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Fiscal decentralization and government size: An extension

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Abstract. This paper analyzes one method governments employ to circumvent the discipline of a competitive system of fiscal federalism – intergovernmental collusion in the form of intergovernmental grants. Grants, it is argued, serve to encourage the expansion of the public sector by concentrating taxing powers in the hands of the central government and by weakening the fiscal discipline imposed on governments forced to self-finance their expenditures. The results reported suggest that intergovernmental grants do encourage growth in the public sector. The results offer further support for the use of monopoly government assumptions in public sector modeling.

1. Introduction

In a recent paper in this journal, Marlow (1988) attempted a test of the Brennan and Buchanan (1980) hypothesis that fiscal decentralization serves as a constraint on the behavior of revenue-maximizing governments. He reported strong and consistent evidence that increases in the share of state and local expenditures in total government expenditures were positively correlated with reductions in total public sector size. He offered these results as support for the use of monopoly government assumptions in public policy models. Previous attempts to test the fiscal decentralization hypothesis by Oates (1985) and Nelson (1986) found either no supporting evidence or found evidence contrary to the hypothesis.[1]

In each of these papers, as well as a comment by Nelson (1987) on the Oates paper, the issue of decentralization is emphasized to the exclusion of Brennan and Buchanan's collusion caveat (1980: 185). Though Brennan and Buchanan hypothesized that '[T]otal government intrusion into the economy should be smaller, *ceteris paribus*, the greater the extent to which taxes and expenditures are decentralized' (1980: 15), they further noted that '[P]ossibilities for collusion among separate governmental units ... must be included in the "other things equal"' (1980: 185). They argue that '[W]ithin a constitutionally designed federal structure, one would predict that there would be constant pressure by competitive lower-level governments to secure institutional rear-

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rangements that would moderate competitive pressures' (1980: 182). These institutional rearrangements would be likely to take the form of collusive agreements between the central and lower-level governments, in which the central government would levy a uniform tax across all jurisdictions, sharing the revenues with the lower-level governments.

With one government, the central government, levying the tax, the rate can be set at the revenue-maximizing level. If competing lower-level governments levy the tax, the competitive pressures will drive the rate down to the level at which taxes paid by the taxpayer equal the benefits received from the government services provided. The total revenue collected by the revenue-maximizing central government would be greater than the sum of revenues collected by the individual lower-level governments. The revenue collected by the central government would be shared, with each lower-level government receiving at a minimum a sum equal to the revenue it would collect under the competitive regime. The additional revenue collected over the amount forthcoming under the competitive regime might be shared among the central government and the lower-level governments. The lower-level governments' total shares would be received in the form of intergovernmental grants.

The impact of grants on public sector size is felt in two ways. First, grants tend to weaken the discipline imposed on competing lower-level governments forced to finance expenditures from own-source taxes. By breaking the bond between taxing and spending powers, grants encourage greater total government spending. Second, by concentrating the powers of taxation in the hands of the central government, grants serve to expand the range over which the central government can apply its monopoly power. The greater the range of economic activity over which the central government has taxing powers, the more potent its taxing powers are likely to be.

If taxing powers over economic activities are divided between the central government and the lower-level governments, taxes levied by the central government may be avoided by changes in the economic activities the taxpayer undertakes. For example, if labor income is a central government tax base while consumption expenditures are a lower-level government tax base, then income taxes levied at the revenue-maximizing rate by the central government may be avoided if the taxpayer consumes more leisure and fewer other goods and services. If the central government had taxing powers over both tax bases then taxes could be levied on goods complementary to leisure, thereby offsetting the effect of tax avoiding changes in economic activity on the part of the taxpayer. The potency of the central government's revenue-maximizing powers is likely to increase disproportionately with increases in the tax bases available to it.

Though Oates (1985) and Nelson (1987), in his comment, include an intergovernmental grants variable in their regression equations, it is little discussed

and no reference is made to the collusion issue. Contrary to expectations, the variable is insignificant in both cases. This may be due to the fact that Oates and Nelson were, as Marlow noted, testing the decentralization hypothesis on the size of state and local governments, a subset of total public sector activity. In the paper by Nelson (1986), the collusion question is totally ignored. Marlow, though not specifically addressing the collusion issue, does attempt to control for the effect of intergovernmental grants by the manner in which he divides total expenditures between the federal and the state and local governments. Grants are considered an expenditure of the granting government rather than of the government actually expending them. Marlow's variable thus partially controls for the impact of government collusion on total public sector size.

The purpose of this note is to extend Marlow's analysis to examine the impact collusive actions between central and lower-level governments have on total government size. Though decentralization may be a device for controlling government growth, its effectiveness may be hindered by a system of intergovernmental grants. The evidence presented indicates this is so and provides further support for the use of Brennan and Buchanan's monopoly government assumptions.

2. Empirical tests of the collusion hypothesis

Brennan and Buchanan suggest that collusion among governments will take the form of transferred taxing powers and revenue sharing in the form of intergovernmental grants (1980: 182). Therefore, the measure of collusion employed, G_t, is defined as the share of federal grants-in-aid in total state and local government receipts. As the level of collusion increases, the share of grant-in-aid in total receipts will increase.

To test the hypothesis that collusive agreements, in the form of intergovernmental grants, contribute to total government size, the following equations were estimated:

$$L_t = a_0 + a_1 D_t + a_2 G_t + a_3 X_t + e_t \tag{1}$$

$$L^*_t = a_0 + a_1 D^*_t + a_2 G^*_t + a_3 X^*_t + u_t \tag{2}$$

where

L_t = total governmental expenditures as a share of GNP in time t;
L^*_t = annual growth rate of L_t;
D_t = share of state and local expenditures in total government expenditures in time t;

Table 1. Regression results

Variable	Estimated coefficients			
	(1.1)[a]	(1.2)[a]	(1.3)[b]	(1.4)[b]
D_t	−0.48*	−0.53*	−0.52*	−0.54*
	(5.26)	(7.53)	(6.81)	(7.82)
G_t	0.47*	0.32*	0.29**	0.27**
	(2.53)	(2.33)	(1.79)	(1.85)
PY_t	...	−0.00003*	...	−0.00003*
	...	(3.24)	...	(3.42)
P_t	...	0.003*	...	−0.002
	...	(5.88)	...	(0.49)
CONSTANT	0.38*	0.005	0.005*	0.01
	(9.53)	(0.11)	(2.69)	(1.27)
$\bar{R}^2$	0.92	0.96	0.53	0.63
RHO	0.94	0.82	...	...
DW STAT	1.12	1.62	1.88	1.84

Absolute value of t-statistics in parentheses.

[a] Actual value of variables, estimates corrected for first-order serial correlation.

[b] Variables are first-differences.

* Significant at the 95 percent level, two-tailed test.

** Significant at the 90 percent level, two-tailed test.

D^*_t = annual growth rate of D_t;
G_t = share of federal grants-in-aid to state and local governments in total state and local receipts in time t;
G^*_t = annual growth rate of G_t;
X_t = control variables in time t;
X^*_t = annual growth rate of X_t; and
e_t, u_t = random disturbance terms.

Equations (1) and (2) are identical to Marlow's estimating equations with the exception of the inclusion of the G_t and G^*_t variables, respectively.

Government activity variables, L_t and L^*_t, are expected to be negatively correlated with D_t and D^*_t, respectively, and positively correlated with G_t and G^*_t, respectively. The control variables included are the same as Marlow's: per capita disposable income (in 1982 dollars) PY_t and PY^*_t, and population (in millions) P_t and P^*_t. All data are for the period 1946–86 and are from the Council of Economic Advisors (1987).

Table 1 reports estimates of equation (1) both with and without the control variables. Being subject to serial correlation, the results reported for equations (1.1) and (1.2) have been corrected for first-degree serial correlation using the Cochrane-Orcutt technique. Equation (1) was also estimated using first-differences of the variables as an alternative means of correcting for serial correlation. These results are reported in equations (1.3) and (1.4).

Table 2. Regression results

Variable	Est. coefficients (2.1)	(2.2)
D^*_t	−0.70*	−0.76*
	(7.50)	(8.86)
G^*_t	0.17**	0.12
	(1.83)	(1.39)
PY^*_t	...	−0.70*
	...	(2.58)
P^*_t	...	2.21
	...	(1.29)
CONSTANT	0.02*	0.002
	(2.65)	(0.08)
$\bar{R}^2$	0.59	0.66
DW STAT	1.87	1.69

Absolute value of t-statistics in parentheses.

* Significant at the 95 percent level, two-tailed test.

** Significant at the 90 percent level, two-tailed test.

The evidence reported in Table 1 is consistent with Marlow's findings. The fiscal decentralization variable, D_t, is inversely correlated with government size and its coefficient is significant at the 95 percent level or better in all four equations. The coefficients for PY_t and P_t are, in general, also consistent with Marlow's results.

The coefficient of G_t is positive, as hypothesized, and significant at the 95 percent level for regressions (1.1) and (1.2), and the 90 percent level for the regressions (1.3) and (1.4). The positive correlation with public sector size is consistent with the Brennan and Buchanan hypothesis that governments will collude to moderate the discipline of competitive federalism, with the collusion taking the form of intergovernmental grants. This evidence offers further support for the use of Brennan and Buchanan's monopoly government assumptions.

Table 2 reports the estimates for equation (2). Tests for serial correlation were not significant at the 95 percent level, so only the ordinary least squares estimates are reported.

The evidence is, again, consistent with and supportive of Marlow's findings. The evidence supporting of the collusion hypothesis is, however, not as strong. Though the coefficient for G^*_t is positive in both equations (2.1) and (2.2), it is significant at the 90 percent level only in equation (2.1). Inclusion of the two control variables results in the coefficient for G^*_t becoming insignificant.

Though the coefficient for G^*_t is insignificant under a two-tailed test, it is significant at the 90 percent level for a one-tailed test which may be the more

appropriate test to employ. The existing theory of the impact of grants on recipient government expenditures argues that $a_3 > 0$ (see Gramlich, 1977, for a review of the literature and empirical evidence), while the literature on the impact of grants on grantor government expenditures suggests that $a_3 < 0$ (see Hammes and Wills, 1987; Hewitt, 1986; and Logan, 1986). As to the overall impact of grants, Grossman (1987) argues that an interest group theory of governments suggests $a_3 > 0$. At the grantor government level, the burden of financing grants is likely to fall disproportionately on increased taxation, since the burden can be borne by broad-based taxes with the cost per taxpayer relatively low. At the recipient government level, grants are more likely to be used to increase expenditures favored by interest groups with high benefits per member than to reduce general tax levels with low benefits per taxpayer. Grossman reports strong empirical evidence in support of this hypothesis.

3. Conclusion

This paper offers further support for the use of Brennan and Buchanan's monopoly government assumptions in public sector modeling. Though fiscal decentralization may serve as a constraint on the behavior of revenue-maximizing governments, it may be circumvented, to some degree, by collusive agreements among lower-level governments and the central governments. The discipline of competitive federalism can be weakened by tax collusion among the separate governmental units. This tax collusion may take the form of transfers of taxing powers to the central government coupled with revenue-sharing agreements taking the form of intergovernmental grants. The evidence presented in this paper suggests that this is so and that this tax collusion is not an insignificant factor in determining the size of the public sector.

Note

1. In a recent paper, Anderson and Tollison (1988) offered evidence that competition in the electoral process will increase government spending. Their model, however, was more an examination of competition within a governmental unit rather than competition between governmental units.

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