	"Trends and Cycles in Foreign Lending." Barry Eichengreen. July 1990.
90-147	"Relaxing the External Constraint: Europe in the 1930s." Barry Eichengreen. July 1990.
90-150	"Costs and Benefits of European Monetary Unification." Barry Eichengreen. October 1990.
90-151	"Is Europe an Optimum Currency Area?" Barry Eichengreen. October 1990.
90-153	"Historical Research on International Lending and Debt." Barry Eichengreen. December 1990.
91-154	"Risktaking, Capital Markets, and Market Socialism ." Pranab Bardhan. January 1991.
91-156	"The Origins and Nature of the Great Slump, Revisited." Barry Eichengreen. March 1991.
91-157	"The Making of Exchange Rate Policy in the 1980s." Jeffrey Frankel. March 1991.
91-158	"Exchange Rate Forecasting Techniques, Survey Data, and Implications for the Foreign Exchange Market." Jeffrey Frankel and Kenneth Froot. March 1991.
91-159	"Convertibility and the Czech Crown." Jeffrey Frankel. March 1991.
91-160	"The Obstacles to Macroeconomic Policy Coordination in the 1990s and an Analysis of International Nominal Targeting (INT)." Jeffrey A. Frankel. March 1991.
91-162	"Can Informal Cooperation Stabilize Exchange Rates? Evidence from the 1936 Tripartite Agreement." Barry Eichengreen and Caroline R. James. March 1991.

91-166 "The Stabilizing Properties of a Nominal GNP Rule in an Open Economy." Jeffrey A. Frankel and Menzie Chinn. May 1991.

91-167 "A Note on Internationally Coordinated Policy Packages Intended to Be Robust Under Model Uncertainty or Policy Cooperation Under Uncertainty: The Case for Some Disappointment." Jeffrey A. Frankel. May 1991.

91-171 "The Eternal Fiscal Question: Free Trade and Protection in Britain, 1860-1929." Barry Eichengreen. July 1991.

91-175 "Market Socialism: A Case for Rejuvenation." Pranab Bardhan and John E. Roemer. July 1991.

91-176 "Designing A Central Bank For Europe: A Cautionary Tale from the Early Years of the Federal Reserve." Barry Eichengreen. Revised, July 1991.

91-181 "European Monetary Unification and the Regional Unemployment Problem." Barry Eichengreen. October 1991.

91-184 "The Marshall Plan: History's Most Successful Structural Adjustment Program." J. Bradford De Long and Barry Eichengreen. November 1991.

92-187 "Shocking Aspects of European Monetary Unification." Tamim Bayoumi and Barry Eichengreen. January 1992.

92-188 "Is There a Conflict Between EC Enlargement and European Monetary Unification?" Tamim Bayoumi and Barry Eichengreen. January 1992.

92-189 "The Marshall Plan: Economic Effects and Implications for Eastern Europe and the Soviet Union." Barry Eichengreen and Marc Uzan. January 1992.

92-191 "Three Perspectives on the Bretton Woods System." Barry Eichengreen. February 1992.

92-196 "Economics of Development and the Development of Economics." Pranab Bardhan. June 1992.

92-200 "A Consumer's Guide to EMU." Barry Eichengreen. July 1992.

New Papers in the Economics Department/CIDER Working Paper Series:

C92-001 "Does Foreign Exchange Intervention Matter? Disentangling the Portfolio and Expectations Effects." Kathryn M. Dominguez and Jeffrey A. Frankel. December 1992.

C92-002 "The Evolving Japanese Financial System, and the Cost of Capital." Jeffrey A. Frankel. December 1992.

C92-003 "Arbitration in International Trade." Alessandra Casella. December 1992.

C92-004 "The Political Economy of Fiscal Policy After EMU." Barry Eichengreen. December 1992.

C92-005 "Financial and Currency Integration in the European Monetary System: The Statistical Record." Jeff Frankel, Steve Phillips, and Menzie Chinn. December 1992.