Constituency Size and Government Spending

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Abstract

In the economic model of government, the size of the legislature is a variable whose effect on government spending is not predictable a priori. The authors show that an alternative measure, constituency size, defined as the number of constituents per legislator, is positively related to state government spending. This suggests that increases in constituency size over time may account for the increase in the size of government. The size of the legislature could be manipulated to control constituency size and thereby provide an effective check on government spending.

CONSTITUENCY SIZE AND GOVERNMENT SPENDING

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The legislature is close to the center of the reasons that government size differs across place and circumstances and changes over time, and it is time that explanations of such matters woke up to this fact.[1]

1. INTRODUCTION

The general tendency of government to grow over time is a crucial social problem. A plethora of competing explanations and the difficulty of measuring the size and scope of government accurately complicate the study of this problem. Many explanations ignore the economic structure of government, but we believe that factors such as the

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size of the legislature play a pivotal role in the production of legislation and the growth of government.

In the economic theory of government, the effect of the size of the legislature on government spending is not predictable a priori. We argue that constituency size, defined as the number of constituents per legislator, not the absolute size of the legislature, is the relevant size variable in the determination of government spending. Smaller constituency size is expected to improve constituent monitoring of legislators, enhance legislators' representation of constituent interests, and hence result in lower levels of government spending relative to legislatures with larger constituency size. Using state-level data, constituency size is found to be positively related to state government spending. This suggests that the combination of fixed-sized legislatures and population growth may help explain the tendency of governments to grow over time. As a policy variable, constituency size could be manipulated by linking the size of the legislature to population growth and thus help control the age-old problem of excessive government growth.

2. THE THEORY OF LEGISLATURE SIZE

Stigler (1976) asked a fundamental economic question: How well do legislatures of different size represent the population? In response, Crain (1979) provided an extensive model of legislative output based on constituent interests and legislative decision-making costs. For example, bicameralism[2] is positively related to the number of bills passed because as the two houses equalize in size, the disparity between representative interests shrinks and legislative decision-making costs decrease. Crain found the impact of legislature size on the production of legislation to be indeterminate because the greater production costs required for assembling a majority coalition could be offset by the increased labor specialization of the committee system.[3] More generally, a larger legislature could reduce the price of votes and the cost of achieving legislative majorities and therefore lead to an increase in government. Alternatively, it could increase the cost of achieving majorities by increasing decision-making costs and therefore reduce government.

McCormick and Tollison (1981, chap. 3) explore the impact of legislature size on the supply and demand of wealth transfers in the context of regulation and occupational licensing laws. They theorize that lobbyists prefer small legislatures and that increases in legislature size increase the cost of lobbying and decrease wealth transfer activity. McCormick and Tollison found legislature size to be negatively related to the production of wealth transfers, but their statistical evidence was weak. They found legislature size to be a significant determinant of the number of bills passed in only one of six regressions. Legislature size was found to be significant in only one of three regressions on occupational licensing and in only one of four on regulatory expenditures. Although legislature size is clearly important, the evidence in their study suggests that it may merely draw down the statistical significance of other variables such as bicameralism.[4]

Two studies of note have found that legislature size is positively related to the growth in government spending. Shughart and Tollison (1986) found the total size of Congress to be positively related to the number of bills passed and more generally that legislative output is positively related to government spending. Gilligan and Matsusaka (1995) also found that legislature size is positively related to state government expenditures based on the Weingast model in which larger legislatures produce greater amounts of legislation via logrolling.

The positive relationship between legislature size and government is a weak one. Gilligan and Matsusaka (1995), for example, found that the size of the Senate was positive and significant but that the size of the House was statistically insignificant and only marginally positive. Even these poor results could be explained by the omission of the well-established variable of bicameralism and constituency size from their study.

The time-series nature of Shughart and Tollison (1986) makes causation a guessing game because both government and the size of the legislature (along with virtually everything else) are increasing over time.[5] There are also some more direct reasons to question the leap from legislative output to government spending. Larger size may result in greater legislative output in terms of the number of bills introduced and passed, but this does not automatically translate into increased government size, scope, or spending. As Shughart and

Tollison point out, it is important to recognize that not all government activities are a monotone transformation of budgetary expenditures.

In fact, they found that private bills (which tend not to increase government) and public bills (which do tend to increase government) are substitutes and that the production of private bills is negatively related to per capita government spending.[6] Because private bills tend to be either insignificant in terms of the size and scope of government or to transfer resources from the public to the private sector, the distinction between types of bills is important to the issue of the growth of government. A larger legislature might pass more bills but not necessarily increase the size of government.

3. THEORY, MODEL, AND RESULTS

The size of the legislature plays a central role in the economic theory of government just as the size of the firm plays a central role in industrial organization. However, the impact of legislature size on government production is considered indeterminate, and the empirical results have been mixed. To better model government, we argue that legislature size should be measured as constituency size, which is expected to be positively related to government spending because of its clear effects on legislative decision-making costs and the representation of interests.

As the number of constituents per legislator increases, it becomes more difficult for constituents to monitor their representatives. Voters are less likely to know their representatives or to have direct information about their legislators' voting records. A higher percentage of voters must rely on higher-cost monitoring methods as constituency size increases. Smaller constituency size reduces monitoring costs and therefore can improve monitoring and representation of constituent interests.[7]

Smaller constituency size also produces districts that are more homogeneous in terms of population and economic interests. When interests are not divided within the district, representatives find it more costly to trade their votes. It is more costly for a legislator from a district with relatively homogeneous interests to vote against a bill in his

or her district's interest or to vote for a bill that is not in the district's interest compared to legislators from districts with relatively diverse interests.

Smaller constituency size also means that individual legislators are relatively weak and have less influence. McCormick and Tollison (1981, 33) classed this result the "small-fish-in-the-pond effect."[8] Larger legislatures may increase the cost of producing legislation because although the price of individual votes is lower, interest groups must purchase more votes to produce legislation. At extremely low prices, the interests of constituents and the legislator's own interests will successfully compete against those of organized interest groups. Most important, if the "small-fish" effect produces a greater turnover rate in the legislature, then the cost of producing legislation may increase even more.[9]

Smaller constituency size does imply larger legislature size, and although this does increase the opportunities for logrolling, it does not automatically translate into more government. First, the number of bills introduced will increase and the number of bills passed may increase, but this increased production could be composed of private bills that do not increase government. Second, and more important, although the opportunities for logrolling increase, so do the costs. Transaction costs theory indicates that a larger legislature would increase the cost of producing legislation and thus act as a check on the growth of government. In collusive activities, smaller numbers are preferred, and therefore a larger legislature would reduce legislative production and government spending.

Smaller constituency size therefore acts as a check on the expansion of government because it makes public bills more difficult to pass and forces legislators to better represent the interests of their constituents. Following Peltzman (1992) and Matsusaka (1995), voters are assumed to want a smaller government relative to the legislators themselves.[10] Therefore, we expect constituency size to act as a measure of legislature size that is positively related to the size and scope of government.

To test this relationship, per capita state government spending is modeled as a function of traditional variables such as bicameralism, federal transfers, income, and population plus constituency size vari-

ables for both House and Senate. Dummy variables are used for each year to control for time-series effects. The least squares dummy variable or one-way fixed-effect model presented below is tested using data from 49 American states from 1987 to 1991.[11]

$$G = I + FED + BIC + INC + P/H + P/S + P,$$

where

G	=	state government spending per capita,
I	=	intercept-constant term,
FED	=	federal spending in state per capita,
BIC	=	bicameralism (House size/Senate size),
INC	=	state per capita income,
P/H	=	House constituency size (Pop/House size),
P/S	=	Senate constituency size (Pop/Senate size),
P	=	population,
D87	=	Dummy—1987,
D88	=	Dummy—1988,
D89	=	Dummy—1989,
D90	=	Dummy—1990.

Bicameralism and population are expected to have a negative effect on per capita government spending. Federal spending, income, and constituency size variables are all expected to have a positive effect on government spending. The dummy variables control for time-series effects. Our results are listed in Table 1.

All variables were found to be significant at the .01 level except the constituency size of House members (P/H), which was significant at the .13 level. This lower level of significance can be attributed to the fact that bicameralism, House size, and Senate size have been found to draw down each other's significance when included in the same regression. The *R*-square value of .65 is outstanding for a regression estimated with a relative value (per capita spending) as the dependent variable.[12]

Federal spending per capita is positive and statistically significant, as expected. Federal spending increases state spending because of several institutional factors such as federal matching programs. Bicameralism is negative and significant, as expected. The greater the difference in House and Senate sizes, the harder it is to reach agree-

TABLE 1: Regression Results

Variable	*Parameter Estimate*	t *Statistic*
I	–1909.498453	(–7.479)**
FED	3.497926	(16.428)**
BIC	–51.456914	(–3.099)**
INC	0.110985	(9.242)**
P/H	0.002577	(1.501)*
P/S	0.003819	(3.856)**
P	–0.000144	(–5.949)**
D87	913.800304	(7.583)**
D88	644.126483	(5.771)**
D89	572.117968	(5.466)**
D90	504.222085	(4.919)**

NOTE: R^2 = 0.6546, adjusted R^2 = 0.6399. Number of observations = 244. See text for definitions of variables.
* Significant at the .13 level. ** Significant at the .01 level.

ment on legislation and spending. We present summary statistics in Table 2.

Per capita income is positive and significant as expected, but the elasticity coefficient was less than 1. This result does not support Wagner's law, which suggests that increases in income will increase the relative size of government. Population is negative and significant as expected. States with larger populations are expected to have larger governments but lower levels of per capita spending because of economies of scale in the provision of state government services.

House and Senate constituency sizes are both positive and significant as expected.[13] Larger constituency size produces higher levels of per capita government spending, whereas smaller constituency size tends to reduce the level of government spending.[14] Our empirical results suggest that constituency size has a smaller impact on state government spending relative to variables such as federal spending.[15] However, we expect constituency size to have a similar if not more important effect on federal government spending and thus increase the significance that constituency size truly plays in determining state government spending. These results demonstrate that constituency size is an important determinant of government spending and effective representation.[16]

TABLE 2: Summary Statistics—Panel Data: United States, 1987-1991

	GPOP	*FED*	*BIC*	*P/H*	*P/S*	*POP (000)*	*INC*	*S*	*H*
Mean	1,975	508	2.96	47,027	124,057	5,001	16,757	39.7	112
Median	1,798	471	2.46	32,380	92,488	3,437	16,575	39.0	100
Minimum	987	186	1.67	2,636	11,964	453	2,485	20	40
Maximum	7,746	1,289	16.67	379,946	759,893	30,396	26,810	67	400
Count	245	245	245.00	245	245	245	245	245	245

NOTE: See text for definitions of variables.

4. CONCLUSIONS

Stigler (1976) posed a fundamental question about the size of the legislature: How well do legislatures of different sizes represent their constituency? We have found that the size of the legislature is indeed close to the center of the reasons that government spending differs across time, place, and circumstance. Specifically, larger constituency size was positively related to state government spending. Therefore, smaller legislatures result in larger constituencies, poorer representation, and higher levels of government spending per capita.

Although this article does not directly address why governments grow over time, the evidence is very suggestive that constituency size provides an explanation for much of the trend, or upward drift in government spending, because of the fixed-sized nature of most legislatures.[17] Potentially, constituency size could be adjusted to control the growth of government. For example, the U.S. Constitution sets a minimum constituency size but no maximum. A maximum limit would link the size of the House of Representatives with population growth and thereby discourage the growth in government.[18]

NOTES

1. Crain et al. (1985, 314).

2. Here perfect bicameralism would consist of two houses of identical sizes. A legislature with a low degree of bicameralism would have two houses of radically different sizes and possibly with different bases of representation such as in the U.S. Congress, in which the House is based on population, but the Senate is based on state political borders. Alternatively, one house

could be large and based strictly on population, whereas the other house could be small and based on geographically defined districts. The first house would tend to support urban interests, and the second house would support rural interests, and this would reduce legislative output. We measure bicameralism as the size of the House divided by the size of the Senate.

3. Crain et al. (1985) show that greater legislator specialization (i.e., more committees) does lead to more government in terms of the number of government employees per capita. The typical lack of quorum rules for normal legislative business can also offset the increased cost of producing legislation.

4. Crain and Tollison (1977a) show that more restrictive voting rules can substitute for larger legislature size in controlling the excess production of legislation.

5. See Crain et al. (1985, 315 n. 4).

6. Private bills would include the refunds of payments to individuals, waivers of indebtedness, the payment of tort claims, and private immigration and naturalization. Bills passed to mint commemorative coins and to provide for official days of recognition obviously have a much smaller impact on the size and scope of government than bills designed to reform the tax code or declare war.

7. There are dramatic differences in constituency size. For example, in New Hampshire, there are approximately 2,500 constituents per legislator, and in California, there are a quarter million.

8. Crain, Deaton, and Tollison (1977) show that restrictions on the size of the legislature increase the value of legislative seats as population increases.

9. This would be especially true if larger legislatures resulted in a greater turnover rate because it would be more difficult to keep legislators bought over time. At extremely low prices, the interests of constituents and the legislator's own personal views could compete with the monetary incentives from special interest groups. Crain and Tollison (1977b) showed that seniority results in higher spending within the district.

10. Matsusaka (1995) found that when voters could set the agenda and vote directly through the initiative process, spending, taxes, and redistribution spending were lower compared to states without the initiative process. Peltzman (1992) also found voters to be fiscal conservatives compared to the legislators they elected.

11. We did not use data from Nebraska because it has a unicameral legislature.

12. In a model of the absolute level of government spending, *R*-square values in the upper .90s were achieved.

13. Constituency size of the House is only significant at the .13 level. House was significant at the .10 level, and bicameralism was significant at the .05 level in the ordinary least squares (OLS) estimation. We feel that House and bicameralism "steal" significance from one another. The fact that the panel data technique resulted in an increased significance level for bicameralism and a decreased level for House seems to confirm this.

14. To test for the possibility that our positive coefficients on our constituency size variables may be artifacts of the time-series properties of the data, we estimate separate regressions for each year and used these estimates to determine the relationship between our constituency size variables and per capita government spending. In 9 of 10 cases, we do get the predicted negative relationship between constituency size and government spending. Furthermore, in 7 of 10 cases, the estimates are statistically significant at the 10% level, and in 2 of the remaining 3 cases, they were close to being statistically significant at the 10% level. The probability that 7 of 10 cases violate the null hypothesis at the 10% level is less than 1/10 of 1%. We are therefore extremely confident that our findings are not a matter of chance and that the positive coefficients of our variables are not artifacts of the time-series properties of the data.

Hypothesis Tests	*1987*	*1988*	*1989*	*1990*	*1991*
Add a House rep and GPOP . . .	–2.3652	–2.0794	–2.1630	–2.5332	–1.6610
DGPOP/dH = 0, *t* statistics	–1.314*	–3.461**	–1.303*	–1.485*	–1.005
Add a Senate rep and GPOP . . .	–11.8601	0.1970	–9.6567	–8.3374	–9.8382
DGPOP/dS = 0, *t* statistics	–1.482*	0.071	–1.320*	–1.098	–1.346*

* Significant at the .10 level. ** Significant at the .01 level.

15. Our results suggest that in the average state, the addition of one representative would reduce spending by $5.5 million and that the addition of a senator would reduce spending by $40.5 million.

16. For example, Jackson, Saurman, and Shughart (1994) found that constituency size is an important determinant of state lottery adoption decisions. Atlas, Hendershott, and Zupan (1997) showed that the size of the constituency does have an impact on representation and the size of government. They find, however, that a smaller constituency for U.S. senators actually results in more government spending in their states. This, however, is the result of the nature of the Senate, which is based on political geography rather than population and masks the more general result that the smaller constituencies receive better representation of their interests.

17. This upward trend in government spending could be associated with Peacock and Wiseman's (1961) concentration process. This process is distinct from large discrete changes in government spending related to wars or constitutional changes that Peacock and Wiseman labeled the "displacement effect" and what Higgs (1987) labeled the "ratchet effect." The short-term cross-sectional nature of our evidence allows us to ignore such events and concentrate on the more puzzling issue of why government grows in the absence of such events or crises.

18. One important difference between the state and federal level is that a series of court cases in the 1960s and 1970s mandated "one man, one vote" rules (e.g., *Baker v. Carr*) so that state House and state senate districts must both be apportioned on the basis of population. The U.S. Senate is apportioned on the basis of two senators per state, whereas the U.S. House is apportioned on the basis of population.

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