IMF Working Paper

Districting and Government Overspending

Reza Baqir

INTERNATIONAL MONETARY FUND

IMF Working Paper

Research Department

Districting and Government Overspending

Prepared by Reza Baqir[1]

Authorized for distribution by Eduardo Borensztein

August 2001

Abstract

The common-pool problem is a central issue in the relationship between the political structure of jurisdictions and the size of public spending. Models predict that, other things being equal, greater political districting of a jurisdiction raises the scale of government. This paper presents new evidence on this and related predictions from a cross-section of city governments in the United States. The main finding is that one additional legislator is associated, on average, with 3 percent larger expenditures per capita. Evidence also suggests that forms of government with strong executives, particularly those with veto powers, break the link between districting and government size.

<div align="center">Contents</div> <div align="right">Page</div>

I. INTRODUCTION

In recent years, an interesting political economy literature has developed to explain the size and fiscal performance of government. A central feature of this literature is the prominence given to the role of distributive politics. By distributive politics is meant the politics of policies which produce benefits which are concentrated to a particular group of people and costs which are disbursed over the entire political jurisdiction. "Pork-barrel" projects are a prime example of such politics where the projects produce benefits for one geographical community and are financed through taxation on the entire population of the political jurisdiction. As discussed extensively in Weingast, Shepsle, and Johnsen (1981) such politics leads to a bias towards bigger project size and, in general, bigger government. The effect arises because legislators, when making their spending proposals for government projects, do not internalize the complete consequences of their proposals on other residents of the political jurisdiction. Acting on behalf of the residents of their district they fully value the benefits accruing to population in their district but bear only a fraction of the cost of the project.[2] At a more general level the overspending bias arises from districting and generalized taxation. Other recent papers in which the same basic channel affects fiscal performance include Velasco (1999), Hallerberg and von Hagen (1999), Chari and Cole (1993a,b), and Chari, Jones and Marimon (1997).

A central prediction that emerges from this class of models is that the greater the number of districts, the greater is the over-spending bias, and hence the greater is the size of government. The purpose of this paper is to test this and related predictions from a cross-section of city governments in the United States. These governments exhibit substantial variation in both their fiscal outcomes and political structures and constitute a good data-set for testing theories relating political institutions to fiscal outcomes. City political structures are, and have been, difficult to change and the resilience in these institutions bolsters our faith in making causal interpretations from the regression results. These data have the additional virtue that cities share a common national institutional set-up and problems in inference arising out of unobserved or unquantifiable historical and institutional factors, which in general plague cross-country studies, are likely to be relatively unimportant.

The central empirical findings can be summarized as follows. First, there is strong evidence that, controlling for city population and other plausible determinants of government size, bigger city councils are associated with considerably larger government expenditures per capita. Extensive sensitivity analysis indicates that this finding is robust to a variety of considerations. Instrumenting for council-size using the size of the city council 30 years ago to address possible concerns of endogeneity makes the estimated effect stronger in magnitude. The findings are also robust to alternative measures of the size of government I use: share of total government expenditures in total city income and local government

---

[2] This is also referred to as the "common pool" problem in the literature on environmental economics.

- 4 -

employment per capita. In terms of magnitude, the results indicate that, controlling for other factors, the addition of one more political district in the city at the sample median of seven districts is associated with a 3 percent increase in government expenditures per capita. In aggregate terms this amounts to an increase of about $1.4 million in the aggregate budget of the average city. Given a median city budget in the sample of $17.5 million, and given that when cities consider re-districting they generally consider changes of more than just one district, these amount to non-trivial effects of political districting on government size. [3]

Given that an overspending bias may arise in legislatures, and, more importantly, that ex post each legislator may prefer a coordinated outcome that entails less spending for all, a central question which emerges is what political institutions, if any, can we put into place to achieve better outcomes. I consider the effects of two such institutions which are purported to limit the effect of districting on government size: (i) at-large electoral systems, where candidates for office are elected from the entire jurisdiction, and (ii) forms of government which afford strong powers to the office of the executive in the government—the office of the City Mayor in the case of cities. I am able to present evidence on both of these mechanisms because there is substantial variation in both of these institutions across cities in the sample, and because evidence suggests that these institutions are hard to change. It is commonly believed that at-large systems, compared to district systems, can help to curtail pork-barrel type spending by inducing councilmen to treat the entire city as their constituency. If at-large councilmen *did* cater to the good of the entire city, the asymmetry in sharing the benefits and costs of public expenditures would be removed and the overspending bias would disappear. The evidence I find contradicts this commonly held view. At-large cities are not less susceptible to pork-barrel type spending than district cities. Many cities in recent years have adopted mixed electoral systems—where some councilmen are elected at-large and some by district—in an effort to try to capture the best elements of both district and at-large systems. Results for these cities indicate that the effects of both district and at-large councilmen are slightly exacerbated in mixed electoral systems. One interpretation which these results admit is that, in addition to the externalities which councilmen impose on each other within a group (of at-large/district elected councilmen), there are also inter-group externalities which they fail to internalize, hence leading to greater sensitivity of the size of government to the size of the council.

The existence of a strong-mayor form of city government is more effective in curtailing the spending bias. Recent literature in the area of budget institutions—the study of how the rules of the game surrounding the budgetary process affects fiscal outcomes—indicates that political institutions which centralize decision-making authority in one figure in the government, as for instance in the president of a presidential government system or the finance minister in a strong party parliamentary system, can help to alleviate the

---

[3] See section 4.4 for a discussion of the estimated magnitude of effect in per capita and aggregate terms.

overspending bias.[4] A strong finance minister can internalize the externalities inherent in spending proposals of the individual legislators and enforce discipline on the legislature, leading to better budgetary outcomes (smaller deficits, quicker adjustment to an adverse shock) and in general to smaller government expenditures. I present evidence on this point by exploiting the variation in the form of city governments in the U.S. City governments in the U.S. come in two predominant forms: (i) the *Mayor-Council* form, where the city mayor is generally elected directly from the city population and is the head of the executive branch of the government and (ii) the *Council-Manager* form, where the legislative and executive function of government is fused into the city council which may appoint a city manager to manage the day-to-day affairs of the government. The relevant difference between the two is that the former concentrates powers in the city mayor who cannot be fired by the city council, and can therefore exert independent influence on the city council. In addition, cities vary considerably in how much power they concentrate in the mayor's office, for instance by giving them agenda-setting powers and powers to veto council legislation. Using data on the form of city government and on indicators of mayor powers, I examine whether these political institutions are able to break the relationship between districting and the size of government. I find suggestive evidence that city governments which concentrate powers in the office of the executive in the city government, particularly those which afford their mayors veto powers, are able to break the relationship between districting and size of government spending.

The paper is organized as follows. The next section briefly discusses the theory and the existing empirical evidence and delineates the contribution of this paper. Section 3 describes the data used in the paper. Section 4 presents the main results with respect to the impact of districting on government size. Section 5 presents the results from investigating the role of (a) electoral systems and (b) forms of government in mediating the relationship between districting and government size. Section 6 concludes.

II. Related Literature

One of the earlier formalizations of the common pool problem in the fiscal revenues pool was provided by Weingast, Shepsle, and Johnsen (1981). They considered a legislature comprising representatives from geography-based districts who voted on public projects which produced benefits concentrated in districts but costs which were dispersed over the entire jurisdiction (in the form of taxation with exogenous tax shares for the districts). One of their results was that, given district tax shares which are non-increasing in the number of districts, "project scale for any district grows as the polity is more finely partitioned into districts," (p. 654). Recent papers which have the same common-pool mechanism at their heart include Velasco (1999), Hallerberg and von Hagen (1999), Chari and Cole (1993a,b),

---

[4] For a review of the empirical literature see Alesina and Perotti (1999).

and Chari, Jones and Marimon (1997). The basic ingredients to Weingast et. al. (1981)'s overspending result were districting, a legislative norm of universalism (under which legislators follow a policy of mutual support making for a coalition of the whole), and generalized taxation.[5] A subsequent criticism of their approach however was the universalism assumption. Although in other papers (e.g. Shepsle and Weingast (1981)) they showed that the expected utility of a legislator running for re-election is higher when the legislature has a norm of universalism than in the alternative environment of minimum winning coalitions, the lack of a clear voting game made the theory less appealing.[6] Subsequent work by Baron and Ferejohn (1989) and Baron (1991) on legislative bargaining helped to fill this gap. Their framework was later adopted by Persson and Tabellini (1997a,b,c) and embedded in an otherwise economic model of public finances to provide a rich set of predictions for fiscal outcomes with respect to political institutions. The latter's work showed that overspending was more likely to arise in parliamentary systems since members of the ruling coalition are more likely to exercise mutual veto powers over budget legislation, making the environment like universalism. By comparison, presidential systems, because they relied on separation of powers and afforded more powers to an independent executive in the government, were associated with smaller governments. Results in this paper shed light on both these sets of results. The basic prediction on the effect of the number of players is readily tested. And the analogy between presidential and parliamentary systems on the one hand and mayor council and council-manager forms of government on the other is used to shed light on the latter type of issues on separation of powers.

The existing empirical literature is based mostly on cross-country and U.S. state data.[7] The general approach in these papers, particularly the cross-country studies, has been to construct indices which measure the degree to which the budget-making process may be fragmented and subject to pressures by individual legislators, ministers, or political parties in

---

[5] They also have a different source of inefficiency, what they call the politicization of expenditures (that some costs are politically beneficial in projects since these outlays provide employment etc.) but it is not necessary for the result on government scale and districting.

[6] Of immediate relevance for the present study, Cox and Tutt (1984) provide micro evidence from the study of the L.A. County Board of Supervisors for the prevalence of a norm of universalism in the Board's budgetary decision-making.

[7] For the cross-county literature relevant papers include Roubini and Sachs (1989a,b), Von Hagen (1992), Von Hagen and Harden (1994), Alesina et. al. (1999), Hallerberg and von Hagen (1999), and Kontopoulos and Perotti (1999). The last of these cited papers is the most comprehensive study to date in this area using cross-country data. For state-level studies see for instance Poterba (1994), Alt and Lowry (1994), Bayoumi and Eichengreen (1995), and Bohn and Inman (1995).

coalition governments.[8] While the papers differ with respect to specific details, a common overall theme in this literature is that institutions which centralize decision-making authority lead to budgetary outcomes which entail smaller deficits and quicker adjustment to adverse shocks.[9] This paper adds to the existing empirical literature in the following ways. First, I use a sample of local governments in the U.S. which allows me to greatly increase the degrees of freedom and complements our set of findings pertaining to countries and states. Second, I focus on providing evidence on a central prediction of common-pool which has not received much attention: the effect of districting on government size. Common-pool type models make two central predictions: (i) greater is the number of districts and (ii) more decentralized is the decision-making process in the legislature, worse is the collective outcome. Most empirical studies have looked at how centralization of the budgetary institution affects the outcome but the related prediction on the effect of the number of players has not been systematically explored. One reason for this omission may be that direct tests of this relationship from cross-county or cross-state data are difficult since budgets at the national level are drafted by committees or cabinets and then are submitted for approval to the full legislature. In the absence of an explicit theoretical model of these institutions it is unclear whether by the number of districts we should mean the number of seats in the entire house, the number of members in the federal cabinet (or the number of members of the relevant committee), the number of political parties in the government, or some combination of the three.[10] However, we can exploit the variation in the size of city

---

[8] In a different empirical approach, Inman and Fitts (1990) test the predictions of a common pool model using time series data for federal expenditures revenues for the U.S. for the period 1795 to 1988. Although they do not pose the direct test of the relationship between the number of districts and government size, their findings are in general in the same vein as the results presented here.

[9] The terminology Alesina and Perotti (1996) use in their review of the budget institutions literature is that of *hierarchical* and *collegial* institutions. The former have the property that they limit the democratic accountability of the budget process—by for instance limiting the authority of the legislature to amend the budget proposed by the government—and attribute strong prerogatives to the Prime Minister (or the Finance, or Treasury Minister) to overrule spending ministers within intra governmental negotiations. Collegial institutions have the opposite property and emphasize the democratic rule in every stage. They argue that there is a tradeoff between these two types of institutions. Hierarchical institutions, in relation to collegial institutions, are more likely to promote fiscal restraint and avoid large and persistent budget deficits but they are also more likely to be less respectful of the rights of minorities and are likely to generate budgets which are heavily tilted in the interests of the majority.

[10] Kontopoulos and Perotti (1999) look at the issue of the number of players as well as the fragmentation of the budgetary process in affecting fiscal outcomes. They measure the number of players alternatively as the number of political parties in a coalition government and as the number of spending ministries in a government. Using panel data on 20 OECD countries for the period 1960-95 they find that the number of players matters for fiscal

councils across U.S. city governments to test this prediction. City councils are relatively cabinet- and committee-free. They can thus offer a rather clean test of the relationship between districting and government size. Testing from a cross-section of cities in the U.S. also has the advantage that all these cities are in the same overall institutional environment of the U.S. There is likely to be less variation in unobserved institutions when we look across cities in one country than across countries in the world. Finally, I provide evidence on a question which has not yet received much attention: how does a city's electoral system affect the extent of the overspending bias in the legislatures? Given that cities vary in the methods by which they elect councilmen this is a question that we can suitably explore with the data at hand.

III. DATA

The basic specification used is to regress measures of government size on the size of the city-council and other determinants of government expenditures. The data for this paper are a cross-section of U.S. city governments and have been combined from different sources. Fiscal data are from the 1992 Census of Governments conducted by the Census Department. Demographic and income data are from the 1990 Census of Population.[11] Data on the political structure of city governments have been put together from two sources. First is a survey of city governments conducted by an association of local governments in the U.S., the International City/County Management Association (ICMA) and pertain to the year 1990. The second source is the 1992 Census of Governments, Government Organization File.[12] The latter source has less coverage in terms of the number of variables for which information is collected but has greater coverage in terms of the number of cities covered. In the following paragraphs I describe the variables used in the empirical work.

Size of the city council is measured simply as the number of officials elected to the chief governing body of the government (*Csize*). This measure varies from a minimum value of three to a maximum of 50 in the dataset. The cities with the three largest city councils are

---

outcomes but get some variation in which measure matters: for the 1970s they find that the number of spending ministries matters while for the 1980s the number of parties matters. Their results can also not be compared directly since their dependent variable is the change in expenditures, as opposed to the level of expenditures.

[11] The fiscal and demographic data were obtained from the County and City Compendium 1993 (Slater-Hall Information Products, Washington, DC), a data product similar to the Census Department's County and City Databook 1994 but providing a more comprehensive coverage of U.S. cities

[12] These data are used in the Census Department's publication *1992 Census of Governments, Government Organization.*

New York, NY (36), Stamford, CT (40), and Chicago, IL (50). However, most of the observations occur at smaller values of council-size: 2123 of the 2342 cities for which this measure is available have city councils composed of or less members.[13] Central to the empirical analysis relating council-size to government spending is the assumption that the size of the city council is an aspect of political structure which is relatively costly to change and its variation in the cross-section can be taken to be largely exogenous. There are both theoretical and empirical arguments in support of this assumption. Theoretically, the resilience in the number of electoral districts arises from the fact the decisions pertaining to changes in the number of districts almost always have to be approved by the *incumbent* legislators. A change in the number of seats inevitably involves some amount of redistricting which, by reapportioning the constituencies of the incumbent council-men, is likely to introduce uncertainty in their re-election prospects. In their influential study of the world's electoral systems, Taagepera and Shugart (1989) convey this point well when they discuss the resilience in electoral laws: "Reforms usually require the approval of current assembly members. But these are by definition the very people whom the current electoral system has served well. Why should they want to change a system that got them elected?" (p. 5). At a practical and empirical level there are significant costs involved in changing a political institution like the size of the council. Typically the process for changing the size of the council involves a proposal brought forward either directly by the voters if the city has a provision for initiative or by the council, extensive discussion of the merits and demerits of change in the size of the council and the likely impact of a change on representation (with a commission being appointed sometimes to consider the issue at length), and approval by the council or the city population (by a referendum) or both. Direct evidence also shows that the size of the city council is difficult to change. Table 1 below summarizes the information from the ICMA data on the number of attempted and successful changes in city political structure in the ten years preceding 1990.

In the table, "any change in structure of government" refers to any kind of reform which the council considers and includes measures unrelated to the size of the council and electoral laws. More pertinent to our concern here, the number of cities attempting to either increase or decrease is 4.2 percent of the sample observations. Of these attempts only about half succeeded in changing the size of the council so that the number of cities where council-size changed in the preceding ten years comes to 2.3 percent of the sample. Overall the figures in Table 1 point to two conclusions: first, relative to the full set of cities in the sample, there are very few cases in which there are attempts to change the size of the council, and second, of the cases where there are attempted changes there is roughly ½ probability of success of these attempted changes. The bulk of the variation in council-size can therefore be assumed to be coming from historical reasons. The table also shows that the two other political institutions we look at in the analysis—type of electoral system and the form of government (mayor-council vs. council-manager)—also display considerable inertia. The

---

[13] The results presented below are robust to looking separately at cities with big and small councils—see section IV.E.

evidence presented above should bolster our faith in inferring causality from the results presented below on council-size. To address issues of endogeneity more explicitly I also present results from instrumental variables specification where I instrument for council-size using the size of the city council in 1960. Although these data are available for a considerably smaller sample of cities (465) it is necessary to go considerably back in time to get some variation in the council-size variable.

Table 1. Attempted and Approved Changes in City Government Structure, 1980-90

Type of change	Attempted		Approved	
	(Number)	(% of Total)	(Number)	(% of Total)
Any change in structure of government	230	16.2	114	8
Increase council size	40	2.8	21	1.5
Decrease council size	20	1.4	11	0.8
Change to district electoral system	82	5.8	35	2.5
Change to a mixed electoral system	34	2.4	17	1.2
Change the mix between the at-large and	15	1.1	7	0.5
Change the form of government	37	2.6	11	0.8

Source: ICMA

Note: Total number of cities in sample is smaller than Table 4 because of data availability on questions of proposed and approved changes in city government structure.

The dependent variable in the empirical work is the size of government which I measure in three alternative ways: (i) city government spending per capita which corresponds to the model above (*Exppc*); (ii) city government spending as share of total city income (*Expsh*); and city government employment per capita (*Govempl*). All three of these measures have been used in the empirical literature on the size of government. I use three measures of government size partly to be comprehensive and partly because these different measures are likely to measure different aspects of the size of government. Consistent findings with these three measures would reassure us that the results on the size of government were not sensitive to a particular measure of government size used. These three measures are quite highly correlated as shown in the correlation matrix below (Table 2).

Table 2. Correlation Between Measures of Government Size

	Exp. per capita	Exp. as share of Income
Exp. as share of Income	0.886	
Gov. employment per capita	0.774	0.781

Note: Number of observations equals 1987

A number of variables are used in the analysis to control for other plausible determinants of city spending. City size, as measured by city population, is used to address economies of scale considerations in city spending, and, because of its strong correlation with government spending, is given detailed consideration in the next section. I also control for the racial heterogeneity of the city population using an index of racial fragmentation (*Ethnic*) which is constructed using population-by-race data as follows:

$$Ethnic = 1 - \sum_i s_i^2 ,$$

where s_i denotes the share of population of race i in the total city population, and

$$i \in \{White, Black, American Indian, Asian and Pacific Islander, Other\}.$$

The index ranges from 0 (complete homogeneity) to 1 (complete heterogeneity) and can be interpreted as the probability that two randomly drawn people from the city will belong to different racial groups.[14] The racial categories are the ones provided by the Census Department and come from the 1990 Census. I also construct a corresponding measure of racial heterogeneity for the city council (*Cethnic*) using councilmen-by-race data. If it is indeed true that race plays an important role in city politics and city residents choose councilmen at least partially along racial lines then we should expect to see an association between city *Ethnic* and council *Ethnic*. As shown in Figure 1 there is strong positive correlation (0.69) between city *Ethnic* and the corresponding measure for the city council. The regression line corresponding to the figure is (standard errors in parenthesis),

$$Cethnic \quad = \quad -0.041 \quad + \quad 0.69 \, Ethnic \qquad R^2 = 0.43, \ N = 1779$$
$$(0.005) \qquad \quad (0.019)$$

If council-men were chosen at random from a city we would expect a one-to-one correlation between the population and council measures of ethnic heterogeneity. The estimated coefficient in the above regression is statistically significantly less than one indicating that a given increase in a city's heterogeneity translates into a less-than-equal increase in the legislature's heterogeneity. Section 4.5 gives detailed consideration to whether districting affects government spending in both racially homogeneous and heterogeneous city councils (in addition to controlling for heterogeneity of the city population).

---

[14] Alesina, Baqir and Easterly (1999) argue that racial heterogeneity is an important determinant of public goods spending, and fiscal outcomes in general, in US cities, counties, and metropolitan areas.

Figure 1. Racial Heterogeneity

Racial Heterogeneity

City Racial Heterogeneity
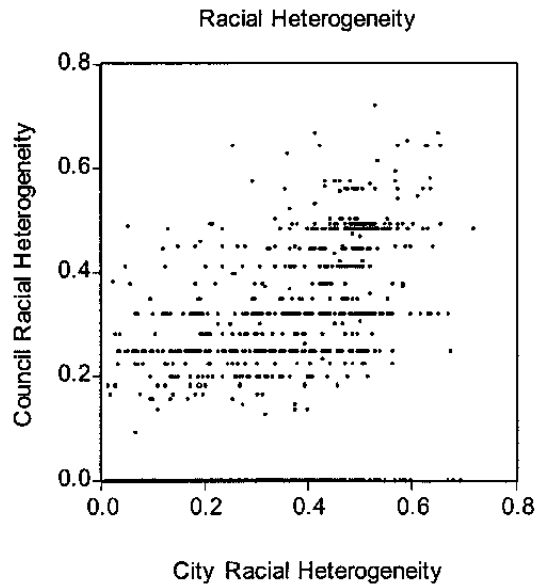
The additional control variables are per capita income (*Incomepc*), educational attainment as measured by the percentage of population with a BA or higher degree (*BAGrad*), and income inequality in the city as measured by the ratio of the mean to median household income (*MMI90*).[15] Income and educational attainment are likely to other determinants of the demand for public services. The inequality variable is included since the size of government may respond to redistributive pressure arising out of income inequality. Table 3 shows the summary statistics on all the variables used in the study. Since council-size is the key variable of interest in the empirical section it is useful to consider what drives the variation of council-size in the sample. Theoretically the most obvious determinant of the number of representatives is city population. Bigger jurisdictions should, and do, have bigger councils. Regressing council-size on city population (in millions) yields the following equation (standard errors in parenthesis)[16]:

---

[15] For a subset of the cross-section I had data on the Gini coefficient as the measure of income inequality in cities, and on unemployment rate city. The findings on inequality are robust to either measure of inequality used. The unemployment variable was used to control for government spending responding to unemployment rate for standard Keynesian reasons. The results reported on the relationship between council size and government size were robust to the inclusion of unemployment rate as one of the explanatory variables.

[16] The number of observations is slightly greater than that in the previous regression as *Cethnic* was available for a smaller number of cities.

Table 3. Summary Statistics

Variable	Units	Min	Max	Median	Mean	Std. Dev.	N
Exppc	$1,000 per capita	0.020	7.836	0.641	0.791	0.539	1991
Expsh	Percentage	0.078	44.660	4.933	5.973	4.123	1991
Govempl	Employees per 1,000 population	0.429	98.873	9.746	12.101	8.835	1996
Council-size	No. of people	3	50	6	6.859	2.888	2342
Council-size, 1960	No. of people	5	9	7	6.505	1.517	465
Ethnic	Fraction	0.004	0.730	0.187	0.235	0.173	3146
Council-Ethnic	Fraction	0	0.720	0	0.122	0.180	1779
1990 Population	No. of people	10,005	7,322,564	21,099	45,540	173,103	3146
Income per capita	$10,000 per capita	0.438	6.330	1.386	1.528	0.597	3146
BAGrad	Fraction	0.007	0.909	0.188	0.225	0.129	3146
MMI90	Ratio	0.986	4.777	1.213	1.248	0.185	3146
Districtcg	No. of people	0	50	0	2.856	4.048	2342
Largecg	No. of people	0	16	5	4.003	2.731	2342
Mayor-council form of government	Indicator variable	0	1	0	0.378	0.485	1696
Mayor-council form of government, 1960	Indicator variable	0	1	0	0.359	0.480	473
Mayor elected directly from city population	Indicator variable	0	1	1	0.775	0.417	1696
Mayor proposed budget to council	Indicator variable	0	1	0	0.173	0.378	1696
Mayor appoints department heads	Indicator variable	0	1	0	0.232	0.422	1696
Mayor can veto council-passed measures	Indicator variable	0	1	0	0.345	0.475	1696
Mayor can veto specific items of appropriations	Indicator variable	0	1	0	0.086	0.281	1696

Notes: Data pertain to 1990 unless otherwise stated. *Districtcg* and *Largecg* refer to number of councilmen elected by district and at-large respectively. All other variables are described in the text. The last six indicator variables on the form of government are further classified in Table 9 in the text.

$$Csize = 6.62 + 5.36\,Pop90, \qquad R^2 = 0.15, N = 1972$$
$$\quad (0.07) \quad\;\; (0.29)$$

The coefficient on the council size variable however indicates that although bigger cities have bigger councils the effect is considerably small in magnitude. Considering that most of the cities in the sample have populations of less than 100,000, an increase in the city population from 10,000 to 100,000 would be associated with an increase in the council size from 6.7 to 7.2—a fairly small effect.[17] The small magnitude of effect is consistent with the discussion above on the relative infrequency with which council-size changes—over time while city populations have changed around quite a lot, council size has changed less frequently leading to a small slope coefficient in the 1990 cross-section. The other important sample correlates of council-size are the state in which the city is located and the city's ethnic and income heterogeneity. Since city councils derive their authority from state governments and states vary in their laws governing local governments, there is likely to be systematic variation in council-size by state. Running the same regression as reported above with a complete list of state indicator variables yields an adjusted R-squared of 0.41 while the estimated coefficient on population remains virtually unchanged (and highly significant), confirming the presence of state-specific institutional features in the determination of council-size. To the extent that preferences for public services are correlated along ethnic and income lines we should expect greater demand for political representation in more heterogeneous jurisdictions for a given population. Regressing council-size on population and two measures of heterogeneity (*Ethnic*, as defined above, and income inequality, measured by the ratio of the mean to median income) as well as a complete list of state indicator variables gives:

$$Csize = 5.87 + 5.22\,Pop90 + 1.64\,Ethnic + 1.02\,MMI, \quad \bar{R}^2 = 0.42, N = 1972$$
$$\qquad (0.25) \qquad\quad (0.39) \qquad\quad (0.40)$$

The regressions for government size reported below include these measures of income and ethnic heterogeneity on the right hand side of the equation. The coefficients on these variables therefore measure their direct impact on government size, controlling for the effect that may go through council-size.

---

[17] The same equation estimated in log-log form yields an elasticity of council-size with respect to city population of 0.11. Taagepera and Shugart (1989, chapter 5) estimate a similar for a cross-section of countries in 1985 and report a elasticity of legislature size (lower house) with respect to country population of 0.33.

IV. RESULTS I: DISTRICTING AND GOVERNMENT SIZE

Table 4 presents the results of ordinary least squares regressions for the size of government on the size of the city council and a number of other variables. The three measures of government size are used in log-form because of the presence of large outliers in each of these series and because in this form the coefficients on the council-size variable can conveniently be interpreted as elasticity of government size with respect to the number of electoral districts. The first specification includes only city population as a control variable. Subsequent specifications play close attention to the following set of factors: (i) other plausible determinants of government size; (ii) the non-linear effects of city population on government size; and (iii) the presence of state-specific effects correlated with both council-size and government size. Discussion of the results below proceeds in the above order.

Looking at the coefficients on council-size in the first specification, several things stand out. First, the estimated magnitude of the effect is reasonably close across the three measures of government size. A 10 percent increase in the size of the legislature is associated with 2.8 percent more expenditures per capita, 2.9 percent higher share of expenditures in total income, and about 5.1 percent increase in government employment per capita. Second, these magnitudes remain close to these values as the control variables of the second specification are added. This indicates that the effect of council-size on government size is not going through the other channels which we control for. In particular, there is a effect of districting independent of the effect of racial heterogeneity and income inequality on government size. This is important since racial heterogeneity and income inequality are other political explanations which can try to account for the variation in the size of government. The coefficients on the control variables indicate that government size increases with the racial heterogeneity of the city and the ratio of mean-to-median income of the city. The first of these two findings is consistent with the results in Alesina, Baqir and Easterly (1999) and is not explored further here except to note that since the index of racial fragmentation goes up with the effective number of racial groups in the population it is important to determine whether bigger councils might simply be proxying for a more heterogeneous population. Controlling directly for racial heterogeneity as well as doing the additional tests of section 4.5 indicates that the effect of districting on government size exists in both heterogeneous and homogenous cities. The positive coefficient on the measure of income inequality is interesting since it relates to a long-standing literature on the relationship between income inequality and redistributive spending.[18] This relationship is not explored further here as it is not the focus of the paper but the findings on this variable is consistent in all the specifications reported below. The coefficient on per capita income is consistent with previous studies of local public goods which find the demand for local public

---

[18] See Benabou (1996) for an excellent review of this literature.

services to be income inelastic.[19] Plausible coefficients on the control variables therefore provide assurance that the empirical model is not grossly mis-specified.

A. City Size

The variable with the greatest statistical significance in the regression is logarithm of the city population. Log form was used to capture the presence of outliers in the city population series. Since city-size is strongly correlated with both government expenditures and council-size (as discussed earlier) it may not be sufficient to simply include the log of city population in the regression. The third specification therefore splits 1990 population into five quintiles and allows for a different slope coefficient for each interval. The results are illuminating. In small and medium-sized cities per capita government expenditures decline with city population, consistent with the presence of economies of scale. An increase of 10,000 people in the city population for cities at the smallest quintile is associated with approximately a 18 percent decrease in expenditures per capita—an effect of considerable magnitude. As we go up the population quintiles the estimated effect becomes weaker in magnitude, eventually turning positive for the very biggest cities, suggesting the yielding of economies of scale to diseconomies.[20] An increase of 10,000 people in the median quintile is associated with a reduction of 7 percent in per capita expenditures, and a similar increase for the largest quintile is associated with a modest *increase* of 1.5 percent in per capita expenditures. The pattern of coefficients suggests a inverted-U relationship between the size of government and city population. Figure 2 which makes a finer division of city sizes in the sample confirms this. The vertical bars in the figure show average per capita government expenditures by decile of the city population.[21] The connected line shows the average residuals by population decile from a regression of per capita expenditures on all the other variables included in Table 4. Both series show a similar pattern: per capita government expenditures first decline and then rise with city size suggesting the incidence of economies and diseconomies of scale respectively. Comparing the 2nd and the 3rd specification for each measure of government size shows that the estimated relationship with respect to council-size is not affected when we allow non-linear effects of population size.

---

[19] See, for instance, the review provided by Mueller (1985).

[20] F-tests for the equality of coefficients across the five population quintiles reject at p-values of less than 0.001.

[21] The pattern is not markedly different when median per capita expenditure for the interval is used instead of the mean. Figures for the other two measures of government size yield very similar results.

Table 4. OLS Regressions for Government Size

	Log (Government Expenditures per capita)				Log (Govt. Expenditures as share of Income)				Log (Government Employment per capita)			
Constant	-2.4819***	-3.3969***	-1.9632***	-0.0401	-0.193	-0.6216***	0.5390***	2.2141***	0.9901***	-0.5121***	-0.2178	2.1450***
	0.1436	0.1825	0.139	0.1633	0.1494	0.1804	0.138	0.1669	0.1544	0.1984	0.1573	0.1772
Log (Council-size)	0.2760***	0.3021***	0.3203***	0.1127***	0.2855***	0.2746***	0.2903***	0.1100***	0.5082***	0.4998***	0.4950***	0.1322***
	0.0384	0.0383	0.0384	0.0373	0.0393	0.0369	0.037	0.0367	0.042	0.0407	0.0408	0.0374
Log(Pop90)	0.1515***	0.1307***			0.1225***	0.1058***			0.0345**	0.0226		
	0.0133	0.0139			0.014	0.0136			0.0146	0.0146		
Ethnic		0.1920**	0.2550***	0.5099***		0.2791***	0.3357***	0.5955***		0.0702	0.0678	0.3166***
		0.079	0.0783	0.0911		0.0772	0.0767	0.0901		0.0889	0.0887	0.0892
Income per capita		0.2272***	0.2339***	0.1631***		-0.2913***	-0.2852***	-0.3332***		-0.0375	-0.0358	0.0081
		0.0355	0.0359	0.0349		0.0338	0.0339	0.0343		0.0376	0.0375	0.037
% BA Grad		-0.6060***	-0.5940***	-0.3898***		-0.7339***	-0.7187***	-0.5896***		-0.5437***	-0.5205***	-0.4514***
		0.1537	0.1557	0.1425		0.1497	0.1515	0.1415		0.174	0.1749	0.1561
Mean/Median Income		0.6613***	0.6543***	0.8524***		0.9025***	0.8921***	1.0982***		1.4238***	1.4157***	1.1636***
		0.0921	0.0939	0.0957		0.0917	0.0937	0.097		0.1079	0.1095	0.1047
Pop90 - 1st Quintile			-1.8201***	-1.2740***			-1.3642***	-0.7671***			-0.357	-0.5887**
			0.3143	0.2821			0.3061	0.2778			0.3331	0.2865
Pop90 - 2nd Quintile			-1.2652***	-0.9433***			-1.0219***	-0.6553***			-0.2609	-0.4923***
			0.2057	0.1796			0.201	0.1771			0.2278	0.1883
Pop90 - 3rd Quintile			-0.7196***	-0.5609***			-0.6137***	-0.4491***			-0.3917**	-0.4735***
			0.1425	0.122			0.1377	0.1194			0.152	0.1179
Pop90 - 4th Quintile			-0.2002**	-0.1842***			-0.1694**	-0.1437**			-0.1462	-0.1513**
			0.0808	0.0691			0.0789	0.0679			0.0941	0.0714
Pop90 - 5th Quintile			0.0147***	0.0188***			0.0123***	0.0154***			0.0032	0.0159***
			0.0047	0.0049			0.0047	0.0045			0.0054	0.003
No. of obs.	1972	1972	1972	1972	1972	1972	1972	1972	1977	1977	1968	1968
Adj. R-sq	0.10	0.15	0.14	0.39	0.07	0.28	0.28	0.48	0.08	0.20	0.20	0.51
S.E. of regression	0.536	0.523	0.525	0.442	0.578	0.508	0.510	0.434	0.590	0.551	0.552	0.432

Notes:
Robust standard errors are reported below coefficient estimates. * denotes significance at 10%, ** at 5% and *** at 1%. Population quintiles have population data expressed in 100,000s.

- 17 -

Figure 2. Government Size by City Size
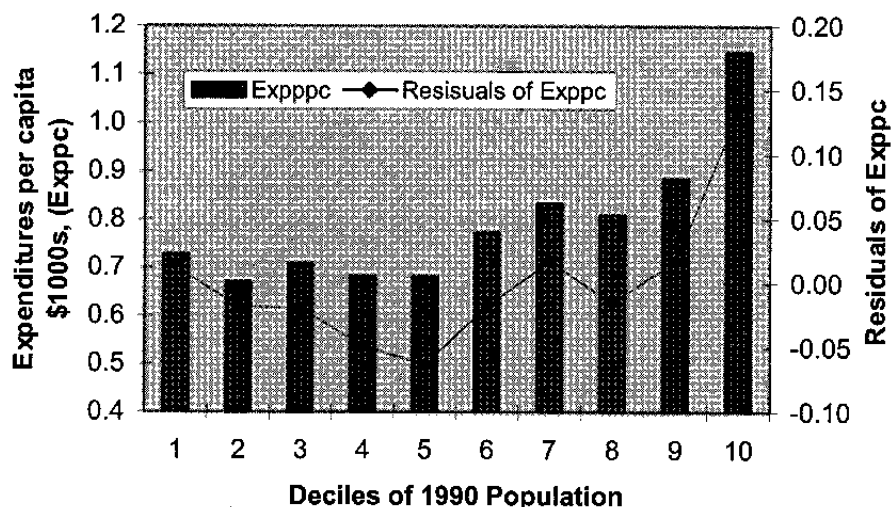
B. State Specific Effects

As was discussed earlier a great deal of the variation of council-size in the sample is determined by the state in which the city is located. In part this is due to history with older cities being located in older states and in part due to state constitutional provisions affecting local government structure. Since local government expenditures may also vary systematically by state, due to, for example, different degrees of fiscal decentralization across states, it is important to control for state specific effects in these regressions. The fourth specification for each measure of government size in Table 4 does this. The estimated coefficient on council-size drops to little over a third of its value—about 0.1 for each measure of government size—indicating the presence of state-specific covariates which are correlated positively with both council-size and per capita expenditures. Figure 3 provides further information on the state specific effects. It plots the logarithm of the median per capita city expenditure in a state against the median council-size in the state.[22] There is a positive correlation at the state level which is statistically significant at 5 percent and much stronger in magnitude than the city-level estimates in Table 4. A closer inspection of the figure, however, shows the presence of influential observations. Washington, DC (with one local government) and the New England states are clustered on the upper-right side of the figure. Figure 4 shows the state level relationship excluding these states. Washington, DC, being the nation's capital and having the highest level of expenditures per capita can deserve

---

[22] Figures using the other two measures of government size look very similar.

Figure 3. Council-Size and Government Expenditure: All States

Council-Size and Government Expenditures:
All States

Figure 4. Council-Size and Government Expenditures: Excluding DC and New England
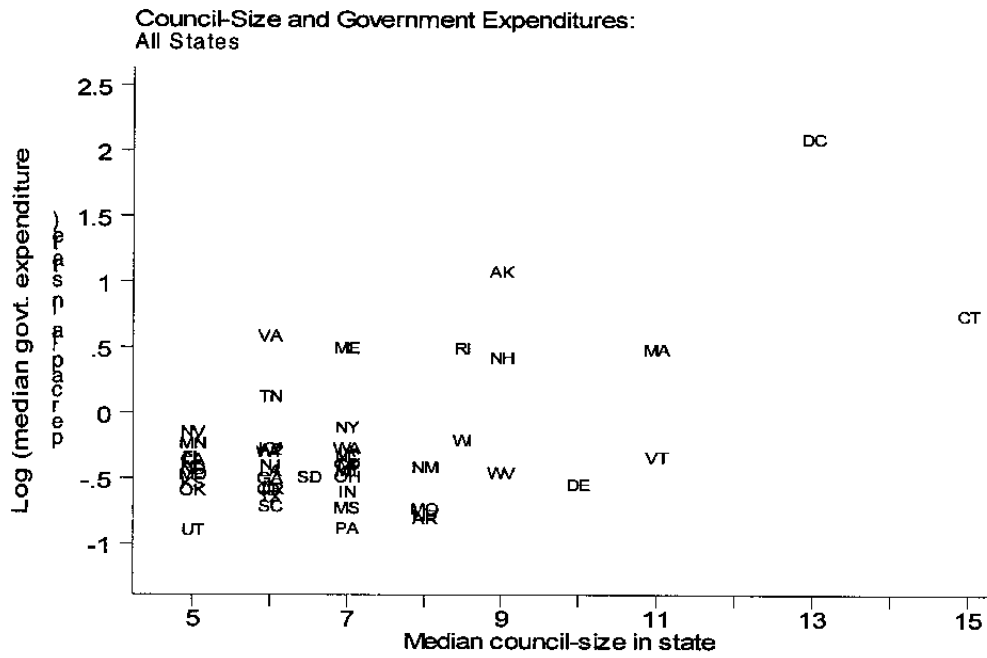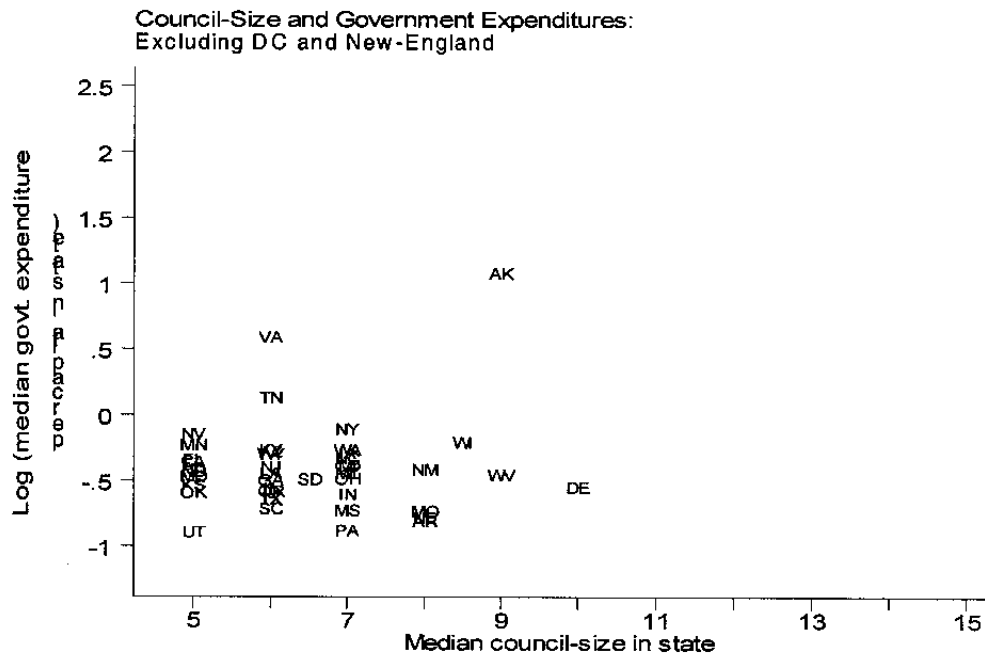

Council-Size and Government Expenditures:
Excluding DC and New-England

special treatment. The New England states are the oldest states in the US with a history of liberal and very democratic local government traditions. Some cities in the New England states also use the town-meeting form of local government which is unique to these states. A closer examination of these sets of observations shows that the reduction in the coefficient is coming from the New England effect. When I run the specification of column 4 with only the indicators for the New England states I get close to the same reduction in the coefficient as we get from including a complete list of state indicators.[23] The results are presented in row 1(a) of Table 5. An F-test for the equality of the coefficients on the six state indicators does not reject at conventional levels indicating that we could just as well include one indicator variable which equals one if the observation is in a New England state and zero otherwise. Indeed, row 1(b) of Table 5, which reports the coefficients and standard errors on the council-size variable when only an indicator for New England is included, confirms this. The natural follow-up question is whether the relationship between council-size and government expenditures survives when we look only at the non-New England states. The subsequent two rows in Table 5 show that indeed there is a positive and statistically significant relationship when we exclude New England states. The third row reports the coefficients from regressions where only non-New England states are included in the sample and state indicators for the rest of the states are *not* included. The estimated coefficient for each measure of government size is very close to the full sample regression with all state indicators (Table 4, column 4). Moreover, inclusion of state indicators in the non-New England sample (Table 5, row 1(d)) does not substantially alter the coefficient for two of the three measures of government size, consistent with the discussion above that the original reduction in the coefficient was coming from the New England states.[24] Table 5 also pulls together results from other specification tests which are discussed in detail below.

The preceding analysis helps to allay fears that the partial correlations reported in Table 4 between council-size and government are coming from state-specific omitted variables. It is important, however, to address one particular state-specific factor which could be affecting the results: the degree of state fiscal decentralization which may vary systematically with the dependent and independent variables. States which have a more decentralized set-up for provision of public services would have greater city spending since they push more of the spending responsibility down to lower tiers of government. They may also have bigger council-sizes as more ambitious local government programs may require more legislators to design, oversee, and monitor these programs. Together, these two factors

---

[23] The New England states are Connecticut, Maine, Massachusetts, New Hampshire Rhode Island, and Vermont. The same holds if we include in addition a indicator for Washington, DC.

[24] There are only 92 observations if we look at the New England sample. Regressions for government-size in this sample do not give any significant variable except racial heterogeneity. Note that even population is not significant which indicates not a very good fit of the model.

Table 5. Sensitivity Analysis

		Log (exp. per capita)		Log (expenditure share)		Log (gov. empnt. per capita)	
		Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
0)	Base-line coefficient	0.1127	0.0373	0.1100	0.0367	0.1322	0.0374
1)	State specific effects						
	a) Indicators only for New England states	0.1284	0.0388	0.1115	0.0379	0.2982	0.0407
	b) One Indicator for New England	0.1323	0.0384	0.1147	0.0375	0.2937	0.0403
	c) Non-New Englad sample, w/o state indicators	0.1410	0.0408	0.1224	0.0398	0.3218	0.0426
	d) Non-New Englad sample, w/ state indicators	0.1294	0.0428	0.1255	0.0420	0.1496	0.0418
	e) State share in total revenue, w/ all state indicators	0.1200	0.0377	0.1169	0.0370	0.1366	0.0379
2)	Population Growth, 1980-90	0.0971	0.0378	0.0972	0.0372	0.1051	0.0366
3)	Effective number of ethnic groups	0.1088	0.0486	0.1114	0.0474	0.1378	0.0488
4)	Ethnic heterogeneity						
	a) Ethnic90 >= Median (0.20)	0.1374	0.0385	0.1275	0.0378	0.1470	0.0388
	b) Ethnic90 < Median	0.0879	0.0390	0.0924	0.0382	0.1173	0.0386
5)	Big councils vs. small councils						
	a) Council-size > 9	0.1361	0.0396	0.1338	0.0389	0.1510	0.0412
	b) Council-size <= 9	0.1718	0.0488	0.1703	0.0481	0.1797	0.0517
6)	Big cities vs. small cities						
	a) Pop90 >= Median (25,555)	0.1294	0.0380	0.1266	0.0373	0.1381	0.0376
	b) Pop90 < Median	0.0756[a]	0.0396	0.0730[a]	0.0388	0.1191	0.0403
7)	Central vs. Suburban cities Includes indicators for central and suburban cities	0.1464	0.0467	0.1402	0.0453	0.1955	0.0478
8)	Population density Controls for log population density	0.1114	0.0375	0.1084	0.0368	0.1308	0.0375
9)	Percent voting for Democrat President	0.1144	0.0394	0.1102	0.0387	0.1340	0.0395

Notes

a: p-value < 0.06. For all other estimated coefficients associated p-values are less than 0.05. Robust standard errors are displayed next to coefficients. Table entries report coefficients only on the log (council-size) variable. Each regression additionally includes all variables of Table 6, including population quintiles and state indicators. Number of observations ranges from 1455 to 1972 depending on data availability for the additional variables.

would give a spurious correlation between council-size and government expenditures. Figure 5 shows, however, that this could not be a source of bias. It plots a measure of state decentralization—the share of local government spending in total (local + state) government spending—against average council size in state. What we find is if anything a negative correlation between average council size and state fiscal decentralization.[25] Cities in more decentralized states have smaller councils on average which goes against the idea of council size expanding to accommodate greater fiscal responsibility at the local level.

Figure 5. State Decentralization and Mean Council-Size

Share of Local Government Expenditure in Total Government
Expenditure
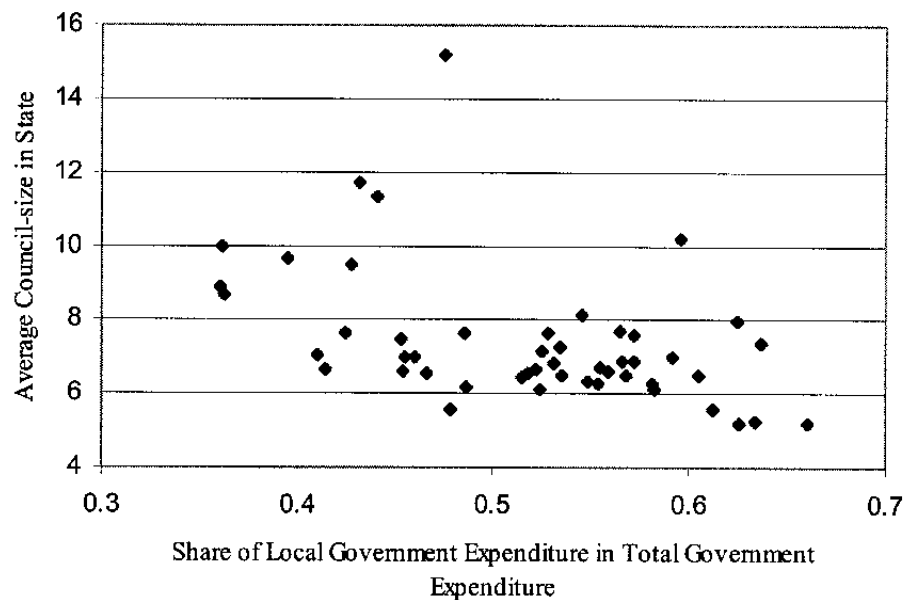
C. Reverse Causality

The above discussion does open-up, however, the possibility of reverse causation. Although fiscal decentralization may not be the culprit here there could be other unmeasured factors which may be leading to bigger government spending which may *require* bigger city councils for execution. Some qualifications are in order though. First, as discussed in the

---

[25] We get a very similar result when we plot an alternative measure of state decentralization: the share of intergovernmental expenditure in total state expenditure. This measures the extent to which the state government pushes execution of expenditures down. The difference with the measure used in Figure 5 is that it does not pick up on local financed spending.

data section, the inertia in the council size variable suggests that the degree to which the council-size variable may be contaminated is likely to be less. It does leave open the possibility, however, that because of certain time invariant factors, such as a long sense of tradition, over long periods of time city council sizes may have adjusted to incorporate spending preferences of the cities. Second, it is not clear why greater government spending would require bigger council-sizes (unless the model being presented is correct and the people understand it and to get bigger government spending they choose bigger city councils). The council refers to the legislative function in government while government programs typically fall under the executive branch. Getting more government programs is more likely to mean more government employees than more legislators. However the possibility remains that additional council-men may be needed to design and monitor these programs, even though they are not involved in their execution. To address these concerns I present results with instrumental variables specifications. The instrument I use is the size of the city council in 1960. The data come from Aiken and Alford (1972).[26] The benefit of using this variable as an instrument is that since we are going a fairly long period back into time it is more likely to be exogenous to the spending decisions in 1990. The cost however is a considerable reduction in sample size—it is available only for 465 cities of the OLS sample.[27]

The results are presented in Table 6. Since there is a considerable change in the sample size I first report the OLS results and then the two-state least squares results for this sample. Specifications both with and without the state indicators are presented for a complete comparison with Table 4. First, the OLS results show that the statistically significant estimated coefficients for the right-hand-side variables are quite close to the estimates in the full sample, as reported in Table 4. In particular, comparing the full-specification of Table 4 to the corresponding equation in Table 6 (3rd column for each measure) shows that coefficients on Council-size, Ethnic, per capita income, and the ratio of mean to median income are quite close. Thus the 465-observation sample seems quite representative of the full-sample. Second, when we instrument for the 1990 value of council-size the estimated coefficient becomes *bigger* in magnitude. The standard errors are bigger as expected but it is important to emphasize that if reverse causality was contaminating the results we would have expected a reduction in the coefficient with the IV specification. The results in Table 6 show that systematically for all three measures of government size and for specifications with and without state indicators, the magnitudes increase when we instrument for council-size.

---

[26] Data were obtained electronically from the Inter-university Consortium for Political and Social Research (ICPSR) web-site (http://www.icpsr.umich.edu), study number 0028.

[27] I also tried using council-size in 1980 as an instrument. Although I get a lot more observations there is not that much change in council-size between 1980 and 1990 for it to be a good instrument. Qualitatively the results I get are similar to the ones presented here.

Table 6. 2SLS Results for Government Size

	Log (Government Expenditures per capita)				Log (Govt. Expenditures as share of Income)				Log (Government Employment per capita)			
	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS
State Indicators	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
Constant	-1.7937***	-2.2838***	-1.6949***	-2.0302***	0.5793**	0.1431	0.6093	0.3242	-0.1096	-0.5494	0.9063**	0.5933
	0.3001	0.369	0.4203	0.5036	0.2881	0.3538	0.4136	0.4948	0.3223	0.3953	0.4138	0.4955
Log (Council-size)	0.4084***	0.6448***	0.1630**	0.3173**	0.3956***	0.6060***	0.1684**	0.2996**	0.6965***	0.9087***	0.2104***	0.3545**
	0.0832	0.1319	0.0751	0.147	0.0799	0.1265	0.0739	0.1444	0.0894	0.1413	0.074	0.1446
Ethnic	0.2327*	0.3013**	0.4237***	0.4188***	0.2595*	0.3205**	0.4687***	0.4645***	0.0629	0.1244	0.3039**	0.2993**
	0.1379	0.1422	0.1361	0.1369	0.1323	0.1363	0.1339	0.1345	0.148	0.1523	0.134	0.1347
Income per capita	0.2496***	0.2716***	0.1788***	0.1796***	-0.2502***	-0.2307***	-0.3066***	-0.3060***	-0.046	-0.0263	0.0396	0.0403
	0.0627	0.064	0.0527	0.053	0.0602	0.0613	0.0518	0.052	0.0673	0.0685	0.0519	0.0521
% BA Grad	0.1634	0.1233	0.2781	0.2754	-0.1809	-0.2166	-0.1271	-0.1295	0.4991	0.4631	0.4785**	0.4759**
	0.294	0.2971	0.2277	0.2288	0.2822	0.2848	0.224	0.2249	0.3157	0.3182	0.2241	0.2252
Mean/Median Income	0.4021**	0.4069**	0.6143***	0.6093***	0.7334***	0.7377***	0.9781***	0.9738***	1.0453***	1.0496***	0.7374***	0.7326***
	0.1883	0.19	0.1558	0.1566	0.1807	0.1821	0.1533	0.1539	0.2022	0.2035	0.1534	0.1541
Pop90 - 1st Quintile	-0.7590**	-0.7671**	-0.5950**	-0.5805**	-0.6901**	-0.6973**	-0.5116**	-0.4993**	-0.6291*	-0.6364*	-0.4531*	-0.4396*
	0.3126	0.3154	0.238	0.2395	0.3	0.3023	0.2342	0.2354	0.3357	0.3378	0.2343	0.2357
Pop90 - 2nd Quintile	-0.2626	-0.2675	-0.1823	-0.177	-0.2486	-0.2529	-0.161	-0.1566	-0.0984	-0.1028	-0.0342	-0.0294
	0.2015	0.2033	0.1516	0.1524	0.1934	0.1949	0.1492	0.1498	0.2163	0.2177	0.1492	0.15
Pop90 - 3rd Quintile	-0.4312***	-0.4429***	-0.2719***	-0.2804***	-0.4062***	-0.4166***	-0.2542**	-0.2614**	-0.3780**	-0.3885**	-0.1662	-0.1741*
	0.1395	0.1408	0.1042	0.105	0.1339	0.135	0.1025	0.1032	0.1498	0.1508	0.1026	0.1033
Pop90 - 4th Quintile	-0.1957**	-0.2023**	-0.0421	-0.053	-0.1853**	-0.1912**	-0.0432	-0.0525	-0.2024**	-0.2083**	0.0177	0.0075
	0.0883	0.0891	0.0671	0.068	0.0847	0.0854	0.066	0.0668	0.0948	0.0954	0.066	0.0669
Pop90 - 5th Quintile	-0.0012	-0.0154	0.0275*	0.0182	-0.0043	-0.0169	0.0209	0.013	-0.0376*	-0.0504**	0.0057	-0.003
	0.0192	0.0203	0.0148	0.0167	0.0184	0.0195	0.0145	0.0164	0.0206	0.0218	0.0146	0.0164
No. of obs.	465	465	465	465	465	465	465	465	465	465	465	465
Adj. R-sq	0.16	0.15	0.57	0.57	0.2	0.19	0.57	0.57	0.19	0.18	0.65	0.65
S.E. of regression	0.4738	0.4779	0.3383	0.34	0.4547	0.4582	0.3328	0.3341	0.5087	0.5119	0.333	0.3345

Notes:

Council-size is instrumented using council-size in 1960 using data from Aiken and Alford (1972). Number of observations is the common sample between Table 6 and the 1960 data. Robust standard errors are reported below coefficient estimates. * denotes significance at 10%, ** at 5% and *** at 1%. Population quintiles have population data expressed in 100,000s.

- 24 -

To summarize, results on the council-size variable seem robust to a detailed consideration to possible sources of bias and mis-specification. Given the importance of city size in affecting government spending, investigations with a 5-way spline on the population variable show that non-linear city size effects are not biasing the council-size results. An analysis of the state specific results shows that the reduction in the estimated magnitude of the effect when a complete list of state indicators is included comes from the presence of New England states which have both large councils and high government spending. While analysis with only the New England states is not very informative since there are only 92 observations, regressions for the non-New England sample show that a positive relationship between council size and spending exists within this group as well, and of close to the same magnitude as estimated in the full sample. State specific analysis also shows that state fiscal decentralization is *not* an omitted variable channel which could be biasing the results. The 2SLS results indicate that we should have greater confidence in interpreting the coefficients causally and that the magnitude of effect is, if anything, larger than the OLS estimate.

D. Discussion

Given these exercises it useful to consider thought experiments regarding the effect of the size of the council on government size. Focusing on per capita expenditures and using the specifications with a complete list of state indicators we can take 0.21 as an estimate of the magnitude of effect. This can be justified on two grounds. First it represents the approximate mid-point between the OLS (full sample) and 2SLS estimates with a full set of state indicators (Table 4, column 4 and Table 6, column 4 respectively). Second, this is approximately the estimated coefficient in the specification of section 5.2 where we allow for variation in the form of government and where we get systematic differences in cities with strong mayors versus those without (see Table 10). An addition of 1 council-men, then, to an average city council (of 7 members) would be associated with a 3 percent $(=(\frac{1}{7}) \times 0.21)$ increase in per capita city government expenditures. Given average per capita city spending of $792 this amounts to an increase of $24 per capita. In aggregate terms, these coefficients imply that for an average city of 58,000 people an addition of one political district in the city would be associated with an increase of $1.4 million $(\approx 0.03 \times 792 \times 58000)$ in the city budget.[28] With a median city budget of $17.5 million, and given that when cities consider changes in the number of seats in the city council they typically consider changes of more

---

[28] If anything, this estimate is likely to be an underestimate of the effect on aggregate expenditures. Re-doing the regressions with the log of total city government expenditures as the dependent variable gives an estimated coefficient (standard error) of (i) 0.294 (0.061) in the OLS regression of Table 4 (with state indicators); (ii) 0.353 (0.191) in the 2SLS specification of Table 3 (with state indicators); and 0.381 (0.090) in the OLS regression corresponding to those reported in section 5 with indicators and interaction for cities with strong mayors. Using the smallest of these coefficients (0.29) the estimated effect of an increase in one councilmen on the aggregate budget is $3.1 million at the sample mean and $.73 million at the sample median of total expenditures.

than one councilman, these are fairly substantial effects. Two recent examples of attempts to change city council size in fairly large cities illustrate this. In August 2000 residents of Baltimore, MD, tried to put on the November ballot a referendum to change the size of the city council from 19 to 9. The drive for putting the referendum, which was spearheaded by the League of Women Voters, argued that over the past 50 years the population of Baltimore had fallen by over 250,000 but the size of the city council had remained unchanged since 1967. Given the proposed change, our estimates would have suggested that the per capita expenditures would have been cut by 16 percent ($= 0.21 \times [\ln(19) - \ln(9)]$), from \$2,135 in 1992 to \$1899).[29]

Another recent example from a major city is that of Los Angeles. On June 8, 1999 residents of the city of Los Angeles voted on a number of ballot measures in addition to the election for the council-members. Los Angeles has a city council consisting of 15 members which has remain unchanged since 1925. Over the years, the population of the city has increased more than four times, resulting in the largest city electoral districts in the country with each council man serving more than 230,000 people. The issue of charter reform has come up many times in the history of the city, though most times the movement for major changes in the city political structure have been unsuccessful. In the period leading to the June 1999 elections two charter reform commissions—one appointed by the city council members and the other elected by the voters—were created to come up with a new charter for the city. Interestingly, one of the most controversial issue turned out to be the proposed change in the number of council-members. Eventually the two commission could not agree on a compromise measure and decided to give two options to the electorate. As a result, voters had one measure (Amendment 3) to change the council-size from 15 to 21 members and another measure (Amendment 4) to change it from 15 to 25 members.[30] Given the

---

[29] The attempt to put this measure on the ballot eventually failed since the supporters fell 1,200 signatures short of the 10,000 needed to put the referendum on the ballot. Two previous attempts to change the size and electoral structure of the city council failed in 1984 and 1991. The sources for the information are the following issues of the *Baltimore Sun*: May 3, August 21, and August 31, 2000.

[30] Voters were to vote on both measures. A majority in either would have resulted in the change in the council-size. In the case there was a majority on both measures, the measure with the greater number of votes was to be the one declared successful. As it turned out, each measure got about 35 percent votes and was thus defeated and the council-size remained unchanged at 15. However, Measure 1 on the ballot which pertained to increasing the power of the mayor of Los Angeles, Richard Riordan passed with 60 percent support. After 74 years, the city of Los Angeles successfully changed its charter but did not change the size of the legislature. Two previous attempts at changing the city council size—one in 1970 and one in 1985—had also been unsuccessful. Although supporters of the proposed change had succeeded in placing the measures on the ballot, the voters had turned them down. Information on the proposed changes and results come from *The Washington Post* (June 10,

results presented above these proposed changes would translate into substantial changes in the size of government. An increase of 6 council-members would have resulted, on average, in a 7 percent increase in per capita expenditures (a rise from the 1992 level of $1,013 per capita to $1098), while an increase to a 25 member council would have been associated with a 11 percent increase. Given the city population of about 3.5 million the aggregate effect, for the smaller of these two proposed changes, would have come to approximately an additional $300 million. Los Angeles's total budget for 1992 was $3.53 billion. It is also important to note that these estimated effects are much larger than simply the running costs of new office space and salaries for additional council-members. The Los Angeles City Clerk (Keith Comrie) estimated that the additional costs of running six more offices in the city hall would range somewhere between $800,000 to $7.8 million per year—the lower figure corresponding to the minimal cost of just the salary and benefits of 6 council-members and the latter figure corresponding to the current costs of running six fully staffed offices). Theory tells us that the effects on expenditures coming from common-pool problem are substantially greater since (a) elected politicians cater to bringing expenditures in districts; and (b) in response to an increase in council-size *all* council-members increase their spending proposals. Overall, the estimated coefficients and the proposed changes in city council sizes indicate that the effects of political districting are substantial.

E. Additional Sensitivity Analysis

In the rest of this section I present results from other sensitivity analysis exercises carried out to check the robustness of the basic results. The rows of Table 5 report the coefficients and standard errors associated with the log(council-size) variable in variations on the basic specification of Table 4, column 4.[31] For ease of reference the first row repeats the coefficient and standard errors from Table 4. The subsequent four rows were discussed above in the context of state-specific effects. Row 1(e) reports the results from one additional specification test to control for state specific effects: it controls for the share of total revenue coming from state government as a proxy for the degree of state influence in the fiscal affairs of the city. This share varies in the sample from zero to 88 percent with a mean (median) share of 16 percent (13 percent). For most cities the share of revenue coming from the state is a relatively small: for 90 percent of the sample this share is less than a third while for 95 percent of the sample it is less than 43 percent. Row 1(e) shows that the council-size coefficients do not change much when we control for this variable. I also tried dropping the observations from the basic regression for which the state share was greater than, alternatively, a half and a third. In both cases there were slight changes in the

---

1999), *The Los Angeles Times* (June 10 and June 13, 1999), and the city of Los Angeles's web site at http://www.cityofla.org/CLK/election/index.htm.

[31] The coefficients on the control variables in the individual specifications are suppressed to conserve space. Significant differences in any of the control variables are noted in the discussion. Complete results are available upon request.

magnitude of the coefficient and no weakness in the statistical significance of the council-size variable. Related to this I also looked at total intergovernmental revenue as a share of total city revenue. In addition to revenue from the state government, cities also receive transfer revenue from other governments, principally federal and other local governments. State revenue however is the biggest component in intergovernmental revenue for cities, accounting for 73 percent of total intergovernmental revenue on average. Controlling for total intergovernmental revenue as a share in total city revenue, and alternatively dropping cities with very large share of intergovernmental revenue produced results very similar to those discussed above using only the state share. It is important to note that for a good fit between theory and data most of the revenue needs to come from local sources. If most revenues came from, say, the state government and cities lobbied to get greater revenues transferred down, the appropriate measure of the "number of players" in the common-pool would be the number of municipal governments in the state amongst which the state revenues must be divided. For the city sample it is indeed the case that most revenue is from local sources. For the average city, 78 percent of the revenue comes from local sources (median = 81 percent). As a final check I ran the basic regression of Table 4 with log of the locally generated per capita government revenue as the dependent variable. The estimated coefficient (standard error) on the log(council-size variable) is 0.0856 (0.038) with a p-value of 0.024, very close to the original estimates of the effect on the size of government.

The next row in Table 5 reports the coefficients on the council-size variable when we include as an additional regressor the growth in city population. City population growth rates can be an important factor to control for because of the implications for city infrastructure. The estimated coefficient on the population growth variable is negative (−0.202 for the expenditure per capita regression) and statistically significant. When I split the population growth variable in a manner similar to the 1990 population variable as describe above I find that most of the effect is coming from the upper quintiles—the coefficients on the first three quintiles of population growth are not significant while there is very little change in the coefficients on other variables. The negative estimated effect is therefore coming from rapidly growing cities in the sample.

The common-pool argument simply relates the number of players in the council to the size of the government. A factor which might mediate this relationship is the ethnic heterogeneity of the city council. Although we control for heterogeneity of the city in all the regressions, heterogeneity of the council may be an additional channel through which spending might get affected. On the one hand, one could envisage that it is not council-size per se but the number of ethnic groups in the city council which, through a similar common-pool type argument or through some other political mechanism, is driving up government expenditures. Since bigger councils are likely to be more heterogeneous, council-size may be simply proxying for the number of (effective) ethnic groups in the council. Note that this would have different implications since it would imply that for ethnically homogeneous councils we should not see government scale reacting to the size of the council. On the other hand one could argue that ethnicity is an additional dimension—in addition to electoral districts—along which spending groups get formed so that government spending is sensitive to both the number of political districts and the number of ethnic groups in the council. Row

3 presents the results when we additionally control for a measure of the effective number of ethnic groups in the council.[32] As shown there is very little impact on the coefficient for the council-size variable. In addition the coefficient on the effective number of ethnic groups variable ranges from 0.10 to 0.12 for the three specifications and is significant at 5 percent. These results are more consistent with the latter interpretation that in addition to the number of electoral districts the number of ethnic groups is also associated with greater spending—it is not the case that the size of the council is simply proxying for the ethnic heterogeneity of the council. The next two rows (4(a) and 4(b)) provide further evidence that the effect of districting is present in both homogeneous and heterogeneous cities. I split the council-size variable at the median value of the ethnic heterogeneity for the city and estimate separate coefficients for the two sets of cities. Consistently across the three measures of government size the estimated magnitude of effect of districting is greater in more heterogeneous cities and both sets of coefficients are statistically significant for all three specifications.

It was noted earlier that most of the observations lie at low values of council size. In the government expenditure regressions 1777 of the 1972 cities in the regression sample have councils composed of nine or fewer members. To see if the relationship holds separately in big and small councils I estimate separate coefficients on council-size for the two sets of observations. As the results show we get significant effects for both large and small councils. Although the role of city size was discussed in detail above the next two rows present further evidence on the existence of the relationship in small and large cities. I estimate separate coefficients depending on whether the city population is less than or greater than the median for the sample (25,555). This is done partly to capture the commonly discussed idea that big cities (which are also more heterogeneous) have their special problems and may attain poorer outcomes for reasons other than the externalities inherent in distributive politics. Results show that (a) the magnitude of effect is stronger in large cities and (b) the statistical significance for the council-size variable in small cities drops somewhat but the coefficients are significant at 6 percent for two of the three measures and at 5 percent for the third measure of government size.

Related to the spirit of the above analysis I look at two more potentially omitted variables: inner-city versus suburban versus rural cities and population density. There may be systematic difference between inner cities and suburbs which are correlated with both

---

[32] This is in addition to controlling for the ethnic heterogeneity of the city population. The *effective* number of ethnic groups is simply the reciprocal of 1 minus the *ETHNIC* variable for the city council using councilmen-by-race data. When ethnic groups are distributed equally, it equals the number of ethnic groups. When groups are not distributed symmetrically, as in one large group and several small groups, it is less than the number of groups to capture the "effective" number of groups. This is the same variable used by, for instance, Taagepera and Shugart (1989), Ordeshook and Shvetsova (1994), and Cox (1997) in their studies of the effects of electoral systems on the number of effective parties in the legislature.

desired government expenditures and council size. Central city residents typically favour greater public services and because of being more heterogeneous may also desire bigger city councils. Suburbs generally have the opposite characteristics. The same effect to some extent can be picked up in the population density variable. Controlling for each of these types of possible omissions indicates shows that the council-size-government size relationship is robust to these considerations.

Another possible source of bias in the results could be from systematic variation in political preferences across cities. Residents of some cities, because of their political inclinations on the left-right spectrum, may prefer government to play a bigger role in their lives and this may lead to both greater government expenditures and bigger city councils. To the extent that political preferences are determined in part by income, ethnicity, and other economic characteristics, it should be noted that we are already controlling, at least to some extent, for such factors. Nevertheless it would be useful to try to directly control for the variation in political preferences across cities. One way we could try to measure this is by using voting data in the 1992 presidential election on the percentages voting for a Democrat President. Although many factors are likely to go into a voting decision, given the conventional political platforms of the Democrat and Republican parties we should expect that city residents with a innate political preference for big government are, all else being equal, more likely to vote for a Democrat candidate. Unfortunately data at the city level for the 1992 presidential election are not available but such data are available at the county level.[33] I mapped each city in the sample to the county it is located in and used the county electoral data as a proxy for the city electoral variable.[34] The results after controlling for this variable are shown in the last row in Table 5. There is little change for the council-size coefficient and interestingly the coefficient on the voting variable is not significant in any of the specifications. Given the other controls in the regression the determinants of political preferences may already be being picked up by these variables.

To summarize considerable sensitivity analysis of the full regression reported in Table 4 indicates that the results on the council-size variable are robust to a consideration of a variety of factors. Taking this basic relationship as given the next section evaluates the role of two political institutions in potentially modifying this relationship between council-size and government size.

---

[33] I was also unable to find data for the entire cross-section of cities for House or Senate elections.

[34] For this to be a good proxy it requires that there be relatively high correlation across cities in a county on voting patterns. In the absence of direct information on how large or small this variation may be, the results on this variable should be interpreted with caution.

V. RESULTS II: ELECTORAL SYSTEMS AND FORM OF GOVERNMENT

City governments across the US vary in two important respects. One is the electoral system they use to elect council-men and the other is the form of government they use—in particular, mayor-council versus manager-council forms of government. The key variation in electoral systems across cities is whether candidates are elected from the entire city or from wards within the city.[35] Traditionally cities had district based systems. At-large systems were introduced in some cities around the turn of the century in part because it was believed that at-large systems by inducing council-men to act for the good of the entire city, as opposed to a ward within it, would reduce spending pressure arising from distributive politics. The key variation in the form of government across cities is whether their form of government is more akin to presidential forms of government (mayor-council forms) or parliamentary systems (council-manager forms), as discussed above. Mayor-council forms typically have strong mayors elected independently from the city council and serve as the head of the executive branch of the government. In addition cities also vary in how much powers they concentrate in the office of the mayor with some cities giving their mayors the powers to veto council passed legislation and in particular budget legislation. The literature in the area of budgetary institutions has discussed the role a strong executive may play in breaking spending coalitions which might form in the legislature and overcoming the common-pool problem.

Table 1 demonstrated that both of these institutions change relatively infrequently in the sample. We can therefore take their distribution as largely pre-determined in the sample. The purpose of this section is to see if we get systematic variation in the relationship between council-size and government size across these two sets of political institutions. In particular the analysis looks at whether (a) at-large electoral systems and (b) strong mayor forms of government act to sever the link between council-size and government size. I discuss each in turn.

A. Electoral Systems

The three predominant forms of electoral systems used in US cities are district (or ward) systems, at-large systems, and mixed systems where some councilmen are elected by district and some at-large from the city.[36] Most cities in the sample have at-large systems: 56

---

[35] So far I have been using the terms number of districts and council-size interchangeably. To be precise I have been using the number of council-men and not the number of electoral districts as the relevant right hand side variable. The two may not be the same in cities with mixed or at-large electoral districts where more than one candidate is returned from the same district. The results in this section will justify the use of council-size as the relevant variable.

[36] In nearly all cities at-large councilmen are elected from the whole city. Only in a small fraction however are there several multi-member districts. Although I do not have the data to distinguish between single-member and multi-member district systems, Welch (1990)

percent of the total number of cities in the sample have at-large systems, 17 percent have district systems, and the remaining 27 percent have a mixed system. It is commonly believed that at-large systems, compared to district systems, can help to curtail pork-barrel type spending by inducing councilmen to treat the entire city as their constituency. For instance, Richard S. Childs, an early municipal reformer, noted the following as a criticism of ward systems (and a recommendation for at-large systems): "ward elections notoriously produced political small fry who intrigued in the council for petty favors and sought appropriations for their wards in reckless disregard of city-wide interests and the total budget" (Childs (1965), p. 37). In their review of the argument for adopting at-large systems in U.S. cities, Engstrom and McDonald (1986) note that councilmen elected at large were "expected to make decisions on the basis of what they perceived to be good for the entire city, not just one geographic or social segment of it" (p. 203). If at-large councilmen *did* cater to the good of the entire city the asymmetry in sharing the benefits and costs of public expenditures would be removed and their desired spending should not increase with the number of councilmen.

Alternatively at-large councilmen, despite running from the whole city, may have "home bases" or particular constituencies comprising of subsets of the city population that they seek to distribute expenditures to in exchange for votes. If so, we would expect the same effect from increasing at-large councilmen as from district council men—an additional at-large councilman represents an additional player in the pool.[37] Such home bases can develop along dimensions such as ethnicity, income, age and any other characteristic which can segment the city population. Indeed, even in at-large electoral systems geography may be one of the dimensions along which constituencies for individual councilmen may form with particular councilmen targeting particular sections of the city. In this sense the effect of at-large systems is to free up the dimension along which councilmen running for office may specialize and they are no longer confined by geography. All that is necessary is that they are able to target a subset of the city population which they seek to bring government expenditures in return for being voted into office. In this section I contrast the predictions of these two hypotheses and test them from the data on electoral systems. Results indicate that although critics of district systems may have been right in thinking that district systems contribute to overspending, they were likely wrong in supposing that at-large councilmen would not cater to particular constituencies within the jurisdiction.

---

collected these data in a survey and found that 1.9 percent of her sample comprised of such cities. For the empirical purposes therefore I take the district electoral systems to mean single-member district systems.

[37] See Uslaner (1985) for a study of the Israel's Knesset—an extreme example of an at-large system at the national level where all representatives are elected from the entire country— who shows that legislators identify themselves with particular constituencies within the country along geographical, ethnic, and religious lines.

It will be useful to explicitly state the two contrasting views on the role of at-large council-men:

Hypothesis I: *At-large councilmen cater to the common good of the whole city, district councilmen cater to the good of their respective districts;*

Hypothesis II: *At-large councilmen cater to particular constituencies and face the same asymmetry between benefits and costs of their policy proposals as district* councilmen.

The prediction to be tested is whether the relationship between council-size and government size is non-existent in cities with at-large council-men. As a first look at the question I estimate the following specification:

$$\log(g) = \alpha_0 + \alpha_1 D_L + \alpha_2 \log(J) + \alpha_3 D_L \cdot \log(J) + \beta \cdot Z + \varepsilon,$$

where g is a measure of the size of government, where D_L is an indicator variable for a council with a majority of the council elected at-large, J is the size of the council, and Z are all controls used in Table 4. The predictions of the two hypotheses are:

H I: $\alpha_2 > 0$, $\alpha_2 + \alpha_3 = 0$
H II: $\alpha_2 > 0, \alpha_3 = 0$

The differing predictions rest on the estimated coefficient for α_3. Results, presented in the top panel of Table 7, show that the data reject the first hypothesis for all three measures of government size. For the government expenditure regressions estimated α_3 is not statistically different from zero, indicating the same relationship between districting and government size in both district and at-large majority councils. For the government employment regression having a council with an at-large majority is associated with a negative intercept effect but a steeper positive relationship between council-size and government size. At the sample mean the net effect of switching of to an at-large majority council is an *increase* in government size of 15 percent. The coefficients on the other variables are suppressed to conserve space but they are close to the estimates in Table 4. The middle panel of Table 7 takes a closer look at the data. In the above results we had lumped together pure at-large systems with those mixed systems in which a majority of the councilmen were elected at-large. The middle panel separates the coefficients across non-mixed and mixed electoral systems. The first three coefficients therefore compare cities with district systems to at-large systems while the next three coefficients compare mixed systems with an at-large majority to mixed systems with a district majority. Results are consistent with the upper panel. Pure at-large councils have the same relationship between council-size and government spending as pure district councils, while mixed systems with a majority of at-large councilmen have the same relationship as those with a majority of district councilmen.

Table 7. Regressions for Effects of Electoral Systems

	Log (Exppc)	Log (Expsh)	Log (Govemplpc)
Panel A:			
Majority At-large	-0.2056	-0.1848	-0.4662***
	0.1358	0.1316	0.1442
Log (Council-size (J))	0.1510***	0.1475***	0.1252**
	0.0507	0.0493	0.0504
Majority At-large x Log (J)	0.075	0.0701	0.2051***
	0.0709	0.0686	0.0759
No. of obs.	1972	1972	1968
Adj. R-sq	0.33	0.43	0.45
Panel B:			
Pure x Maj. at-large	-0.1457	-0.1324	-0.3717**
	0.1399	0.1358	0.1474
Pure x Log(J)	0.1132**	0.1107**	0.0957*
	0.0495	0.0483	0.05
Pure x Maj. at-large x Log(J)	0.0735	0.0721	0.1754**
	0.0737	0.0716	0.0781
Mixed x Maj. at-large	-0.676	-0.6248	-0.7596
	0.457	0.432	0.4716
Mixed x Log(J)	0.1743***	0.1700***	0.1448***
	0.0502	0.0489	0.0504
Mixed x Maj. at-large x Log(J)	0.2953	0.2721	0.3939*
	0.1961	0.1856	0.2192
No. of obs.	1972	1972	1968
Adj. R-sq	0.33	0.43	0.45
Panel C			
Pure system	0.2651*	0.2599*	0.1896
	0.1555	0.1515	0.1586
Pure x District-share x Log(J)	0.1190***	0.1136***	0.1688***
	0.0438	0.0429	0.0461
Pure x At-large-share x Log(J)	0.1139**	0.1139**	0.1510***
	0.0494	0.0484	0.0521
Mixed x District-share x Log(J)	0.2620***	0.2547***	0.2561***
	0.0731	0.0716	0.0725
Mixed x At-large-share x Log(J)	0.4129***	0.3972***	0.4461***
	0.0805	0.0784	0.0845
No. of obs.	1972	1972	1968
Adj. R-sq	0.33	0.43	0.45

Notes:

Each panel corresponds to a different specification. *Majority At-Large* is an indicator variable for a city council with a majority of at-large councilmen. *Pure* is an indicator for an electoral system in which either all councilmen are elected by distric or all at-large and Mixed is an indicator for an electoral system in which some councilmen are elected by district and some at-large. District-share (At-large-share) is the share of district (at-large) councilmen in the council. See text for the interpretation on the transformed variables in Panel C. Robust standard errors are reported below coefficient estimates and * convention is as before. All regressions include the complete set of controls of Table 6, including state indicators and population quintiles.

The results in the middle panel of Table 7 also indicate that the magnitude of the relationship becomes stronger when we look at mixed systems. F-tests for the equality of coefficients on the council-size variable across mixed and non-mixed systems reject at p-values of less than 0.01 for all three measures of government size. This indicates that in addition to a intra-group externality mixed systems may be associated with a inter-group externality leading to even less internalization of the costs of spending proposals and hence greater sensitivity of government spending to council-size.[38]

Finally, the bottom panel of Table 7 gives another look at the same question. The above two sets of results focused on the majority of the council being elected at-large. It is possible that at-large councilmen may exert influence on spending decisions even when they do not constitute a majority. Such outcomes can come about in universalistic decision-making norms in the legislature when the aggregate decision reflects to some extent the desired outcomes of each member of the legislature. The specification estimated in the bottom panel is:

$$\log(g) = \alpha_0 + (1-D_M)\cdot\{\alpha_1 + \alpha_2 \tfrac{J_D}{J}\log(J) + \alpha_3 \tfrac{J_L}{J}\log(J)\}$$
$$+ D_M \cdot\{\alpha_4 \tfrac{J_D}{J}\log(J) + \alpha_5 \tfrac{J_L}{J}\log(J)\} + \beta\cdot Z + \varepsilon$$

where D_M is an indicator for a city with a mixed electoral system. What this specification seeks to determine is the relative effects on government size of the two types of councilmen, and the interaction with D_M does this separately for mixed and non-mixed systems. The advantage of transforming the councilmen data in this way is that (a) under the null of $\alpha_2 = \alpha_3$ (alternatively $\alpha_4 = \alpha_5$), the independent variable reduces to $\log(J)$, allowing the estimated coefficients to be compared to the previous specifications; and (b) $\alpha_2 > \alpha_3$ (alternatively $\alpha_4 > \alpha_5$) if and only if $\frac{\partial g}{\partial J_D} > \frac{\partial g}{\partial J_L}$. Hence, a comparison of α_2 and α_3 (and α_4 and α_5 respectively) allows us to compare the magnitude of the effect for the two types of councilmen.[39] The results in the bottom panel of Table 7 show, consistent with the results

---

[38] I conducted Chow tests to determine if all coefficients on the control variables should be freed as well for mixed versus non-mixed samples. The tests did not reject consistently and I therefore use one set of control variables.

[39] We can also run the regression $\log(g) = \alpha_1 + \alpha_2 J_D + \alpha_3 J_L + \beta Z + \varepsilon$, separating the coefficients across mixed and non-mixed systems as above, and testing whether $\alpha_3 = 0$. The magnitudes however cannot be compared to the previous set of results because of the log-linear specification. The results qualitatively are the same. The estimated coefficients (p-values) for such a regression for expenditures per capita, with the first two coefficients for non-mixed and the second two for mixed systems are the following: 0.120 (0.029), 0.010 (0.088), 0.019 (0.013), 0.050 (0.000).

above, (i) no qualitative difference between the effects of the two types of councilmen and (ii) different pattern of coefficients for mixed versus non-mixed electoral systems. Comparing district to at-large systems there is very little difference in the effects of the two types of councilmen—F-tests for $\hat{\alpha}_2 = \hat{\alpha}_3$ do not reject at conventional levels for all three measures. In mixed systems, the estimated marginal effect of at-large councilmen is *greater* than that of district councilmen and the difference is statistically significant—F-tests for $\hat{\alpha}_4 = \hat{\alpha}_5$ consistently reject at 5 percent for all three regressions. The combined evidence therefore implies that we can reject the hypothesis that councilmen elected at-large do not exert a positive spending pressure. Furthermore, comparing the estimated coefficients for each type of councilmen across mixed and non-mixed systems indicates stronger effects in mixed systems: F-tests for the joint hypothesis $\alpha_2 = \alpha_4, \alpha_3 = \alpha_5$ reject at p-values of less than 0.001 for all three measures of government size.

Discussion

The results presented in Table 7 demonstrate that for the purposes of the relationship between council-size and government size there is very little difference between council-men elected at-large and those elected by district, and if anything the effect goes in the opposite direction in mixed systems. If at-large systems were introduced to reduce pork-barrel type spending these results demonstrate that they are not an effective means of doing so. The evidence is much more consistent with the view that councilmen form constituencies along other dimensions when allowed to contest at-large. Seeking constituencies smaller than the entire city population can be justified on the grounds that candidates seek to minimize campaign expenditures subject to the condition that be elected to office. The result however is all the more surprising since the electoral system used in at-large city elections is a first-past-the-post system with voters typically being allowed to cast as many votes as there are seats to be filled and candidates with the largest number of votes being declared the winners. As discussed elsewhere in the literature on electoral systems (e.g. Cox (1997)) such systems tend to reduce the number of groups in the legislature. For instance, if there is a majority group and a minority group identified, say, on the basis of race, and if people vote only for members of their own group it is possible for the legislature to consist entirely of the majority group. As was discussed above the data demonstrate that at-large electoral systems act to reduce the sensitivity of council-heterogeneity to population heterogeneity. However, consistent with discussion in the sensitivity analysis of the base results, even when the council may be composed of homogeneous members there is a fiscal effect of having more councilmen which acts to increase the size of government. Thus even though at large systems may reduce council heterogeneity along other dimensions, councilmen still seek to target government expenditure to particular groups resulting in the continuation of pork-barrel type spending.

The results also demonstrated that the estimated effects are systematically larger in cities with mixed electoral systems. One concern with this result might be the following: if mixed systems tend of have fewer number of at-large and district council-men than pure at-large and pure district systems respectively, and if government size is a concave function of

council-size, then we would automatically get bigger coefficients in the mixed sample. This turns out not to be the case. Although there is suggestive evidence for government size being a concave function of council-size it is not the case that both at-large and district systems are smaller than the corresponding numbers in mixed councils, as Table 8 demonstrates.[40] The table reports the mean number of council-men elected by district and at large by electoral system. As shown mixed systems on average have larger number of district councilmen (than district systems) and smaller number of at-large councilmen (than at-large systems). The predicted changes in magnitude would therefore be in opposite directions—however the results in Table 7 show that both for district and at-large councilmen the effects become stronger in mixed councils. t-tests for the equality of means across these two types of observations reject strongly for both district and at-large councilmen.

Table 8. Mean Number of Councilmen by Electoral System

	District System	At-Large System	Mixed System
Number elected by district	2	--	5.7
Number elected at-large	--	4.5	2.6

B. Form of Government

As discussed above the other key variation in city political structures is in the form of government. Interestingly the two predominant forms of city government (mayor-council and manger-council forms of government) map quite well to presidential and parliamentary systems of government at the national level, thus enabling for a comparison with the existing cross-country literature on the relationship between political systems and budgetary outcomes.[41] One of the themes in this literature is that presidential systems of government with strong executives can enforce discipline on a legislature otherwise prone to spending too much and attain tighter budgetary outcomes. If indeed a strong executive is able to play this role one of the predictions is that the relationship between legislature size and the size of government should be affected. The sample of city governments is a useful way to test this

---

[40] The regression corresponding to column 5 in Table 4, but replacing log(J) with J and J-squared yields the following coefficients (standard errors) on the linear and quadratic terms: 0.0263 (0.0086), -0.0006 (0.00027), respectively. Both coefficients are statistically significant at 5 percent in this regression. However, at the quadratic terms loses significance in some of the regressions of Table 3 on sensitivity analysis.

[41] See for instance the recent collection in Poterba and von Hagen (2000). For a review of the literature see Alesina and Perotti (2000) in the same volume.

relationship. As discussed above mayor-council forms of government entail directly elected Mayors which serve as heads of the executive branch of government. They cannot be fired by the city council as they are often elected directly from the city. Furthermore they sometimes have the power to draft the city budget, to appoint government department heads and to veto council-passed legislation. I have collected information on these measures of powers afforded to mayors and in the same spirit as the previous section I seek to determine if the relationship between council-size and government size collapses in strong-mayor forms of government.

The basic specification I estimate is similar to the one estimated for majority at-large systems above:

$$\log(g) = \alpha_0 + \alpha_1 D_M + \alpha_2 \log(J) + \alpha_3 D_M \cdot \log(J) + \beta \cdot Z + \varepsilon$$

where D_M is an indicator variable for a strong-mayor form of government.[42] As before the hypothesis to be tested is $\alpha_2 + \alpha_3 = 0$. A strong-mayor form of government is defined alternatively in one of several ways. First, I use just the indicator for the official form of government declared by the government is the mayor-council form. Second, I use several alternative indicators for actual powers afforded to the mayor: whether the mayor (i) is elected directly from the city population; (ii) has powers to draft and present to the council the budget for the city government; (iii) has powers to appoint city department heads; (iv) has powers to veto council-passed legislation; and (v) has powers to veto specific items of appropriations in council legislation.[43]

Table 9 gives a breakdown of indicators of mayor powers by the form of government. Of the 1696 cities for which the form of government and mayor-powers data is available roughly one-third (641) have the mayor-council form of government. Subsequent rows show that this form is systematically associated with greater powers afforded to the city mayor. 78 percent of all cities have a directly elected mayor and when broken down by form of government 98 percent of all mayor-council cities have a directly elected mayor while a less proportion for council-manager cities (65 percent) have a directly elected mayor. About a third of the total number of cities give their mayors overall veto powers—74 percent of mayor-council cities give their mayors these powers but only 11 percent of council-manger cities do the same for their mayors.

---

[42] Chow tests for estimating a separate set of coefficients for the control variables do not reject at conventional levels for all three measures of government size.

[43] I do not include both the form of government and indicators of mayor powers in the regressions. Because of collinearity I do not get statistically significant estimates on either interacted term although the council-size variable continues to be significant.

Table 9. Distribution of Mayor Powers

	All Cities	Mayor-Council	Council-Manager
A) Total	1696	641	1055
Mayor:			
B) elected directly from city	1315	629	686
% of A:	78%	98%	65%
C) proposes budget to council	293	286	7
% of A:	17%	45%	1%
D) appoints deptartment heads	394	379	15
% of A:	23%	59%	1%
E) can veto council-passed measures	585	473	112
% of A:	34%	74%	11%
F) can veto specific items of appropriations	146	126	20
% of A:	9%	20%	2%

Notes:

Sample consists of all available observations and, in particular, is slightly larger than the regression sample. There are no significant differences in the pattern if sample is restricted to the regression sample.

The results from estimating the above equation are presented in Table 10. The top panel reports the results when the indicator for a strong mayor is the form of government declared by the government in the survey. First note that when we take into account the variation in the form of the government the coefficients on the log-council-size variable become stronger than the ones estimated in Table 4. The change is not coming from the change in the number of observations as running the regressions of Table 4 for this sample give coefficients very close to those reported in Table 4. Second, for two of the three measures of government size the coefficient on the interaction is negative and statistically significant at p-values of less than 8 percent. Coefficients on the other variables are suppressed but the pattern is very similar to the ones in Table 4. Formal tests for the hypothesis $\alpha_2 + \alpha_3 = 0$ do not reject at conventional levels but the test is not very powerful because of the statistically weak coefficients estimated on the interaction term.

Table 10. Regressions for Form of Government

	Log (Exp. per capita)		Log (Expsh)		Log (Govempl)	
Panel A:						
Mayor-council form	0.2619		0.2165		-0.0144	
	0.1716		0.166		0.1771	
Log (Council-size (J))	0.2213***		0.2171***		0.1758**	
	0.0701		0.0673		0.0687	
Mayor-council form x Log (J)	-0.1601*		-0.1407*		-0.0156	
	0.0871		0.0842		0.0881	
No. of obs.	1451		1451		1449	
Adj. R-sq	0.35		0.45		0.47	
Panel B:						
Mayor-veto	0.4665***		0.4348***		0.2978*	
	0.1746		0.1684		0.1772	
Log (Council-size (J))	0.2051***		0.2008***		0.2019***	
	0.0669		0.0655		0.0734	
Mayor-veto x Log (J)	-0.2222**		-0.2060**		-0.1391	
	0.0878		0.085		0.0895	
No. of obs.	1432		1432		1430	
Adj. R-sq	0.35		0.45		0.47	
Panel C:						
Specification	OLS	2SLS	OLS	2SLS	OLS	2SLS
Mayor-veto	0.469	1.411	0.500	1.358	0.806*	1.295
	0.405	1.056	0.393	1.021	0.426	1.104
Log (Council-size (J))	0.263**	0.624**	0.268**	0.612***	0.678***	0.858***
	0.131	0.225	0.126	0.217	0.137	0.235
Mayor-veto x Log (J)	-0.208	-0.668	-0.219	-0.646	-0.359*	-0.559
	0.204	0.513	0.198	0.496	0.214	0.536
No. of obs.	343	343	343	343	343	343
Adj. R-sq	0.11	0.08	0.18	0.15	0.19	0.17

Notes:

Each panel corresponds to a different specification. *Maryor-council form* is an indicator for whether the government has declared a mayor-council form of government. *Mayor-veto* is an indicator for whether the city mayor has powers to veto council-passed measures. Regressions include all other controls of Table 6, except Panel C where state indicators are not included. 2SLS specifications in Panel C use 1960 values of council-size and mayor-council form as instruments. Robust standard errors are reported below coefficient estimates and * convention is as before.

I next ran similar regressions using the indicators of actual mayor-powers using the four indicators listed above. The only indicator of mayor-powers which was associated with statistically significant results was the overall mayor veto indicator—in all other cases log-council-size was close in magnitude to the coefficients reported in the upper panel of Table

10 and was statistically significant but the interaction term was not. The results with the mayor-veto variable are presented in the middle panel of Table 10. For the expenditure measures of government size the results are quite striking—government expenditure does not increase with council-size in city governments where mayors have veto powers. For the government employment regression the p-value associated with the coefficient on the interaction term is 0.12.

It is also interesting to note that the coefficient estimated on the indicator for a mayor-veto is positive and statistically significant. A switch from a city where the mayor does not have veto powers to one where she does entails a positive intercept effect and a negative slope effect for the size of government. The overall effect depends on the size of the council—at the sample median of a seven member council the switch from a weak to a strong mayor form entails a 3 percent increase in expenditures per capita. Note the prediction of common-pool models is about the slope effect: government size increases with districting. Thus it continues to be the case that the relationship between government size and districting in strong mayor forms of government is not consistent with common-pool predictions but, holding the number of districts constant, the effect of switching to a strong mayor form is positive at for small councils and negative for big councils.

A potential problem with the results might be the possible endogeneity of the mayor-veto variable. If cities which are more prone to having fiscal problems choose strong-mayor forms of government then the coefficient on the mayor-veto is likely to be biased upwards. Available evidence, however, indicates that this is not likely the explanation. The Aiken and Alford (1972) study which was used to instrument for council-size also has information on the form of city government in 1960. Whether the city had a mayor-council form of government in 1960 turns out to be a good predictor of whether the city's mayor in 1990 has veto powers. For the common sample of 473 observations, regressing 1990 mayor-veto on 1960 form of government, all control variables used in the above regressions, and a complete set of state indicators yields highly statistically significant positive coefficients on the 1960 variable for both the linear probability model and the probit model.[44] A switch to a mayor-council form of government in 1960 is associated with a 0.40 increase in the probability of having mayor-veto in 1990 for the linear model and 0.53 increase in probability for the probit model. I next instrument for the mayor-veto variable using the 1960 form of government and run the same regression.[45] These results are displayed in the bottom panel of Table 10. For all three measures of government size the results indicate that the coefficient on the mayor-veto variable becomes stronger in magnitude in the IV specifications. The standard errors on the mayor-veto variable are also bigger but the coefficient increases by about three times for

---

[44] For both models the tests of the coefficient being different than zero reject at p-values of less than 0.001

[45] The number of observations drops further, to 343, since government expenditure variables are included in the regression.

the per capita expenditures regression.[46] If reverse causality was accounting for the positive coefficients in the OLS results we would have expected the opposite. Although this finding is not pursued further here, exploring the positive coefficient on the mayor veto indicator would make for interesting future research.[47] For the present purposes we note that addressing endogeneity considerations using the form of government 30 years ago as an instrument strengthens the results on the council-size variable as well as the interaction.

VI. CONCLUSION

The purpose of this paper was to test if the size of government is sensitive to the number of people making spending proposals out of a common revenue pool. Evidence from US cities shows that scaled measures of government size do indeed go up with the number of legislators in a city government. The finding is robust to consideration of a number of possibly omitted variables and specifications. When concerns of potential reverse causality are addressed by instrumenting with the size of the city council 30 years go, the estimated magnitude of effect becomes stronger. Although the magnitude of the estimated relationship varies with the specification, a mid-point of the estimates for the elasticity of government size with respect to the number of districts is 0.21. The findings also show that government size increases with the racial heterogeneity of the city, with a measure of the skewness of the income distribution, and that it decreases with city population in small cities but increases in large cities. Given the basic finding, the paper also looked at whether councils (a) dominated by legislators elected at-large and (b) with strong mayors are able to break this relationship between the number of players and government size. The evidence suggests "no" to the first question and a "yes" to the second. There is no evidence that councils with a majority of councilmen elected at-large (including all at-large councils and those mixed councils where at-large council-men constitute a majority) break this relationship. There is suggestive evidence that cities with strong mayors, particularly where mayors have veto powers over council passed measures, are able to break out of this relationship.

Given the relatively good fit between theory and the data at hand these findings are important for policy. They argue first of all, that for any government keeping the fiscal house in order depends in large part on how many people get to spend out of the tax revenues

---

[46] These regressions include all variables in the standard specification, including population quintiles but do not include state indicators. With the considerably smaller degrees of freedom regressions with a complete list of state indicators do not give any significant coefficients except per capita income. The direction of the change in the coefficient on the mayor-veto variable however is the same when state indicators are included.

[47] One possibility is that although strong mayors are able to enforce discipline on the council and are able to break universalistic spending coalitions, they may themselves indulge in patronage related spending by virtue of their strong position.

pool. When more people are added, everybody, including the incumbents raise their spending decisions. Second, they show the relative fruitlessness and relative usefulness respectively of the following two ways to contain this spending tendency: electing councilmen at large and giving executive strong powers. Given that these city governments share many features with national governments these findings have interesting implications for countries or states considering changes in the political process to address chronic fiscal problems. They imply that whether legislators make it to the government by running for office from the entire jurisdiction or from particular geographical districts within it their decisions with respect to government spending do not differ. The findings also imply that giving the executive veto powers may be a better way to enforce discipline on the legislature.

These findings however have left certain areas un-addressed. First is the hard issue of welfare consequences. Lower spending may be beneficial for all if the point of departure is a state of overspending arising from a common pool problem and if it is brought down for all districts. It may not be beneficial if existing spending is too low and/or if the distribution of reductions across districts is skewed. When some districts lose more spending than others the welfare consequences are unclear. Thus strong executives may reduce the distortion on the size of the budget yet they might introduce distortions in the distribution of spending if they cater to a minimum winning coalition. These issues are hard to address with the data at hand since city government budgets are not broken down by district. Such analysis may be possible however at the federal level looking at the relationship between the changes in the size of the federal budget and its distribution across congressional districts.

Another important area of research is to take one step further back and examine the question: why do some cities choose strong mayor forms of government. Such an exercise addressing the important question of why certain political institutions get chosen is admittedly difficult to address using cross-country data because of the role of history and unquantifiable factors, but it can be usefully addressed using the city government data at hand. Over the course of their history cities have occasionally changed their form of government. If the arguments presented in this paper have some bearing to reality one factor that would be important for a city deciding the form of government would be the size of the council. If the size of the council is relatively exogenous because it may depend in part on the city population, and if it is the case that bigger councils are going to have greater spending pressures, cities with large legislatures should choose strong mayor forms of government. Although OLS and probit regressions show a positive and significant effect of council-size on alternative indicators for strong mayor forms of government, the empirical challenge is to suitably identify the effect of council-size on the form of government since both may be the result of some third outside factor (such as a movement for "reform" which entailed changes to both council-size and form of government). Further work in this area would shed additional important light on these issues.

REFERENCES

Aiken, Michael and Robert Alfrod (1972), "Governmental Units Analysis Data," Inter-University Consortium for Political and Social Research, Study No. 0028, Ann Harbor, Michigan.

Alesina Alberto and A. Drazen (1991), "Why are Stabilizations Delayed?" *American Economic Review*, Vol. 82, pp. 1170-88.

Alesina, Alberto and Guido Tabellini (1990), "A Positive Theory of Budget Deficits and Government Debt," *Review of Economic Studies*, Vol. 57, pp. 403-14.

Alesina, Alberto and Roberto Perotti (1995), "The Political Economy of Budget Deficits," *IMF Staff Papers*, Vol. 42, No. 1.

Alesina, Alberto and Roberto Perotti (1999), "Budget Deficits and Budget Institutions," in James M. Poterba and Jürgen von Hagen (eds.), *Fiscal Institutions and Fiscal Performance*, University of Chicago Press, Chicago, IL.

Alesina, Alberto, Reza Baqir, and William Easterly (1999), "Public Goods and Ethnic Divisions," *The Quarterly Journal of Economics*, November, 114(4).

Alesina, Alberto, Ricardo Hausmann, Rudolf Hommes, and Ernesto Stein (1999), "Budget Institutions and Fiscal Performance in Latin America," *Journal of Development Economics*, 59(2): 253-73.

Alt, J. and R. Lowry (1994), "Divided Government and Budget Deficits: Evidence for the States," *American Political Science Review*, vol. 88, No. 4, pp. 811-828.

Baron, D. (1991), "Majoritarian Incentives, Pork Barrel Programs and Procedural Control," *American Journal of Political Science*, Vol. 35, No. 1.

Baron, D. and John Ferejohn (1989), "Bargaining in Legislature," *American Political Science Review*, Vol. 83, No. 4.

Bayoumi, T and B. Eichengreen (1995), "Restraining Yourself: The Implications of Fiscal Rules for Economic Stabilization," *IMF Staff Papers*, pp. 32-48.

Benabou, Roland (1996), "Inequality and Growth," in Ben Bernanke and Julio Rotember eds., *NBER Macroeconomics Annual 1996.*

Bohn and Inman (1996), "Balanced Budget Rule and Public Deficits: Evidence from the U.S. States," *Carnegie-Rochester Conference Series on Public Policy*, Vol. 45, pp. 13-76.

Chari, V.V., and Harold Cole (1993a), "A Contribution to the Theory of Pork Barrel Spending," Research Department Staff Report No. 156, Federal Reserve Bank of Minneapolis.

Chari, V.V., and Harold Cole (1993b), "Why are Representative Democracies Fiscally Irresponsible?" Research Department Staff Report No. 163, Federal Reserve Bank of Minneapolis.

Chari, V.V., Larry E. Jones, and Ramon Marimon (1997), "The Economics of Split-Ticket Voting in Representative Democracies," *American Economic Review*, Vol. 87, No. 5, pp. 957-76.

Childs, Richard S. (1965), *The First 50 Years of the Council-Manager Plan of Government*, New York: National Municipal League.

Collie, M. (1988), "Universalism and the Parties in the United States House of Representatives, 1921-80," *American Journal of Political Science*, Vol. 32, pp. 865-83.

Cox, G. W. (1997), *Making Votes Count: Strategic Interaction in the World's Electoral Systems*, Cambridge: Cambridge University Press.

Cox, G. W. and Timothy N. Tutt (1984), "Universalism and Allocative Decision Making in the Los Angeles County Board of Supervisors," *Journal of Politics*, Vol. 46, No. 2.

Engstrom, Richard, and Michael D. McDonald (1986), "The Effect of At-large versus District Elections on Racial Representation in U.S. Municipalities," in *Electoral Laws and Their Political Consequences*, edited by Bernard Grofman and Arand Lijphart, New York, NY: Agathon Press.

Ferejohn, A. (1974), *Pork Barrel Politics: River and harbor Legislation, 1947-68*, Stanford, CA: Stanford University Press.

Fiorina, Morris P. (1978), "Legislative Facilitation of Government Growth: Universalism and Reciprocity Practices in Majority Rule Institutions," paper presented at the Causes and Consequences of Public Sector Growth, Dorado Beach, Puerto Rico, October 1978.

Hallerberg, Mark and Jurgen von Hagen (1999), "Electoral Institutions, Cabinet Negotiations, and Budget Deficits in the European Union," in James M. Poterba and Jürgen von Hagen (eds.), *Fiscal Institutions and Fiscal Performance*, University of Chicago Press, Chicago, IL.

Inman, Robert P. and Michael A. Fitts (1990), "Political Institutions and Fiscal Policy: Evidence from the U.S. Historical Record," *Journal of Law, Economics and Organization*, Vol. 6, special issue, pp. 79-132.

Kontopoulos, Y., and Roberto Perotti (1999), "Government Fragmentation and Fiscal Policy Outcomes: Evidence from OECD Countries," in James M. Poterba and Jürgen von Hagen (eds.), *Fiscal Institutions and Fiscal Performance*, University of Chicago Press, Chicago, IL.

Maass, Arthur (1951), *Muddy Waters: The Army Engineers and the Nation's Rivers*, Cambridge, MA: Harvard University Press.

Manley, John F. (1970), *The Politics of Finance: The House Committee on Ways and Means*, Boston: Little, Brown.

Mayhew, David (1974), *Congress: The Electoral Connection*, New Haven, CT: Yale University Press.

Meltzer, Allan and Scott Richard (1981), "A Rational Theory of the Size of Government," *Journal of Political Economy*, Vol. 89, No. 5.

Meltzer, Allan and Scott Richard (1983), "Tests of a Rational Theory of the Size of Government," *Public Choice*, Vol. 41, pp. 403-418.

Mueller, Dennis C. (1985), "The Growth of Government: A Public Choice Perspective," *International Monetary Fund Staff Papers*, Vol. 34, No. 1.

Ordeshook, P. C. and O. V. Shvetsova (1994), "Ethnic Heterogeneity, District Magnitude, and the Number of Parties," *American Journal of Political Science*, Vol. 38, No. 1.

Peltzman, Sam (1980), "The Growth of Government," *The Journal of Law and Economics*, Vol. 23, No. 2.

Persson, T and L. Svensson (1989), "Why a Stubborn Conservative Would Run a Deficit: Policy with Time Inconsistent Preferences," *Quarterly Journal of Economics*, Vol. 104, pp. 325-45.

Persson, Torsten, Gerard Roland and Guido Tabellini (1997a), "Separation of Powers and Political Accountability," *Quarterly Journal of Economics*, November.

Persson, Torsten, Gerard Roland and Guido Tabellini (1997b), "Comparative Politics and Public Finance," mimeo, Harvard University.

Persson, Torsten, Gerard Roland and Guido Tabellini (1997c), "Towards Micropolitical Foundations of Public Finance," mimeo, Bocconi University, Milan.

Persson, T. and G. Tabellini (forthcoming), "Political Economics and Public Finance," chapter prepared for the *Handbook of Public Economics*.

Plott, Charles (1968), "Some Organizational Influences on Urban Renewal Decisions," *American Economic Review*, Vol. 19, pp. 211-40.

Poterba, J. (1994), "State Responses to Fiscal Crises: "Natural Experiments" for Studying the Effects of Budgetary Institutions," *Journal of Political Economy*, 102 (4): 799-821.

Roubini, Nouriel and Jeffrey D. Sachs (1989a), "Political and Economic Determinants of Budget Deficits in the Industrial Democracies," *European Economic Review*, Vol. 33, pp. 903-938.

Roubini, Nouriel and Jeffrey D. Sachs (1989b), "Government Spending and Budget Deficits in Industrial Countries," *Economic Policy*, 0 (8): 99-132.

Shepsle, Kenneth and Barry Weingast (1981), "Political Preferences for the Pork Barrel: A Generalization," *American Journal of Political Science*, Vol. 25, No. 1, pp. 96-111.

Taagepera, Rein and Matthew Sobert Shugart, (1989), *Seats and Votes: The Effects and Determinants of Electoral Systems*, New Haven, CT: Yale University Press.

Tabellini, G. and A. Alesina (1990), "Voting on the Budget Deficit," *American Economic Review*, Vol. 80, pp. 37-49.

Uslaner, Erik (1985), "Casework and Institutional Design: Redeeming Promises in the Promised Land," *Legislative Studies Quarterly*, 10(1).

Velasco, Andres (1999), "A Model of Endogenous Fiscal Deficit and Delayed Fiscal Reforms," in James M. Poterba and Jürgen von Hagen (eds.), *Fiscal Institutions and Fiscal Performance*, University of Chicago Press, Chicago, IL.

Von Hagen, Jurgen (1992), "Budgeting Procedures and Fiscal Performance in European Communities," *Economic Letters*, Vol. 96.

Von Hagen, Jurgen and Ian Harden (1994), "National Budget Process and Fiscal Performance," in *European Economy: Reports and Studies*, Vol. 3, pp. 315-418.

Weingast Barry (1979), "A Rational Choice Perspective on Congressional Norms," *American Journal of Political Science*, Vol. 23.

Weingast, Barry, Kenneth Shepsle and Christopher Johnsen (1981), "The Political Economy of Benefits and Costs: A Neoclassical Approach to Distributive Politics," *Journal of Political Economy*, Vol. 89, No. 4.

Welch, Susan (1990), "The Impact of At-large Elections on the Representation of Blacks and Hispanics," *The Journal of Politics*, vol. 52, No. 4.