

Fiscal decentralization and government size

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Abstract

Numerous studies have attempted to model the possible factors contributing to universal growth in public sectors. This paper analyzes one device that appears capable of controlling some of that growth: fiscal decentralization. The results reported here also support the use of monopoly government assumptions in models of public policy

1. Introduction

Scholars attempting to isolate the underlying causes of public sector growth have modeled Wagner's law, budget-maximizing bureaucrats, behavior of special interest groups, the effect of rising tax revenues on government expenditures and many other factors.¹ Studies have also examined the empirical relation between macroeconomic growth and public sector size and growth.² A recent avenue of research is concerned with devising effective constraints on government size and growth. This paper studies the Brennan and Buchanan (1977, 1980) hypothesis that fiscal decentralization is one behavioral constraint that determines public sector size. Empirical verification of the hypothesis would lend support for the Leviathan view of government that models public sector behavior as driven by self-interest subject to constraints. Moreover, evidence supporting the decentralization hypothesis would suggest that efforts initiated by the Reagan Administration to further decentralization will, over time, contribute to smaller total government in the United States.

2. Constructing limits on Leviathan

The public choice literature owes much to Downs (1957) and Buchanan and Tullock (1962) for questioning the public interest theory of government and for carrying over the reality of self-interest in the private sector to the study of pub-

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lic sectors. Economic behavior is assumed to be determined, in part, by behavioral constraints. Similar to the notion of a budget set constraining the behavior of private utility-maximizing consumers, political and economic constraints determine, in part, public servant behavior. An important implication is that when constraints do not undergo significant change over time, public sector behavior can be expected to be relatively invariant as well. Conversely, fundamental changes in constraints facing public servants are necessary ingredients for fundamental changes in behavior. Some condense this notion into the rubric: 'Institutions Matter.' Two examples are now discussed.

Milton Friedman (1986) recently concluded that much of his time was 'ill spent' in attempting to persuade the Federal Reserve System to adopt more monetarist proposals. He states that his assumption that government servants maximize the public interest was the underlying flaw. Rather, the behavior of Federal Reserve officials should be assumed to respond to self-interest. Friedman concludes: 'I'm not criticizing anybody except those who were responsible for setting up institutions that are not consistent with such a framework.' (p. 3). Optimal policy strategy in an environment of public officials pursuing self-interest would be determined '... by analyzing the changes in institutional arrangements that would bring about the desired results and trying to persuade the public to introduce those institutional changes rather than trying to influence policy makers directly' (p. 5).

Buchanan and Wagner (1977) provides another example. Taxpayer sensitivity to larger government is argued to be lower the more indirect the tax used to finance government spending. The argument is that the more direct the tax, the greater its 'pain'. The policy implication is that when governments have the ability to finance spending via debt finance and inflation, there will be relatively larger government sectors than in economies where governments are financed 'more directly.' In other words, the methods available to finance public sector spending determine, in part, the relevant definition of 'institutions'. Buchanan and Wagner argue that adding a balanced budget amendment to the constitution would alter the public sector's propensity for deficit finance and spending growth.

3. Fiscal decentralization hypothesis

The decentralization hypothesis is that 'Total government intrusion into the economy should be smaller, *ceteris paribus*, the greater the extent to which taxes and expenditures are decentralized' (Brennan and Buchanan, 1980: 15). The means by which a move toward fiscal centralization may affect government size may be seen through its effect on the government's budget, or opportunity, set. Manage and Marlow (1986) argue that public spending is constrained by

the government's *total* budget constraint. The sum of direct legislated taxation, inflation-related taxes and net debt issue constitutes the forms of public finance and determines the opportunity set facing the public sector. Changes in fiscal decentralization can only affect the total ability of government to spend through effects on the three forms of public finance.

If greater decentralization in government increases competition in the public sector, then greater decentralization may lead to relatively lower tax burdens. That is, the greater the numbers of alternative fiscal jurisdictions, the greater the potential competition of the public sector. The lower the degree of monopoly, the less likely that 'excessive' tax payments are extracted from taxpayers which foster 'large' public sectors. Furthermore, greater government centralization restricts the abilities of states to compete for residents through efficient political environments since a growing Federal share of total government may weaken their importance in overall governmental activity.³

In terms of inflationary finance, greater fiscal centralization may generate greater reliance on inflationary finance since the ability to print money is granted only to the Central government. Centralization and deficit finance may also be related since many argue that state governments operate under relatively more binding funding constraints than does the Federal government.⁴ In terms of both inflationary and deficit finance, these expectations may suggest that rising centralization generates rising spending opportunities.

The above suggests that trends toward fiscal centralization expand the opportunity sets of governments. While some of the changes in the usage of the three methods of public finance may represent changing allocations among the three due to changes in relative funding costs, the fiscal decentralization hypothesis argues that, other things being equal, centralization and gross spending opportunities are positively related. Conversely, *ceteris paribus* movements toward greater decentralization are hypothesized to yield smaller aggregate spending opportunities.

Three potential problems with the decentralization hypothesis are addressed. *One*, a commonly – accepted view asserts that public desire for a large defense establishment must cause a more concentrated government. This observation follows from the argument that national defense is not efficiently provided by state and local governments and the desire to enlarge government via the defense establishment has caused increased centralization and not the other way around. While, if correct, this argument may suggest a causality problem with the decentralization hypothesis, the evidence doesn't support its premise. Chart 1 clearly demonstrates that national defense outlays can not be blamed for rising centralization.⁵ As either a percentage of GNP or total budget outlays, national defense outlays have exhibited falling trends over our time period and therefore do not appear to be a contributory force in driving the centralization trend.

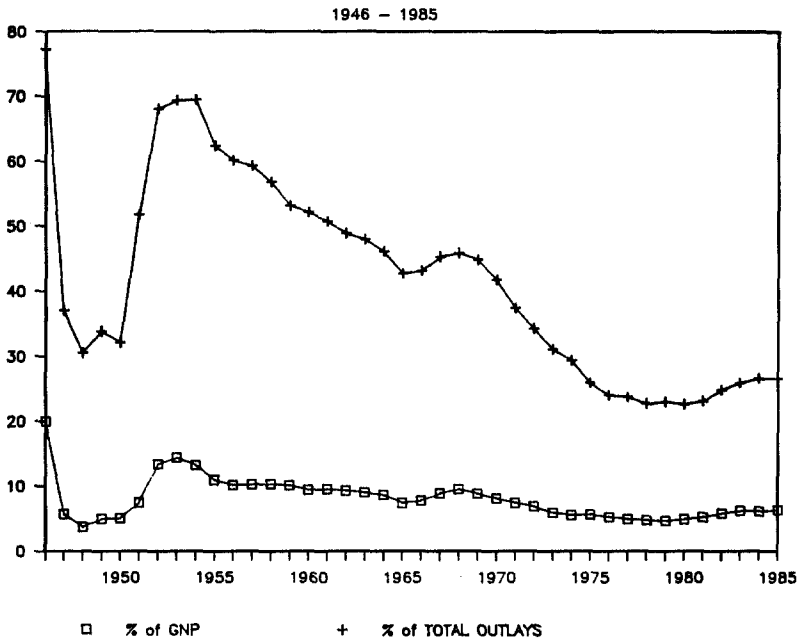


Chart 1. National defense outlays

Second, some might argue that rising social expenditures must drive an inverse relation between public sector size and decentralization. Clearly Federal outlays on such items as health, income security, social security, and VA benefits constitute growing portions of total outlays and GNP. However, because these services do not necessarily require Federal funding, growing demand for these services need not dictate an inverse relation between public sector size and decentralization.⁶

Three, some might argue that the products of the different levels of government are fairly heterogeneous. That is, state and local governments produce apples while the Federal government produces oranges. If true, then the potential for intergovernmental competition becomes a weaker argument in support of the decentralization hypothesis. Further research on the substitutability of government products may show to what extent this issue is important and how it will suggest future testing of the hypothesis.

4. Previous research on the decentralization hypothesis

Chart 2 displays the level of U.S. fiscal decentralization over 1939–85. Decentralization, or the ratio of state and local government expenditures-to-total government expenditures, changed from growing decentralization over the

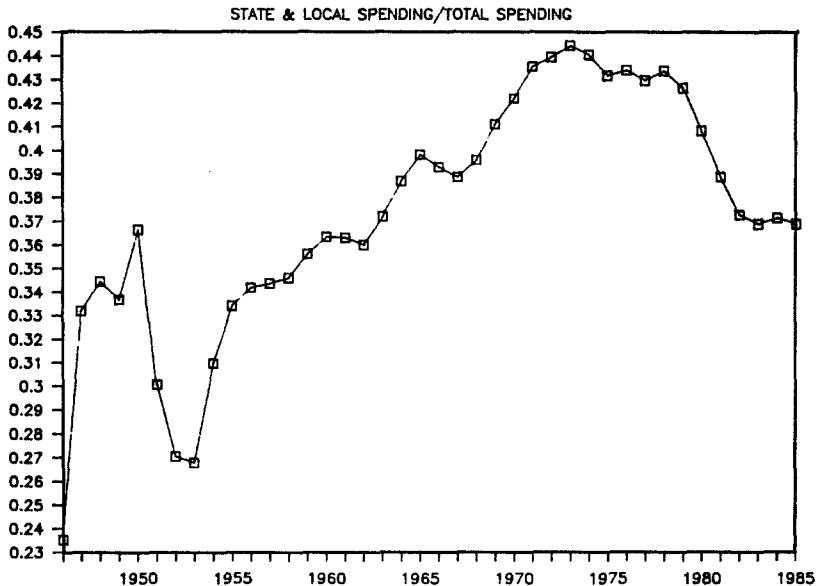


Chart 2. Government decentralization 1946-85

1950s and 1960s to growing centralization since the 1970s. Friedman and Friedman (1984: 16) shows that Federal nondefense spending was nearly constant for close to 150 years prior to the period around 1930. By 1930, state and local expenditures were approximately over three times the size of Federal expenditures and the economy could be classified as one with a truly decentralized government system. However, after the Great Depression, both Federal and state and local spending rose; however, the Federal share rose at a more rapid pace.

The 1950s and 1960s were periods of rising decentralization; state and local government expenditure shares of total government expenditures rose from approximately 25% to 43%.⁷ Buchanan and Wagner (1977: 57), argues that state and local government expenditures may be stimulated when Federal grants are offered on a matching basis. This may explain, in part, the behavior of decentralization over this period. Since the Reagan Administration has attempted to deemphasize the use of grants-in-aid to state and local governments, the trend toward Federal government promotion of state and local government growth may have been reversed.

Two recent papers study the empirical relation between decentralization and government size. Oates (1985) tests state-local government behavior in the United States and of 43 countries and fails to support the decentralization hypothesis. In Nelson (1986), no evidence is determined in support of the hypothesis for the United States. In fact, Nelson provides some evidence that more decentralized states levy relatively higher taxes, *ceteris paribus*, than less

decentralized states. Two reasons suggest that these results may be suspect.

One, the desirability of measuring decentralization at the state-local levels rather than the Federal-state and local levels is questionable.⁸ Both studies define decentralization as the ratio of local government activity over the sum of state and local government activity. That is, their measure of total government activity – the sum of state and local government activity – excludes the Federal government sector. However, it would appear that the most obvious measure of total government in the U.S. would be the sum of state, local and Federal government levels and such a measure is certainly consistent with the wording ‘total government intrusion’ in Brennan and Buchanan (1980). By concentrating on state and local units, Oates (1985) and Nelson (1986) test the decentralization hypothesis on a subset of total government activity; e.g., over one-half of recent U.S. government expenditure activity is not reflected. The 1984 ratio of state and local government expenditures to total (state, local and Federal) government expenditures is 37%. These studies do not necessarily provide interesting implications for the usefulness of the decentralization hypothesis at the aggregate levels of government. Tests which omit Federal government activity provide, *at best*, weak tests of the decentralization – total government size hypothesis.

Two, Oates (1985) and Nelson (1986) measure the relative size of government in terms of tax receipts. The problem here stems from the fact that government spending is financed from several sources. Tax receipts are either legislated (direct) or raised through inflation (indirect); debt must finance residual expenditures not covered by tax receipts. In this sense, current expenditures are always balanced by total finances. Since the Federal government has operated persistent deficits since 1970, tax revenue measures of Federal government activity produce underestimates of public sector size. For example, Federal revenues and expenditures in 1984 as shares of GNP were .19 and .24, respectively. Consequently, government expenditure measures provide more meaningful measures of public sector size by concentrating on a more complete measure of total resource absorption by governments.

5. Empirical tests of the decentralization hypothesis

A data series on total, Federal and state-local levels of U.S. government is constructed over 1946–85. Choice of this time period is dictated by the desire to omit high transitory levels of WW II – related Federal spending. Data on expenditures control for Federal grants-in-aid to state and local governments by counting that item under Federal expenditures only. All data used in the regressions below are obtained from Council of Economic Advisers (1986).

As discussed above, decentralization of the public sector is probably best

considered in terms of expenditures and measured by ratios of Federal-to-nonfederal government sectors. Accordingly, decentralization DEC_t is the ratio of state and local expenditures-to-total government expenditures. Total government expenditures are the sum of state, local and Federal government expenditures. The absolute size of the total government sector L_t is measured as the ratio of Federal and nonfederal expenditures-to-GNP and, as an alternative measure, L_t^* measures annual growth in Leviathan.⁹

The following equations are estimated.

$$L_t = a_0 + a_1 D_t + a_2 X_t + e_t \quad (1)$$

$$L_t^* = a_0 + a_1 D_t^* + a_2 X_t^* + u_t \quad (2)$$

where L_t = total government expenditure as a share of GNP in time t

L_t^* = annual growth in total government expenditure as a share of GNP in time t

D_t = share of state and local expenditure in total government expenditure in time t .

D_t^* = annual growth in D_t

X_t = control variables in time t

X_t^* = annual growth in X_t , and

e_t, u_t = random disturbance terms.

Equation (1) is estimated by ordinary least squares and, as in Oates (1985), takes the logistic transformation $LT_t = \log(L_t/(1-L_t))$ to allow the dependent variable to range over the whole set of real numbers.

The decentralization hypothesis suggests inverse relations between decentralization DEC_t and public sector size L_t and public sector growth L_t^* . Two control variables are considered: real per capita disposable income PCY_t (1982 dollars) and population POP (in thousands).¹⁰ PCY_t controls for the influence of Wagner's Law that argues that rising income is positively related to government growth. The control for population POP acts as a scale variable.

Table 1 displays estimates of equation (1) both with and without control variables. Equation (1.1) estimates the simple relation between decentralization and total government size and finds a significant and positive relation. Equation (1.2), which includes control variables, finds a statistically significant and inverse relation between decentralization and public sector size.

Since both (1.1) and (1.2) are subject to serial correlation, equations (1.3) and (1.4) adjust for first-order serial correlation using the Cochrane-Orcutt technique. Support of the decentralization hypothesis is provided in both equations. Real per capita income PCY exerts a negative effect that is statistically significant at the 10 percent level of confidence – a result suggesting that public sector size is an income-inferior good. Population POP is found to exert an effect both statistically significant and positive on public sector size.

Table 1. Regression results: Government size – decentralization relation*
 Dependent variable: Total government expenditures/GNP

Equ.	Intercept	DEC _t	PCY _t	POP _t	Rho	D – W	\bar{R}^2
(1.1)	.100 (2.39)	.506 (4.70)				.54	.35
(1.2)	.015 (.51)	-.178 (2.78)	-7.4E-06 (1.31)	.002 (5.48)		.88	.90
(1.3)	.552 (14.3)	-.528 (7.04)			.93	1.96	.94
(1.4)	.100 (.70)	-.514 (7.08)	-.0002 (2.43)	.003 (3.16)	.89	1.69	.95

Dependent variable: First differences in total government expenditures/GNP

Equ.	Intercept	DEC _t	PCY _t	POP		D – W	\bar{R}^2
(1.5)	.005 (1.42)	-1.007 (9.49)				1.83	.69
(1.6)	.004 (2.06)	-.970 (9.07)	-4.7E-06 (.23)	.020 (2.43)		1.63	.73

*t-statistics in parentheses.

DEC_t = non-Federal expenditures/total government expenditures.

PCY_t = real \$1972 per capita disposable income.

POP_t = population in millions.

Tests are also conducted using first-differences of all variables as an alternative means of adjusting for the existence of first-order serial correlation in (1.1) and (1.2). Results of this data transformation are shown in Equations (1.5) and (1.6) and, besides the coefficient on per capita income becoming statistically insignificant, the results do not change and the hypothesis of zero serial correlation is not rejected at the 5% level. Though not reported here, the inclusion of a time variable in (1.2) and (1.4) as an independent variable did not alter the results – therefore providing further evidence that the observed relation between government size and decentralization is not related to some time trend outside the investigation.

Table 2 displays estimates of equation (2) using growth rate rather than level data. The transformation is $X_t = 100 \times (\log(X_t) - \log(X_{t-1}))$. The results of equation (2), with and without control variables, do not differ substantially from those of equation (1). Equations (2.1) and (2.2) are subject to substantial serial correlation. Using the Cochane-Orcutt technique to adjust for serial correlation, equations (2.3) and (2.4) provide substantial support for the hypothesis that decentralization growth inversely affects government growth. The equations (2.5) and (2.6) provide estimates using first-differences of growth data to adjust for serial correlation and continue to provide support of the decentrali-

Table 2. Regression results: Government growth – decentralization growth relation*

Dependent variable: Annual growth rate of total gov't expenditures/GNP

Equ.	Intercept	DECR _t	PCYR _t	POPR _t	Rho	D – W	\bar{R}^2
(2.1)	1.96 (2.91)	– .747 (17.61)				1.71	.89
(2.2)	– .619 (.25)	– .795 (19.45)	– .764 (2.80)	3.03 (1.81)		1.52	.91
(2.3)	1.92 (2.77)	– .633 (6.72)			.04	1.88	.57
(2.4)	.624 (.21)	– .714 (6.80)	– .886 (3.43)	2.29 (1.11)	.22	1.93	.67

Dependent variable: First differences in annual growth rate of total gov't expenditure/GNP

Equ.	Intercept	DECR _t	PCYR _t	POPR _t	D – W	\bar{R}^2
(2.5)	.030 (.03)	– .815 (3.37)			2.64	.86
(2.6)	.111 (.16)	– .808 (17.13)	– .952 (3.96)	1.03 (.24)	2.56	.90

*t-statistics in parentheses.

DECR_t = annual growth rate of non-Federal expenditures/total government expenditures.

PCYR_t = annual growth rate of real \$1972 per capita disposable income.

POPR_t = annual growth rate of population in millions.

zation hypothesis, as well as further evidence that the estimated relation is not related to a time-trend outside the investigation.

6. Concluding remarks

There is no question that the public sectors of industrialized economies have displayed a propensity for growth over this century. Despite this historical pattern, the results of this paper should be encouraging for those concerned with growing public sectors. Fiscal decentralization appears to be a viable means of lowering, or controlling, the extent of total governmental activity. This empirical result lends support for the use of monopoly government assumptions in models of public policy and suggests that shifting of government responsibilities from the Federal to the state and local government sectors is a policy action that will contribute toward a slowing, or falling, of public sector size and growth in the United States.

This paper should be considered to be an initial attempt at modeling the decentralization-government size relation over time. Further research should be directed toward issues that may complicate the modeling of the relation. For example, if certain government programs imply or require a Federal role, then

growth of these government programs may cause growing fiscal centralization. Some argue that military spending is a program in this category. While this may be true, we have shown evidence that military spending can not be blamed for increased centralization over our time period. However, further research in this area may provide us with programs that may fit into this category and can be blamed for increased centralization. Research on the substitutability between different levels of government may also suggest products where little potential exists for competition between governments. Future research may attempt to eliminate those areas from the empirical testing of the hypothesis. Another avenue for research would be to examine how public policies may be designed to foster changes in fiscal centralization.

Notes

1. See, for example, Gupta (1967), Niskanen (1971), Olsen (1965), Meltzer and Richards (1983), Manage and Marlow (1986) and Marlow and Orzechowski (1987).
2. See, for example, Landau (1983), Weede (1984), Ram (1986) and Marlow (1986).
3. See Council of Economic Advisers (1982) for this argument.
4. See Marlow and Manage (1987) for a discussion of this issue.
5. Data from Table – 6.2 in Office of Management and Budget (1986).
6. Furthermore, the growth of these services represents the interplay of many forces: changes in demographics, income, special interest powers and relative shifts in technology and costs. Without further investigation, the *a priori* net sum of these supply and demand sources for public services can not predetermine a bias toward federal (over state and local) government growth.
7. Buchanan and Wagner (1977: 57) argues that much of the state and local finance data are misleading due to Federal grants to state and local governments. It is noted that my data adjusts for such duplication.
8. It is noted that Nelson (1986) tests the decentralization hypothesis using a measure of government centralization – state government share of state and local government taxes.
9. Clearly, this measure of total public sector size represents an underestimate of the ‘true’ size of public sectors. However, the ‘true’ size is unobservable due to inability to consistently aggregate all of the many varied cases of public sector involvement in the economy. These cases include property right enforcement, regulations, tariffs, subsidies on social and economic activities, monetary policy, and taxation policies. One recent approach to the measurement is found in Shugart and Tollison (1986) where the size of government is examined by analyzing the legislative output of the U.S. Congress.
10. Oates (1985) found a positive and statistically significant coefficient for PCY and a coefficient not statistically different from zero on POP. Lack of consistent data on urban population dictated its exclusion here; a control variable that was statistically significant from zero in one-third of Oates’ estimated equations.

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