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CENTER FOR INTERNATIONAL AND DEVELOPMENT ECONOMICS RESEARCH
Working Paper No. C93-020

The Political Economy of Fiscal Restrictions: Implications for Europe from the United States

Barry Eichengreen
University of California at Berkeley

Tamim Bayoumi
International Monetary Fund

September 1993

Department of Economics

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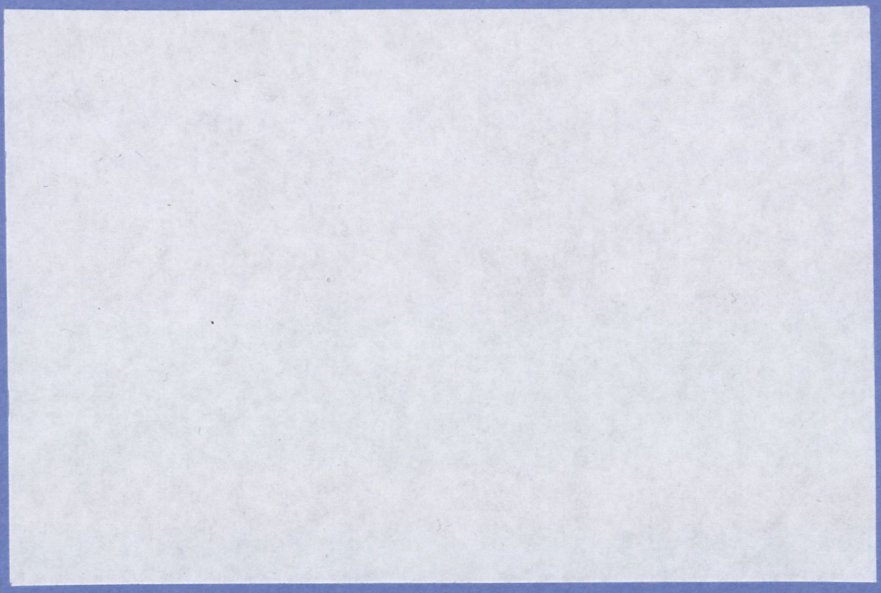

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UNIVERSITY OF CALIFORNIA AT BERKELEY

Department of Economics

Berkeley, California 94720

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I. Introduction

The Maastricht Treaty's provisions regarding fiscal policy are among its most controversial. Signatories commit to limiting their public-sector debts and deficits to levels generally not exceeding 60 and 3 per cent of GDP, respectively.[1] Whatever the merits of the arguments for these "excessive deficits procedures," there is also the question of their effects. In other words, do self-imposed fiscal restrictions really restrain behavior, or can governments circumvent them? And if fiscal restrictions restrain, do they also inhibit certain positive functions of fiscal policy?

One source of evidence on these issues is the United States, all of whose state governments, with the exception of Vermont, function under self-imposed fiscal restraints. Since the severity of these provisions differs significantly, it may be possible to draw inferences about their effects from cross-state comparisons.

In this paper we summarize some of the findings of a research program in which we have been analyzing, jointly and in collaboration with other investigators, the operation of fiscal restrictions in the United States as a way of shedding light on the likely effects of the excessive deficits provisions of the Maastricht Treaty. We consider the impact of fiscal restrictions on the levels of debts and deficits, on the cost of borrowing, and on stabilization function of fiscal policy.

II. Deficit Restrictions and the Size of Deficits

The self-avowed purpose of fiscal restrictions on U.S. states is to limit their public-sector debts and deficits. Some balanced-budget requirements seek to limit the deficits of state governments by requiring the governor to submit a balanced budget or

the legislature to pass a balanced budget. Others prohibit the state from carrying over a deficit into the next fiscal year, from carrying it over for more than a year, or from carrying it over into the next biennium. Constitutional and statutory debt limits are designed to restrain governments from issuing public obligations. While a number of previous studies have dismissed such provisions as largely ineffectual, others (ACIR, 1987) have concluded that they may have some effect.

Table 1 reports results from what is perhaps the simplest approach to this question. It displays linear regressions designed to explain the size of the state budget surplus or deficit.[2] The specification follows ACIR (1987); here the regressions are estimated using pooled time-series-cross-section data for 1985-89. The per capita surplus is related to agricultural output per capita, the per cent of state population aged 54 or older, federal aid per capita, and a dummy variable for states in the South, plus fixed effects for years and three measures of the severity of fiscal restrictions.[3] "Restraint" is the ACIR index, ranging from one to ten, of the relative stringency of state balanced budget requirements. "Restraint2" is a dummy variable equalling one for states prohibited from carrying over a deficit into the next fiscal year. "Restraint3" is a dummy variable for states whose governors must sign a balanced budget by statutory or constitutional law.

The coefficients on "Restraint2" and "Restraint3" differ from zero at the 95 per cent confidence level (one tail test). Their positive signs suggest that states whose governors must sign balanced budgets and states that cannot carry over deficits run larger surpluses. The coefficient on "Restraint," the ACIR index, although also positive is not significantly different from zero. Since "Restraint" is an increasing function of

Table 1

The Effect of Fiscal Restraints on the General-Fund Budget Balance

	(1)	(2)	(3)
Constant	25.30	46.23	41.93
	(0.52)	(1.02)	(1.10)
Restraint	3.16	--	--
	(1.63)	--	--
Restraint 2	--	23.43	--
	--	(2.06)	--
Restraint 3	--	--	19.65
	--	--	(2.13)
Elders	-1.48	-2.08	-5.01
	(-0.53)	(-0.74)	(-2.05)
Grant	0.02	0.02	0.12
	(0.46)	(0.37)	(3.15)
South	-36.45	-40.38	-28.38
	(-2.67)	(-2.91)	(-2.55)
Agripc	0.01	0.01	0.01
	(1.18)	(1.31)	(1.56)
1986	-11.12	-10.92	-12.94
	(0.66)	(-0.56)	(-0.92)
1987	0.17	-2.92	-9.21
	(0.03)	(-0.17)	(-0.64)
1988	19.60	18.53	2.37
	(1.16)	(1.10)	(0.17)
1989	26.74	29.21	15.56
	(1.56)	(1.71)	(1.10)
N	250	250	242
R-squared	0.08	0.09	0.14
F-statistic	2.39	2.58	5.34

Note: t-statistics are in parentheses.

Source: Eichengreen (1993).

"Restraint2," "Restraint3" and other weaker fiscal restrictions as well, its insignificance suggests that it is mainly more stringent restrictions that affect behavior. Thus, these results uniformly suggest that fiscal restraints affect the size of budget deficits.

III. The Cost of Borrowing and Credit Rationing

The impact of fiscal restraints on debt issuance can in principle be investigated in analogous fashion. Models of credit rationing (e.g. Stiglitz and Weiss, 1981) suggest, however, that the relationship between debt and yields may be nonlinear, since a rise in yields and hence in debt-service may so increase default risk that at some point potential borrowers are quantity constrained. The question is how, if at all, self-imposed fiscal restrictions affect this credit constraint.

Here we extend the results of Bayoumi, Goldstein and Woglom (1993), who have used a similar framework to examine these questions. (Their approach differs in its specification of the determinants of default.)[4] Consider the arbitrage equation:

$$(1 + R + s)P(H) = (1 + R) \qquad (1)$$

where s is the premium over the risk free rate R, and P(H) is the probability P of total default H. Letting H be linear in its determinants:

$$H = d(R + s)(B + \beta X) \qquad (2)$$

where β and d are parameters to be estimated, B is the ratio of debt to gross state product, and X is a vector of other factors affecting the default probability. R+s is interacted with B and X on the assumption that a given correlate of default (the size of the debt burden, for instance) has a more powerful effect the higher are interest costs.

Assuming P(H) = exp(-H), we can substitute (2) into (1) and solve for s, obtaining:[5]

$$s = dR(B + \beta X)/[1 - d(B + \beta X)] \qquad (3)$$

We estimate the following variant of this equation:

$$s_{it} = [(a_0 + a_1 B_{it} + a_2 TAX_{it} + a_3 UNEM_{it-1} + a_4 RESTRAINT_{it})/ \{1 - a_5(a_1 B_{it} + a_2 TAX_{it} + a_3 UNEM_{it-1} + a_4 RESTRAINT_{it})\}] + \epsilon_t$$

where $UNEM_{-1}$, the level of state unemployment lagged one period, and RESTRAINT, the ACIR index of the severity of fiscal restrictions, are included in the X vector. ϵ_t is the error term, and the a_i are coefficients to be estimated. a_1 measures the effect of the level of debt on yields, a_5 the nonlinear interaction between yields and interest payments. If a_5 is positive the supply curve bends back.

The dependent variable is the differential between the yield on the general obligation bonds of each state relative to the lowest yielding general obligation bond, based on the Chubb Relative Value Study. The equation was estimated on data for the 37 states for which yield data were available, pooling annual observations for 1981

through 1990. To account for possible endogeneity of some of the regressors, estimation was by instrumental variables. Instruments were the index of the severity of fiscal restrictions and measures of underlying state characteristics, including the percentage of the population under 18 and over 65, average number of persons per household, the rate of growth of the population, and the 1991 state population.

The estimated equation appears in Table 2.

Table 2
Parameter Estimates for Yield Equation

a_0	a_1	a_2	a_3	a_4	a_5
25.48	18.16	-8.33	4.88	-3.04	0.007
(1.28)	(2.10)	(1.98)	(2.48)	(2.23)	(1.62)

$R^2 = .22$

Note: t-statistics in parentheses.

The coefficient on the fiscal restraints, a_4, suggests that, for average levels of B, TAX and $UNEM_{-1}$, moving from no restraints to the most severe restraints reduces interest costs by nearly 50 basis points. An interpretation of this result is that fiscal restraints lower the required return on general obligation bonds by reducing the likelihood of future surges of borrowing and hence the likelihood of default. The positive value of a_5 suggests that this effect grows with the level of debt. The parameter estimates also suggest that a state with no fiscal restrictions is rationed out of the capital market when its ratio of debt to gross state product reaches 8.7 per cent. (This compares to the estimate of 8.9 per cent obtained by BGW.) But the presence of restrictions relaxes the credit-rationing constraint: moving from no restrictions to the

most severe restrictions raises the maximum debt permitted by the market from 8.7 to 10.8 per cent of gross state product. Again, an interpretation is that the presence of restrictions which reduces the likelihood of future borrowing also reduces the probability of future default, encouraging the markets to engage in additional current lending despite the tendency for more lending, by driving up current interest costs, to raise default probabilities, ceteris paribus.[6]

III. The Extent of Stabilization

These findings concerning the impact of fiscal restraints suggest that such measures can discourage deficit spending on the part of state governments, which would be viewed as desirable by those who believe in forces biasing deficits toward the excessive. Working in the other direction, however, is the possibility that binding fiscal restrictions may weaken the automatic stabilization function of fiscal policy. We investigate this possibility in our 1993 paper, again using data for the states. Assume that fiscal balance depends on the rate of change of output and on its own lagged value:

$$(BAL/GDP)_t = \alpha + \beta\, \Delta\log(Y_t) + \tau\, (BAL/GDP)_{t-1} + \epsilon_t, \qquad (4)$$

where (BAL/GDP) is the ratio of the fiscal surplus to output, Y is real GDP, Greek letters are estimated coefficients, Δ is the difference operator, and β measures the sensitivity of the fiscal balance to the cycle. (For local governments the lagged dependent variable was replaced by a time trend.) A positive β indicates that the balance varies countercyclically, providing automatic stabilization.

State fiscal balance is defined as total government revenues minus total expenditures. Local government fiscal balance is defined as total revenues less direct expenditures.[7] The data for state and local governments, covering the period 1971-90 and 1975-90, respectively, are normalized by the nominal gross state product of the previous year and aggregated into the 8 standard regions used by the Bureau of Economic Analysis. The results (Table 3) indicate that state rather than local governments stabilize over the cycle. When the equations are estimated as a system with β constrained to be equal across regions, its estimated value is .054 and highly significant. By contrast, the coefficient in the local government regressions is .003 and insignificantly different from zero.[8]

We also report the estimated β coefficients for each region when they are not constrained to be equal. For state governments the likelihood ratio statistic rejects the hypothesis of equality at the 10 per cent level. State budgets in New England, the Mid East and the Far West display relatively large cyclical offsets, on the order of 0.09-0.20. The South East and Rocky Mountains have slightly lower values (0.06-0.09), while the Great Lakes, Plains and South West have the smallest offsets, ranging from 0.02 to 0.05. Most of the β coefficients are significantly different from zero, confirming that state governments provided significant regional stabilization. The results for local governments are very different. The constraint of equality cannot be rejected, and only one of the freely estimated values differs significantly from zero.

Regional differences in behavior of state governments correspond to differences in fiscal controls. Many New England states have particularly weak fiscal restraints: California, which dominates the Far West economically, has relatively lax state fiscal

controls; in the Plains region, in contrast, all of the states have relatively stringent restraints. To investigate this connection further, the regressions were repeated on a state-by-state basis. Estimated values of β were then related to the ACIR index of the stringency of fiscal restraints, which as explained in Section II ranges from 1 to 10. This produced the following result.

$$\beta = \underset{(0.0221)}{0.1129} - \underset{(.0024)}{.0045}\ \text{RESTRAINT} \qquad R^2 = .04$$

The coefficient on fiscal restraints differs from zero at the ten percent level. It suggests that moving from no fiscal restraints to the most stringent level of controls lowers the cyclical offset by 0.045. Given the estimated intercept of 0.113, this indicates that restraints reduce the cyclical variance of the fiscal balance by about 40 percent of its original value. When the sample is limited to states with fiscal indices of 6 or more, which covers over four fifths of the sample, the estimated impact of fiscal restraints is even larger, indicating that the full-sample results are if anything a lower-bound estimate.[9]

Which component of the surplus is affected by restraints? We reestimated equation (4) state by state for revenues and expenditures separately, and again regressed the coefficients on the fiscal index.[10] Most of the difference in behavior associated with fiscal restraints is on the expenditure side. The coefficient on the fiscal index in the expenditure equation is -.0043, as opposed to .0002 in the revenue equation. Over 90 per cent of the reduction in automatic stabilizers caused by fiscal restraints occurs through reducing the cyclical sensitivity of expenditures.

Table 3. Regional Results for State Governments and Local Governments

	State Government		Local Government	
	β	R^2	β	R^2
All Regions	.054	.18-.80	.003	.16-.76
	(.009)		(.004)	
New England	.154**	.24	.16	.22
	(.046)		(.011)	
Mid-East	.095**	.83	.035*	.40
	(.025)		(.016)	
Great Lakes	.049**	.67	-.005	.45
	(.013)		(.007)	
Plains	.020	.67	-.003	.40
	(.015)		(.014)	
South East	.064**	.79	.002	.54
	(.012)		(.009)	
South West	.042*	.50	.013	.50
	(.017)		(.009)	
Rocky Mountains	.086**	.74	-.005	.76
	(.017)		(.010)	
Far West	.198**	.67	.015	.60
	(.028)		(.013)	
Likelihood Ratio Test of Constraint ($\chi^2(7)$)	2.5*		9.0	

Notes: The equations were estimated using multivariate least squares. The first row shows the results when all of the β coefficients were constrained to be the same. The last row shows the result from testing this constraint using a likelihood ratio test. The state government equations were estimated over FY 1971-90, the local government data FY 1975-90. The estimated coefficients on constant terms, lagged dependent variables and time trends are not reported. One or two asterisks indicate the coefficient is significant at the 10 and 1 percent level, respectively. The likelihood ratio statistic is a test that all of the coefficients are equal in a multivariate least squares estimation.

A significant share of stabilization in the United States thus appears to be carried out at the state level. In the 1970s and 1980s, over 5 per cent of fluctuations in state income was offset through fiscal stabilization by state and local governments.

IV. Implications for Europe

What are the implications for the European Community? If U.S. experience is any guide, the fiscal restraints of the Maastricht Treaty are enforceable. But if vigorously enforced, they could significantly diminish the stabilization capacity of national budgets. Given their openness and the consequent small size of their fiscal multipliers, EC member states should no more assume principal responsibility for fiscal stabilization in Europe than do state governments in the United States. But advocates of Maastricht cannot have it both ways: while there is no question that fiscal stabilization is more appropriately undertaken at the EC level, the treaty makes no provision for expanding the Community's fiscal role. Given that in post-EMU Europe the EC budget will in all likelihood remain small by U.S. standards, providing little scope for automatic stabilization at the Community level, vigorously applying the excessive deficits procedures of the treaty to the national budgets of member states would leave post-Maastricht Europe with significantly less automatic stabilization than the U.S. economic and monetary union.

1. More precisely, excessive deficits will be said to exist if the ratio of deficit of all levels of government exceeds 3% of GDP and if in addition either the deficit ratio has not declined "substantially and continuously" to a level "close" to the 3% reference value, or that ratio cannot be regarded as "exceptional and temporary and...close to" the 3 per cent threshold. The ratio of government debt to GDP will be excessive if it is greater than 60% and is not "sufficiently diminishing and approaching the 60% level at a satisfactory pace..."

2. According to the Bureau of the Census, spending financed out of rainy day funds is included in the budgetary data we analyze here. Hence, the deficit and the change in debt can differ. (Expenditures financed out of rainy day funds can show up as deficits without causing a commensurate increase in debt.) von Hagen (1992) considers stocks rather than flows (debts and debt limits rather than deficits and balanced-budget provisions as here), finding some evidence that states with debt limits finance more of their debt with instruments other than full-faith-and-credit obligations. On this issue, see also footnote 6 below.

3. Additional regressions analyzed the effects of whether or not the state governor possessed a line-item veto, whether there existed tax or expenditure limitations, the year in which statehood was granted, and gross state product per capita. These changed none of the results.

4. Their model does not interact r+s with X. It provides more precise estimates of the point where credit rationing occurs but does not test for a shift in that point as a result of fiscal restraints.

5. In deriving this equation, BGW approximate log(1+x) by x.

6. These results are strengthened if the true level of debt for states with fiscal restrictions is understated due to the use of off-balance items. States with strong restrictions would have estimated debt which was too low; hence, the increase in the interest spread due to debt and the reduction in the spread due to the existence of fiscal restrictions would both be understated.

7. Despite the fact that state unemployment insurance trust funds are administered by the federal government, our consolidated state-level data were constructed to include them since they are likely to be especially sensitive to the cycle.

8. At .080, the sum of the coefficients on state and local governments is very similar to that produced by regression analysis using National Income and Product Accounts data for the U.S. as a whole. See our 1993 paper.

9. Similar results are obtained by Poterba (1993).

10. The log of real state product was also included, since state governments administer more programs directly in smaller states, which may affect the cyclical behavior of revenues and expenditures. This variable was not significant in the regressions using the overall surplus.

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