Leviathan or Median-Voter: Who Runs City Hall?

Rexford E. Santerre*

INTRODUCTION

The Leviathan theory, advanced by Brennan and Buchanan [1980], posits that government, as a monopolist, seeks to maximize its own utility. In this model, government receives utility either directly or indirectly from excess public spending. Utility can accrue directly to government since excess public spending represents higher in-kind or money income for public bureaucrats. Alternatively stated, excess public spending provides bureaucrats with greater amounts of the five P's: power, prestige, pay, perquisites and ability to award patronage.

Excess public spending may also indirectly provide utility to politicians as they satisfy the rent-seeking behavior of special interest groups. Politicians can increase their probability of becoming reelected by supplying wealth-redistributing special interest group legislation and, in return, demanding votes and campaign contributions from special interest groups. The special interest group legislation enables a politician to put together an overall majority of votes by combining various programs that benefit several separate interest groups with cost falling disproportionately on the general public. The implicit logrolling involved in satisfying the different demands of the various interest groups suggests that public spending is higher than the median level of expenditure.

Empirical studies, beginning with Oates [1985], have tested the Leviathan theory by determining the impact of political fragmentation and centralism on subnational government spending, *ceteris paribus*. Brennan and Buchanan [1980] note that greater competition among government units leads to lower amounts of spending if relatively unconstrained governments behave as revenue-maximizing Leviathans. Several studies conducted at the state (Nelson [1987]), county (Zax [1989]) and SMSA (Eberts and Gronberg [1988]) levels of aggregation have shown empirically that intrajurisdictional competition constrains government size.[1]

Focusing on the Leviathan effects of special interest groups rather than governmental competition, Olson [1982] draws a theoretical connection between years of democratic stability and increased government size. He argues theoretically that special interest groups have more time to accumulate during longer periods of democratic stability and finds empirically that years of democratic stability are directly related to the size and number of special interest groups in the states of the U.S. Moreover, Olson [p. 69] goes on to explain that "... distributional coalitions must use their lobbying power to influence governmental policy. ..." Extending Olson's analysis, Mueller and Murrell [1986] provide a more systematic theoretical linkage and find empirically that longer periods of democratic stability at the country level are associated with a larger public sector.

While many of these studies on governmental competition and special interest groups point to the relevance of the Leviathan theory for explaining government behavior and implicitly suggest that fiscal restraints are needed to harness the monopoly power of government, they have not focused specifically on city government behavior.[2] Yet, Forbes and Zampelli [1989, p. 569] note that the subcounty local

public sector is "a more favorable setting to test the Leviathan hypothesis." To fill this void, this study examines the effect of interjurisdictional competition and special interest groups on the size of city government. In particular, this paper aims to determine if Leviathan or the median-voter runs city hall.

To accomplish this objective, the median-voter framework is specified as the basis for the theoretical and empirical models. Other studies searching for Leviathan use pre-1972 empirical models that Borcherding and Deacon [1972, p. 891] argue were "*ad hoc* constructions with little basis in the theory of choice." Since the Leviathan monopoly model represents an alternative view of public sector behavior, the competitive median-voter model should be specified as the default model if the alternative Leviathan model fails to operate. Moreover, a focus on the median-voter enables a measure of tax-price that previous Leviathan studies fail to incorporate in their empirical analyses.

The empirical results find mixed support for a Leviathan model of city government behavior. While more stable city governments are associated with higher public expenditures, as the model predicts, the findings also imply that greater interjurisdictional competition causes higher rather than lower city expenditures and government size. On balance, however, the results suggest that Leviathan does not run city hall.

THEORETICAL DEVELOPMENT OF THE EMPIRICAL MODEL

Suppose initially that the level of city expenditures is determined by the demands of the median-voter.[3] Downs [1957] points out that the median position may dominate all other collective political outcomes because city expenditures are decided by a simple majority voting rule in a public referendum or because politicians in a representative democracy gravitate towards the middle of the preference distribution to maximize their number of votes. In either case, the resulting desired expenditures of the median-voter (E_M) can be derived from a utility maximization model and expressed as a function of various exogenous variables influencing the median-voter's behavior including tax-price (P), income (Y), share of intergovernmental aid (A) and tastes (T), or[4]:

$$(1) \qquad E_M = E_M(P, Y, A, T).$$

The level of spending on local public goods is inversely related to tax-price but directly related to both increased income and intergovernmental aid since local public goods are typically found to be normal goods.

Now, consider how the city government might behave if it possessed some monopoly power. Rational voter ignorance (see Downs [1957]) and agenda control (see Filimon, Romer and Rosenthal [1982]) may provide the source of this power. As mentioned in the introduction, the government may use the monopoly power to directly or indirectly advance its own interests through excess public spending. Given an excess spending motivation behind the behavior of bureaucrats and politicians, equation 1 can be modified to incorporate this likely behavior in the following way:

$$(2) \qquad E_S = kE_M$$

where E_S represents the government expenditures supplied and k takes on values greater than or equal to one. When k equals one, the median-voter's desired level of expenditures is provided. Values of k greater than one imply that expenditures supplied exceed desired public expenditures. Fiscal institutions such as a Niskanen [1971] "all or none" situation or "reversion budgeting" can place the median-voter in a position where she is slightly better off with excessive expenditures than a much lower-than desired level of spending.[5] Obviously, the budget maximizing bureaucrat and politician wish to increase the value of k as much as possible. The willingness and ability to increase this "Leviathan multiplier" depends on various factors, however.

In particular, Brennan and Buchanan [1980] have argued that competition among government units limits the degree that officials can increase public spending. A larger number of jurisdictions provides a greater menu of choices for consumer-voters. More intense competition among communities affects the city government's ability to increase public expenditures beyond the median level as

consumer-voters shop around for the jurisdiction offering the most efficient fiscal package (Tiebout [1956]).

Also, Mueller and Murrell [1987, pp. 126–27] point out that the willingness to increase public expenditures is influenced by the number of special interest groups. To compete effectively for votes and campaign contributions, politicians may find themselves offering increasingly more wealth transfers as special interests groups grow in number. A larger number of special interest groups means that the demand for special interest legislation is higher and politicians must willingly compete to supply more wealth transfers. Thus, a greater number of special interest groups influences the willingness to increase the Leviathan multiplier. Both the degree of interjurisdictional competition (C) and number of special interest groups (N) can be specified in equation 2 to capture these influences.

$$(3) \qquad E_S = k(C, N) \cdot E_M$$

Note that the value of k decreases with C and increases with N, *ceteris paribus,* such that more interjurisdictional competition results in lower government expenditures and a greater number of special interest groups causes higher expenditures.

Substituting equation 1 into equation 3 yields the following function:

$$(4) \qquad E_S = k(C, N) \cdot E_M(P, Y, A, T)$$

or:

$$(5) \qquad E_S = E_S(C, N, P, Y, A, T).$$

Assuming that equation 5 represents a multiplicative exponential function and then taking the natural logarithm of this function yields:

$$(6) \qquad \ln E_S = B_0 + B_1 \ln C + B_2 \ln N + B_3 \ln P + B_4 \ln Y + B_5 \ln A + B_6 \ln T.$$

Equation 6 can be estimated to determine the effect of interjurisdictional competition (C) and special interest group activity (N) on the level of government spending. According to the Leviathan theory, the estimated coefficient on ln C should be negative ($B_1 < 0$). This theory also suggests that the parameter estimate on the variable representing the number of special interest groups will be positive ($B_2 > 0$). The median-voter model predicts that $B_3 < 0, B_4 > 0$, and $B_5 > 0$. The next section discusses the sample and data.

SAMPLE AND DATA

The sample contains 168 of the 170 cities in the United States with populations above 100,000 in 1980. Only Honolulu and Washington D.C. are not included. Honolulu is excluded because the state rather than the local government determines the amount of local public spending. Washington D.C. is not included because of its unique status as a federal capital. Large cities are selected as the sample to ensure the existence of rational voter ignorance. Tullock [1967] argues that the private net benefit of additional public sector information is lower in more populated jurisdictions. As mentioned above, rational voter ignorance may be a source of government monopoly power.[6]

Total municipal expenditures per capita (E_S) serve as the dependent variable in equation 6.[7] Municipal spending may differ across cities, however, because of different functional and fiscal responsibilities. Therefore, a number of control variables are used to hold constant across cities any state mandated or institutional differences in functional and fiscal responsibilities.[8] A state-specific index measuring the degree of functional discretion of cities (FUNC) is one of the control variables. This index was developed for the Advisory Council on Intergovernmental Relations by Zimmerman [1981]. Various state and local officials were surveyed concerning their perceptions of the amount of discretionary authority exercisable by each type of local government (e.g., townships, cities and counties) in their respective states. In particular, the authorities in each state rated from one to five the degree of functional autonomy that cities possess in their state. Higher values for this index imply that

cities in the state generally have less ability to expand their powers over a broader range of functions. Thus, lower city expenditures should be associated with higher values for this index, *ceteris paribus.*[9]

Also, 31 cities in the sample are not serviced by an independent county government because either the city and county are coterminous (e.g., New York, Boston) or no organized county governments exist in the state (i.e., Connecticut and Rhode Island). In this case, a dummy variable, representing the absence of an independent county government, is created (NICTY). Higher municipal expenditures should result when this dummy variable takes on the value of one since, in effect, the jurisdiction provides both municipal and county services.[10]

The degree of interjurisdictional competition (C) is measured in both absolute and relative terms following previous studies. For example, Zax [1989] uses governments per capita and per square mile within the county as a relative measure while Forbes and Zampelli [1989] use the absolute number of county governments to represent the degree of governmental competition. Eberts and Gronberg [1988] employ both ways to measure competition. In this paper, the absolute measure is represented by the number of all municipal governments (i.e. general purpose governments) in the SMSA and the relative measure is found by dividing the number of municipal governments by the population in the SMSA.[11] Municipal governments in the same SMSA compete for voters within the same relevant product and geographical markets. Following Olson's [1982] lead, the amount of time that the city has experienced democratic stability serves as a proxy for the number of special interests groups (N). Olson [1982] and Wallis and Oates [1988] use the year since achieving statehood status as the beginning period of democratic stability for states in the U.S. Their measure of democratic stability, however, is state rather than city specific so a different measure is used here.

Given that this study focuses on city government behavior, the year of incorporation as a city represents a reasonable benchmark to denote the beginning of democratic stability. The city can be regarded as the ultimate stage of progression from village, borough or incorporated town. Prior to incorporation as a city, the village or town is in a transitory stage within a hierarchy of local government structures, at least in terms of fiscal discretion.[12] The power to perform more services, to levy increased taxes and to borrow a greater amount of money is usually conferred when city status is realized. Adjustments to the incorporation date are made from some cities in the sample, however, because major disruptions may have had a significant effect on political stability.

First, twenty-six cities, such as New York City, Hartford, Philadelphia and Phoenix, incorporated before their states actually entered the union. Acclimation to a new Constitution may have had a destabilizing effect on the political economy of the city. In fact, some cities incorporated before the Revolutionary War took place. In this case, the year of statehood rather than the city incorporation date is used to represent the beginning date of democratic stability.

The second adjustment deals with thirty-four ex-confederate cities that incorporated before the end of reconstruction in 1877. Olson [1982] points out that the Civil War greatly affected democratic stability in the South. The war-torn south had to be rebuilt, carpetbagger corruption ruled some cities and federal troops occupied and partly controlled most confederate areas. Because of these events, the year 1878 is used as the beginning of democratic stability for confederate cities that incorporated before the end of reconstruction in 1877. No adjustments to the date are necessary for the nonconfederate cities that incorporated after their states entered the union and the ex-confederate cities that incorporated after 1877. Uninterrupted years of democratic stability are measured by subtracting the adjusted incorporation date from 1981, the year of the expenditure data.[13] For the 168 cities in the sample, the uninterrupted years of democratic stability range from six (Anchorage, Alaska) to 194 years (Philadelphia, PA) with a mean and standard deviation of 105 and 37 years, respectively.

Tax-price (P) is calculated in a novel way compared to other studies that use the median-voter framework (e.g., Bergstrom and Goodman [1973] or Filimon et al. [1982]) because cities in the sample rely to varying degrees on alternative tax sources (i.e., property taxes, city income taxes or city sales taxes). For example, Mobile, Alabama derives only 7.3% of its tax revenues from the property tax while Worcester, Massachusetts raises 99.5% of tax revenues from this same source. Tax-price is calculated by

the following formula:[14]

(7)   Tax-price $= [(V/V_T) \cdot P_t + (Y/Y_T) \cdot (1 - P_t)] \cdot POP$

where:

V   median value of owner-occupied housing
V_T net equalized valuation of all property computed by dividing net assessed valuation by the assessment to sales ratio.
P_t property taxes as a percent of total taxes
Y   median family income
Y_T total income in the city measured by multiplying per capita income by population (POP).

The large term in brackets measures the total tax-share of a hypothetical homeowner with median property values and median family income. Multiplying total tax-share by population gives tax-price. This tax-price reflects the median homeowner's cost of a \$1 increase in municipal spending on each person in the city. The first term in parentheses measures the median homeowner's property tax share. Most studies use this measure of tax-share but it is unsuitable here given that reliance on the property tax differs widely across the cities in the sample. The second term in parentheses, the income tax share, is based upon an assumption that city sales and income taxes are largely proportional taxes.[15]

The median-homeowner's share of intergovernmental aid (A) is calculated by multiplying the total tax-share in equation 7 by the total amount of federal and state aid to the city. Theoretically, this variable represents how much the median homeowner would receive from the city government if all aid was redistributed back to taxpayers based upon relative tax contributions. As a result, the median homeowner could allocate the share of aid among various private and public goods in order to maximize her utility.

EMPIRICAL RESULTS

Demographic and regional dummy variables are specified in equation 6 to control for tastes (T) and other exogenous determinants of municipal expenditures.[16] New England represents the default region. A capsule description of all variables can be found in Appendix A. Data sources are discussed in Appendix B. Table 1 shows the regression results where the estimated coefficients and the absolute value of their corresponding t-statistics, in parentheses, are shown opposite each explanatory variable. Columns 2 and 3 show the results for the relative and absolute measures of interjurisdictional competition, respectively.

The estimated coefficient on the variable representing the degree of interjurisdictional competition (COMP) is positive and highly significant in both regression equations. This result suggests that a higher-than median level of public expenditures occurs in cities that are located in SMSAs with a relatively large number of competing municipalities.[17] City expenditures are not very responsive to changes in competition, however. For example, the elasticity estimate on the competition variable in column 2 indicates that a ten percent increase in the number of competing governments per person in the SMSA leads to a one percent increase in per capita city expenditures, *ceteris paribus.*

This direct relation between the number of competing jurisdictions and government spending conflicts with prior expectations based on the Leviathan theory. According to Oates [1985], a direct relation of this type may reflect the loss of administrative scale economies that results from excessive political fragmentation. This finding can also be interpreted as offering no evidence for a Leviathan-type government in city hall. Forbes and Zampelli [1989] draw a similar conclusion concerning the existence of Leviathan in county government. They find a direct relation between the number of competing counties and county government size.

Older city governments are associated with increased municipal spending, as the theoretical model predicts. The coefficient estimate on YEARS is positive and significant in both equations, and implies that a ten percent increase in the years of democratic stability causes per capita city expenditures to

TABLE 1
Regression Results for City Spending

Independent Variables	Competition Measured in Relative Terms	Competition Measured in Absolute Terms
Constant	−1.28	0.072
	(0.70)	(0.038)
COMP (C)	0.099***	0.054**
	(3.24)	(2.38)
YEARS (proxy for N)	0.119***	0.156***
	(2.93)	(3.88)
TAX-PRICE (P)	−0.322***	−0.343***
	(4.61)	(4.85)
INCOME (Y)	0.468***	0.365***
	(3.19)	(2.46)
AID (A)	0.326***	0.323***
	(9.46)	(9.17)
FUNC	−0.152**	−0.145**
	(2.24)	(2.08)
NICTY	0.196***	0.183***
	(3.37)	(3.11)
POP	0.056**	0.021
	(2.15)	(0.737)
AGE	0.709***	0.603**
	(3.03)	(2.46)
WHITE	−0.223**	−0.173*
	(2.31)	(1.74)
OWN	−0.443***	−0.472***
	(4.22)	(3.95)
DENS	−0.070*	−0.103***
	(1.96)	(2.76)
MA	0.198*	0.209*
	(1.82)	(1.90)
SA	0.095	0.064
	(0.97)	(0.64)
ENC	0.176*	0.189*
	(1.69)	(1.79)
WNC	0.199*	0.223**
	(1.88)	(2.08)
WSC	0.250**	0.288**
	(2.23)	(2.46)
ESC	0.144	0.155
	(1.13)	(1.19)
MT	0.455***	0.409***
	(3.56)	(3.20)
P	0.288**	0.238**
	(2.64)	(2.19)
Adjusted R^2	.688	.678
F-statistic	19.4***	18.6***

***Significant at the 1% level or better.
**Significant at the 5% level.
*Significant at the 10% level.
Note: All variables, except dummy variables, have been expressed in log-form. Absolute value of the t-statistics shown in parentheses.

increase by approximately 1.2 to 1.6 percent, *ceteris paribus*. Within an Olson [1982] framework, these higher expenditures in older cities result from the rent-seeking activities of special interest groups. This empirical result confirms the findings of Mueller and Murrell [1986] but disagrees with the results of Wallis and Oates [1988]. For a sample of countries, Mueller and Murrell find empirically that longer periods of democratic stability directly affect the number of interest groups, which in turn, leads to a larger public sector. Wallis and Oates, on the other hand, find that younger rather than older states in the U.S. are associated with a larger combined state and local government sector, *ceteris paribus*.

Of course, one might simply argue that older cities have higher expenditures because the cost of providing any given level of public services is greater in older cities with an aged infrastructure and capital stock. Following the logic of Wallis and Oates [1988, p. 405], if the maintenance costs are less than the cost of renovating and replacing the capital stock, these higher expenditures in older cities may be optimal from the consumer-voters' perspective.

Finally, notice that most control variables possess coefficient estimates that are statistically different from zero at conventional levels of significance. As anticipated, the demand for municipal spending is inversely related to tax-price. Moreover, the level of municipal expenditures is directly related to income and intergovernmental aid, as expected. The estimated coefficients on the two fiscal variables possess their expected signs and are statistically significant. Increased municipal spending occurs in city governments with more state authorized functional discretion, as represented by lower values for the variable FUNC. Also, municipal spending is about 20 percent higher, *ceteris paribus*, in cities that are not served by an independent county government, as reflected by the estimated coefficient on NICTY. The coefficient estimates on the demographic variables possess plausible values and most are significantly different from zero.

CONCLUSION

Using a sample of 168 large cities in the U.S., this paper empirically tests the Leviathan theory. Unlike previous studies, the empirical test is well-grounded within a median-voter framework and focuses on city government behavior. In general, the findings suggest that the median or representative voter plays a pivotal role in determining city expenditures. Measures of tax-price, income and share of aid are shown to be important determinants of city spending. The empirical results concerning the Leviathan theory are mixed, however. On the one hand, city expenditures are found to be higher rather than lower in SMSAs with more intense competition. This result conflicts with the prediction of the Leviathan theory, but agrees with the recent findings of Forbes and Zampelli [1989]. They [p. 376] cite the "losses of administrative scale economies and/or the empowerment of government with a broader range of functions when government is decentralized" as reasons for their findings of a direct relation between the number of competing counties and county government size.

On the other hand, longer periods of democratic stability, measured by uninterrupted years of incorporation as a city, are associated with increased public expenditures, as a Leviathan-type model predicts. The weight of the evidence, however, leans toward the conclusion that Leviathan does not run city hall. Given the finding that greater political fragmentation leads to increased per capita city spending and the inability to directly control for interest group activity, this seems the proper conclusion to draw from the empirical evidence. As mentioned above, uninterrupted years of incorporation as a city might merely capture the physical age of the city. Given lower maintenance relative to building costs, older cities might operate efficiently with an aged capital infrastructure and therefore possess higher operating costs.

Hopefully, this study will motivate future researchers to find and use a more direct measure of special interest group activity at the city level to disentangle these two equally plausible explanations for the higher public expenditures in older cities. Nevertheless, this paper seriously questions the generality of the inverse relationship between government age and size, found by Wallis and Oates [1988], in their study involving the 48 contiguous states of the U.S. Moreover, this paper raises serious doubt about the existence of a Leviathan-type government in city hall.

APPENDIX A
Description of Variables

Dependent variable:

E_s = total per capita general city expenditures excluding education (municipal spending) in 1981

Leviathan variables:

COMP (C) = number of municipalities divided by population and absolute number of municipalities in the SMSA (1980).

YEARS = years of democratic stability as measured by uninterrupted years of incorporation as a city (as of 1981). Represents a proxy for N, the number of special interest groups.

Median-voter variables:

TAX-PRICE (P) = tax-price of the median household (1980/81)

INCOME (Y) = median family income (1979)

AID (A) = median household's share of intergovernmental aid (1980/81)

Fiscal control variables:

FUNC = degree of state authorized functional discretion in the city (1980)

NICTY = dummy variable signifying no independent county government (1980)

Demographic variables:

POP = population in the city (1980)

AGE = median age of the population (1980)

WHITE = percentage of population that is white (1980)

OWN = percentage of households that is owner-occupied (1980)

DENS = population density (population divided by square miles of land area) in 1980

Regional Dummy variables:

MA = Middle Atlantic

SA = South Atlantic

ENC = East North Central

WNC = West North Central

WSC = West South Central

ESC = East South Central

MT = Mountain

P = Pacific

APPENDIX B
Data Sources

The empirical test analyzes the determinants of city expenditures during 1981. Therefore, 1980 *Census* data for population, median-value of housing, median family income, age, percent white, percent owner-occupied and density provide measurement for the relevant explanatory variables in equation 6. Data regarding municipal expenditures, net equalized valuation and intergovernmental aid are figures for 1981. Most data come from the 1983 *County and City Databook* except for net equalized valuation and the year of incorporation. Most net assessed values and all assessment to sales ratio figures are obtained from the 1982 *Taxable Property Values.* Assessed value data not available in the *Census of Governments* have been found in *Moody's Municipal and Government Manual.* The relevant data for the number of municipal governments and metropolitan population come from *Local Governments in Metropolitan Areas.* Data for the year of incorporation come from several sources. Most

data for this variable have been collected from *Moody's Municipal and Government Manual. Websters Geographical Dictionary,* the Texas Municipal League, the California Municipal League and several city clerks were also consulted to obtain dates of incorporation for about 27 of the 168 cities. Data for functional discretion come from Zimmerman [1981]. Complete sources are listed in the references.

NOTES

1. An excellent review of these and other studies can be found in Oates [1989].
2. Sjoquist [1982] examines the impact of intergovernmental competition on city expenditures within a median-voter framework and finds an inverse relation between the degree of competition and municipal spending for a relatively small sample of forty-eight southern cities. This paper, however, uses a much larger national data set, more recent data and controls for many other determinants of city spending. Also, his paper is not concerned with testing the Leviathan theory but instead a model of strategic behavior on the part of the median-voter.
3. Many researchers object to the median-voter model based on theoretical and empirical grounds (e.g., Romer and Rosenthal [1979]). While some of their objections may be valid, a good alternative theory for the Leviathan model is unavailable, especially one that is capable of being tested to some degree. Those strongly opposed to the median-voter model may wish to replace the median-voter with a "representative voter" in the discussion that follows. The general thrust of the arguments remains the same in either case.
4. See Bergstrom and Goodman [1973] for the derivation.
5. See Filimon, Romer and Rosenthal [1982] for further details concerning reversion budgeting.
6. Because of rational voter ignorance, government can more easily pursue its objective of excess public expenditures when the number of competing jurisdictions is relatively low. On the other hand, more information concerning the alternative fiscal packages offered by other municipalities in the SMSA will be provided by metropolitan developers, real estate agents and the Chamber of Commerce (i.e., local business association) when a larger number of municipalities exists in the area. This relatively free information helps overcome the rational voter ignorance problem to some degree.
7. A capsule description of the various variables can be found in Appendix A.
8. To adjust for differences in functional responsibilities across observations, many studies use expenditures on a few common public functions as the dependent variable (e.g., the sum of police, parks and welfare expenditures). Within a Leviathan framework, however, excess expenditures might arise from increased spending on existing functions or the creation of new functions as Leviathan-type governments or special interest groups atempt to broaden their sphere of influence. Also, substitutability among public goods creates a problem when using expenditures on a few common functions to compare public spending levels across observations. Variations in educational spending across regimes are not examined in this paper because independent school districts administer local public education in a relatively large number of states.
9. Similar indices were derived by Zimmerman [1981] to determine the amount of discretion that various local governments have with respect to personnel, finances and governmental structure. These other indices have no significant impact on city spending, *ceteris paribus.* These results will be supplied on request by the author.
10. I also controlled for the municipal share of all state and local expenditures across states as another measure of functional responsibility. This variable proved to be highly insignificant and systematically related to the regional dummy variables. These results will be supplied on request by the author.
11. Townships are also treated as municipal or general purpose governments for New England, Pennsylvania and New Jersey cities.
12. While some cities change their charters after incorporating, perhaps altering the distribution of political and economic power, the costs of obtaining this information are high. Even if this information could be obtained inexpensively, it would not be unambiguously clear whether the charter revision or amendment represents a substantive change. For example, some cities revise their charter to adjust the number of members on the planning and zoning board, a relatively incidental change in the political structure. On the other hand, more substantive changes in the relative distribution of power and democratic stability may result from replacing a mayor-council with a council-manager form of government. Lastly, it should be noted that charter amendments may be influenced by opportunistic behavior and therefore are not a good benchmark to denote political stability.
13. A measure such as the number of various interest groups would be a more direct and preferable measure of special interest group activity. But unfortunately, data of these kind are unavailable at the city level. As a result, the period of incorporation must be used as an indirect proxy for interest groups. Admittedly, this age variable may also capture other age-related influences on city spending, as well. (See the discussion above in the text.) Years since achieving statehood status, as used in Wallis and Oates [1988], also suffers from this same problem.
14. For manageability sake, the median-voter is assumed to be a non-itemizer of property and income taxes.
15. As can be imagined, a high degree of correlation exists between the two tax-shares. For the 168 cities in the sample, the simple correlation between the property tax and income tax shares is approximately .792. On average, the income tax share of .00002 is higher than the property tax share of .00001.

16. For example, the regional dummy variables may capture differences in climatic, political and social conditions across the regions of the United States.
17. It should be noted that the number of single purpose governments other than school districts was also specified in the regression equation but had no significant impact on city expenditures. Also, let me note that the regression results are quite robust with respect to the inclusion and exclusion of the regional dummy variables. The findings concerning the Leviathan hypothesis are also the same if the dependent variable is expressed as a fraction of community income. These regression results will be supplied by the author on request.

REFERENCES

Bergstrom, Theodore C. and Goodman, Robert P. 1973. "Private Demands for Public Goods." *American Economic Review* 63(June): 280–96.

Borcherding, Thomas E. and Deacon, Robert T. 1972. "The Demands for the Services of NonFederal Governments." *American Economic Review* 62(Dec.): 891–901.

Brennan, Geoffrey and Buchanan, James. 1980. *The Power to Tax: Analytical Foundations of a Fiscal Constitution,* Cambridge, New York: Cambridge University Press.

Downs, Anthony. 1957. *An Economic Theory of Democracy.* New York: Harper and Row.

Eberts, Randal W. and Gronberg, Timothy J. 1988. "Can Competition Among Local Governments Constrain Government Spending?" *Economic Review* (Federal Reserve Bank of Cleveland) 24(1): 2–9.

Filimon, Radu, Romer, Thomas, and Rosenthal, Howard. 1982. "Asymmetric Information and Agenda Control." *Journal of Political Economy* 17: 51–70.

Forbes, Kevin F. and Zampelli, Ernest M. 1989. "Is Leviathan a Mythical Beast?" *American Economic Review* 79(June): 587–96.

Moody's Investor Service. 1983. *Moody's Municipal and Government Manual.* Vols. 1 and 2, New York.

Mueller, Dennis C. and Murrell, Peter. 1986. "Interest Groups and the Size of Government." *Public Choice* 48(2): 125–45.

Nelson, Michael A. 1987. "Searching for Leviathan: Comment and Extension" *American Economic Review* 77(March): 198–204.

Oates, Wallace E. 1985. "Searching for Leviathan: An Empirical Study" *American Economic Review* 75(Sept.): 748–57.

_____. 1989. "Searching for Leviathan: A Reply and Some Further Reflections" *American Economic Review* 79(June): 578–83.

Olson, Mancur. 1982. *The Rise and Decline of Nations.* New York: Yale University Press.

Romer, Thomas and Rosenthal, Howard. 1979. "The Elusive Median Voter" *Journal of Public Economics* 12(Oct.): 143–70.

Sjoquist, David L. 1982. "The Effect of the Number of Local Governments on Central City Expenditures" *National Tax Journal* 35: 79–87.

Tiebout, Charles. 1956. "A Pure Theory of Local Expenditures." *Journal of Political Economy* 64: 416–424.

Tullock, Gordon. 1967. *Toward a Mathematics of Politics.* Ann Arbor: University of Michigan Press.

U.S. Bureau of the Census, *1982 Census of Governments.* Vol. 5, *Local Government in Metropolitan Areas,* 1984, Washington: USGPO.

_____. Vol. 2, *Taxable Property Values and Assessment-Sales Price Ratios,* 1984, Washington: USGPO.

_____. 1983. *County and City Data Book,* Washington: USGPO.

Wallis, John J. and Oates, Wallace E. 1988. "Does Economic Sclerosis Set in with Age? An Empirical Test of the Olson Hypothesis" *Kyklos* 41(3): 397–417.

Zax, Jeffrey, S. 1989. "Is There a Leviathan in Your Neighborhood?" *American Economic Review* 79(June): 560–67.

Zimmerman, Joseph F. 1981. *Measuring Local Discretionary Authority* Washington D.C.: Advisory Commission on Intergovernmental Relations.