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The Effects of Fiscal Structure, Leviathan, and Interdependent Demands on Local Public Spending Behavior.

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THE EFFECTS OF FISCAL STRUCTURE, LEVIATHAN, AND INTERDEPENDENT DEMANDS ON LOCAL PUBLIC SPENDING BEHAVIOR

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DEDICATION

This work, produced through the grace of God, is dedicated to
my mother, sister, grandparents, and husband.

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I wish to give credit to, recognize, and thank the many individuals who have touched my life and helped me to achieve my goal of a doctorate in economics. My undergraduate professors provided me with good intuition and inspired my interest in the economic way of thinking. My graduate professors' rigorous coursework provided me with the tools necessary to contribute. My family's high expectations helped me to finish. All have encouraged and supported me.

The following men have touched my life in significant and meaningful ways. Where are the words which will express the depths of my gratitude? I have not yet found them. Geoffrey K. Turnbull has been much more than a major professor: He has been a mentor. He has tirelessly given of his time in order that I may become a better economist. R. Carter Hill has patiently taught me how to be a good applied economist, good teacher, and good friend. William F. Campbell has taught me to ask the important questions. My entire family gratefully thanks Loren C. Scott who made me a part of his. Finally, Ron Highfield's wisdom helps transform me into the individual God wants me to become.

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to make good choices and keep looking in the mirror. To my Grams, thank you for expecting so much of me and for continually asking me, "Are you done yet?" Grams, I am finally finished!

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ABSTRACT

Understanding the fiscal behavior of subnational governments is increasingly important as fiscal responsibilities are devolved. In order to get a clearer picture of subnational government behavior, we employ a median voter model and local government data to perform tests of the fragmentation, decentralization, fiscal illusion, and overlapping jurisdictions hypotheses. A key theoretical result is that estimating horizontal effects of the leviathan and fiscal illusion models without accounting for the interdependent demands for the services of overlapping jurisdictions will result in upwardly biased estimates. We find that controlling for the overlapping jurisdictions relationship is important. This dissertation estimates each model using corresponding municipalities and counties. Our data set includes the both metropolitan and nonmetropolitan local governments in the West, Midwest, and South.

We find support for both the decentralization and fragmentation hypotheses in each municipal region. We find more evidence of behavior consistent with a leviathan at the county layer rather than at the municipal layer. Our main fiscal illusion finding is the difference in the extent of the flypaper effects across municipal and county samples. Municipal samples display a flypaper effect while the flypaper effect is much less prevalent at the county layer. In all but one case, we find symmetry in the overlapping jurisdictions relationships, i. e., changes in county expenditures affect municipal expenditures in the same way that changes in municipal expenditures affect county expenditures. We find a symmetric, complementary strategic relationship in nonmetropolitan West, metropolitan Midwest, and metropolitan Southern samples.

A related line of literature posits that the specific type of organizational form that a government takes affects the level of public expenditures. Our results support the existing public finance literature that the organizational form of government has no effect on expenditures. Our analysis, however, does find differences across types of governments with respect to the leviathan, fiscal illusion, and overlapping jurisdictions variables.

CHAPTER I

INTRODUCTION

The topic of this dissertation is the size of local government. Government growth is a familiar topic within public finance, yet the consistent attention it receives attests to its continuing importance. The national government receives most of the attention. However, the current age of devolution makes subnational governments an equally important avenue of research. In an essay entitled "The State of Federalism, 1995-1996," Weissert and Schram (1996) define the term "devolution revolution" to be the power shift from Washington to the states which is currently underway. They state the following: "Many questions remain about what states would do with the increased discretion, including how local officials will be involved" (7). They further report that several governors endorsed the idea of devolving authority to counties or other local units.

What will the outcome be as the national government devolves it responsibilities to state and local governments? This research seeks a clearer understanding of the behavior of local governments in order to gain insight into these questions. Specifically, what are the effects of the following on the size of the local public sector: competition among governments, the fiscal structure hierarchy, budgetary complexity, and the organizational form of a government? Using a median voter model, this dissertation empirically merges three separate models of local government growth: leviathan, fiscal illusion, and overlapping jurisdictions. It is natural to merge these models of government because each seeks to explain the differences in the size of the local public sector across jurisdictions. Each has been shown to explain local government behavior individually, however, combining the models is necessary in order to obtain a more complete empirical model of local government behavior. In doing so, we ascertain the extent to which any of the separate effects reinforce or offset each other.

The leviathan hypothesis includes the propositions that lower public expenditures arise as the fiscal structure becomes more decentralized and more highly fragmented. Fiscal illusion posits that individuals do not know the true marginal costs and benefits of public activity and therefore support a different level of public service than each would if he were fully informed. The model of overlapping jurisdictions studies the relationship between municipal and county spending. If overlapping jurisdictions have a complementary relationship, then the local public sector will be larger than if a substitute relationship exists. Additionally, we present a theoretical rationale for empirically merging the models. A key theoretical result is that estimating the parameters of the leviathan and fiscal illusion models without accounting for interdependent demands of the services of overlapping jurisdictions results in upwardly biased estimates.

This is the first analysis to examine regional differences in a national data set. This exercise proves to be a significant contribution due to the differences in expenditure behavior across the regions of the United States. Previous papers use either a national data set or only one region of the country. Our analysis finds that pooling the regional samples is not always appropriate, even when employing dummy variables. Additionally, it is the first study to test the hypotheses employing data for corresponding municipalities and counties. Previous papers look at only one government layer, municipality or county, or aggregate all local government spending.

Empirically implementing two-stage least squares methodology is another innovation of this research. Turnbull and Djoundourian (1993) show that possible endogeneity may arise due to the overlapping jurisdictions parameters. However, due to the empirical problem of having more than one municipality existing within a county, we have an unequal number of observations in our municipal and county metropolitan samples. Therefore, employing a system estimator like three-stage least squares precludes us from using all the information in our municipal sample. In order to keep as much information as possible and still eliminate the effects of the possible endogeneity, we employ two-stage least squares to our unbalanced sample. Additionally, based on the two-stage least squares estimates of the overlapping jurisdictions parameters, application of the Durbin-Wu-Hausman test shows that ordinary least squares estimates are consistent and efficient for most models.

The organization of this dissertation proceeds as follows: Chapter II presents a literature review of local government tests of the leviathan, fiscal illusion, and overlapping jurisdictions hypotheses. Chapter III explains the median voter model, describes the data, and presents the results of both F-tests of pooling regional samples and Durbin-Wu-Hausman tests for the effects of endogeneity of the overlapping jurisdictions parameters. Chapter IV presents the results of a cross-section empirical study using metropolitan expenditure data to test the leviathan, fiscal illusion, and overlapping jurisdictions hypotheses separately and simultaneously. Our analysis is the first to test the leviathan hypothesis using both decentralization and fragmentation defined over the Metropolitan Statistical Area. Chapter V explores the differences in local government expenditure behavior across relatively highly competitive (metropolitan) and relatively less competitive (nonmetropolitan) areas.

Chapter VI extends the analysis in another direction, exploring the extent to which specific organizational forms of government affect local government expenditures. The existing empirical evidence ignores the expenditure behavior of the leviathan, fiscal illusion, or overlapping jurisdictions hypotheses. This dissertation tests the hypothesis that the organizational form of government affects expenditures controlling for these effects for municipalities and counties. This research presents the first empirical analysis of this nature for the county layer of local government and adds to the relatively small number of contradicting municipal studies. Finally, Chapter VII presents conclusions.

CHAPTER II

LITERATURE REVIEW

The purpose of this section is to review the relevant literature on the leviathan, fiscal illusion, and overlapping jurisdictions hypotheses. Each model provides insight on why one local government may be relatively smaller or larger than another. The leviathan hypothesis includes the propositions that a more decentralized fiscal structure and more governments in an area lead to lower public expenditures. Fiscal illusion posits that individuals do not know the true marginal costs and benefits of public activity and therefore support a different level of public service than each would if he were fully informed. Finally, the model of overlapping jurisdictions studies the relationship between municipal and county spending. If the overlapping jurisdictions have a complementary relationship, then the local public sector will be larger than if a subsitute relationship exists.

LEVIATHAN MODEL OF GOVERNMENT

In *The Power to Tax*, Brennan and Buchanan (1980) argue that constraints must be imposed at the constitutional stage because, by itself, the political process cannot adequately constrain the natural proclivity of government to grow. The constitutional stage establishes the "rules of the game," i.e., the social institutions shaping incentive structures and boundaries for individual interaction. Following Rawls (1971), individuals choose the constitution under a "veil of ignorance" regarding their future position in society. Rational individuals choose a constitution establishing order through a government rather than the alternative of no collective enforcement of property rights and the resultant anarchy. However, once individuals solve the problem of anarchy by collectively giving an institution the power to enforce property rights, the government has a monopoly on the use of coercive power.

It is at this point that the work of Brennan and Buchanan diverges from that of orthodox public finance analysis. From this point of departure, orthodox public finance economists view government behavior as that of a benevolent despot, whereas Brennan and Buchanan view the despot as indifferent or even malevolent. Orthodox public finance economists believe the government can be controlled via the political process of elections and seek to offer advice to politicians and bureaucrats on the optimal size of government and how governments should behave if revenues are to be raised efficiently and equitably. On the other hand, Brennan and Buchanan believe the government cannot be controlled via the political process of elections alone and seek to find ways to constrain the government at the constitutional stage: "We assume that the political process, as it operates postconstitutionally, is not effectively constrained by electoral competition as such, and that the electoral process can appropriately constrain the natural proclivities of governments only when it is accompanied by additional constraints and rules imposed at the constitutional level"(15).

The leviathan hypothesis is the proposition that indirect, postconstitutional constraints, e.g., electoral competition, are not effective constraints on the growth of government. In other words, effectively inhibiting the natural tendency of government growth requires direct constraints like expenditure limits to be imposed at the constitutional stage. Brennan and Buchanan (1980) believe postconstitutional constraints, i.e., indirect constraints such as electoral competition, are no match for the leviathan which constantly seeks new ways to exercise its power to tax. Electoral competition acts ineffectively because of rational ignorance, uncertainties inherent in majority rule cycling, and outright collusion among elected officials (Mueller 1989 268).

The leviathan hypothesis includes several propositions on constitutional constraints which will restrict leviathan postconstitutionally. For example, Brennan and Buchanan encourage the use of the following restrictions: restricting the number of tax bases, restricting the comprehensiveness of tax bases, restricting the ability of governments to debt finance, restricting tax rate structures and restricting expenditure levels. However, Brennan and Buchanan present two cases where the need for constitutional constraints may be diminished. They posit that fiscal constraints imposed at the constitutional stage may be substituted by a public sector that is (1) decentralized and (2) fragmented. This research examines these two aspects of the structure of local governments.

DECENTRALIZTION HYPOTHESIS

Decentralization is the dispersion of political authority. In a decentralized system, fiscal powers are assigned to "lower" government tiers, e.g., municipal governments rather than county governments. Traditional fiscal federalism theory[1] recognizes the benefits of a decentralized public sector: allocation is more responsive to the tastes of consumers. If nonconformity exists in the provision of public goods, each jurisdiction's demand for public services determines, in part, the jurisdiction's level of expenditures. Through the Tiebout effect (discussed below), each constituent "votes with his feet" by choosing a jurisdiction with the fiscal package best satisfying his tastes. Brennan and Buchanan (1980) go further than traditional fiscal federalism economists in describing the benefits of a decentralized system: they argue that the size of the public sector will be smaller, stating, "Total government intrusion into the economy should be smaller, *ceteris paribus*, the greater the extent to which taxes and expenditures are decentralized, ..." (185). Decentralization produces greater competition and, hence, lower expenditures.

FRAGMENTATION HYPOTHESIS

A second benefit of decentralization posited by the traditional theory of fiscal federalism is the existence of competitive pressures which arise from a large number of producers. Competition encourages greater experimentation and innovation in the production of public goods as competitors are forced to adopt the most efficient techniques of production or lose constituents to neighboring jurisdictions.

The Tiebout hypothesis plays an important role in constraining government growth in a federalist structure. Tiebout's (1956) model assumes that the benefits of public goods do not spill over to other jurisdictions and that migration across boundaries is costless. It is the combination of voter mobility, or the ability to "vote with one's feet," and fiscal competition between governments which enables a person to locate in a community that matches his preferences for public goods. Tiebout states, "The greater the number of communities and the greater the variance among them, the closer the consumer will come to fully realizing his preference position" (418). As the number and variety of communities and fiscal structures rises, competition between governments increases.

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[1] The theory of fiscal federalism is the traditional public finance economist's approach to the assignment of government responsibilities in order to optimally achieve the three conditions of

Making two additional assumptions: no personal preferences and no locational rents exist for specific jurisdictions, Brennan and Buchanan (1980) state that "...migration among separate governmental units acts as a substitute for overt fiscal constraints" (172). In this case, the highly fragmented government structure acts as an indirect constraint on leviathan. Once the appropriate jurisdiction provides the public good and economies of scale in administration are accounted for, Brennan and Buchanan (1980) argue that leviathan's ability for fiscal exploitation decreases when the number of jurisdictions increases for two reasons. First, increasing the number of jurisdictions increases the potential for individuals to move out of a particular jurisdiction which decreases the leviathan's monopoly power. Second, the potential for collusion among politician/bureaucrats decreases when the number of possible colluders increases (180). However, when personal preferences and locational rents do exist, the leviathan has a new source with which to exploit its citizenry, reinforcing the need for constitutional fiscal constraints. The stronger the preferences and the higher the rents, the greater the need for constitutional fiscal constraints.

In a federal structure, local governmental fragmentation, i.e., competition, takes place along several dimensions. "Horizontal competition" or "interjurisdictional competition" occurs when governments on the same tier, e.g., municipality v. municipality or county v. county, compete with each other for mobile residents. "Vertical competition" or "intrajurisdictional competition" occurs when governments on different tiers compete, e.g., municipality v. county. Finally, fragmentation, in a broad sense, includes competition among all of the governments (counties, municipalities, townships, and special districts) in an area.

EMPIRICAL TESTS OF THE LEVIATHAN MODEL OF GOVERNMENT

Up to this point we have discussed the theoretical arguments of the decentralization and fragmentation hypotheses. We now shift directions and proceed with a review of the empirical findings. An empirical measure of decentralization accounts for the structure of a local government hierarchy and intends to capture which government tier spends or collects relatively more. A measure

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resource efficiency, equitable income distribution, and high levels of employment with reasonable of centralization, for example, is the share of the size of a jurisdiction which is "closer" in type to the federal government (state over county, county over municipality) in relation to a measure of the total government size. A measure of decentralization takes a measure of the size of a jurisdiction "furthest" from the federal level and then is divided by a measure of the total government size. A measure of fragmentation captures the number of governments competing in an area and may take population or land area into account.

Empirical tests using measures of fragmentation attempt to answer the question, "Does fragmentation constrain the size of government?" Similarly, empirical tests of the decentralization hypothesis attempt to answer the question, "Does decentralization constrain the size of government. Negative coefficients tell us that either decentralization or fragmentation reduces the size of government. If the coefficients are negative, then either decentralization or fragmentation acts as a constraint. Therefore, a negative coefficient is consistent with the assumptions of a leviathan government—one that is constantly seeking out new ways to expand.

Previous research performs tests of the decentralization and fragmentation hypotheses in many different ways. Table 2.1 summarizes the findings of many of these tests. The following review will only consider the tests performed using local government data: Sjoquist (1982), Schneider (1986), Zax (1989), Forbes and Zampelli (1989), and Eberts and Gronberg (1990). Sjoquist (1982) uses a median voter model and central city data from 48 Southern metropolitan areas to test the fragmentation hypothesis. He finds a significantly negative relationship between the size of the public sector, measured by general expenditures per capita, and fragmentation. His finding supports the proposition that fragmentation restrains leviathan.

Schneider's (1986) test uses municipal suburban expenditure data from metropolitan areas across the country and five measures of the size of the public sector: total expenditures, common expenditures, service expenditures, a common index, and a service index. "Common" expenditures refers to functions that are prevalent among municipalities, e.g., police and fire protection, parks and

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price stability (Oates 1972 3).

TABLE 2.1. SUMMARY OF EMPIRICAL TESTS OF DECENTRALIZATION AND FRAGMENTATION HYPOTHESES

SUPPORT Reported for Decentralization or Fragmentation Hypotheses

PAPER	TYPE[1]	UNIT	DATA	MEASURE
Sjoquist 1982	CS 1972	SMSA	expenditure	fragmentation
Lowery & Berry 1983	TS/1948-1979	national	expenditure	centralization
Nelson 1986	CS 1976	state	revenues taxes	fragmentation
Schneider 1986	CS 1977	local	expenditure	fragmentation
Nelson 1987	CS 1977	state	taxes fire exp	fragmentation
Marlow 1988	TS/1946-1985	total	expenditure	centralization
Bell 1988	TS-CS 1971/1981	state	expenditure	fragmentation
Zax 1989	CS 1982	county	revenue	centralization
Joulfaian & Marlow 1990	CS 1981 & 1984	state	expenditure	centralization & fragmentation
Eberts & Gronberg 1990	CS 1977	suburbs central cities special districts	revenue expenditure	fragmentation
Nelson 1992	TS 1942-1987 (Swiss)	municipalities > 2000 pop	expenditure	fragmentation
Grossman & West 1994	TS/1958-1987 (Canadian)	federal	expenditure	centralization

(table con't.)

AMBIGUITY Reported for Decentralization or Fragmentation Hypotheses

PAPER	TYPE[1]	UNIT	DATA	MEASURE
Oates 1985	CS 1982	national	revenue	centralization
Oates 1985	CS 1982	state	revenue	centralization & fragmentation
Raimondo 1989	TS-CS 1960,1970,1980	state + local	hospital, highway, & other expenditure	centralization
Heil 1991	CS 1985	national	revenue	centralization
Grossman & West 1994	TS/1958-1987 (Canadian)	provincial local	expenditure	centralization

REFUTATION Reported for Decentralization or Fragmentation Hypotheses

PAPER	TYPE[1]	UNIT	DATA	MEASURE
Raimondo 1989	TS-CS 1960,1970,1980	state + local	education expenditure	centralization
Forbes & Zampelli 1989	CS 1977	county	taxes revenue	fragmentation
Nelson 1992	TS 1942-1987 (Swiss)	municipalities < 2000 pop	expenditure	fragmentation

Notes: [1]CS is cross section, TS is time series, and TS-CS is time series-cross section recreation, sanitation, highways, control and administration. "Service" expenditures include expenditures on education, welfare, hospitals, and housing. The common index refers to the number of common expenditure categories each jurisdiction makes and, likewise, the service index is the number of service expenditure categories each jurisdiction makes. Schneider's measure of fragmentation is the number of suburban municipalities in the metropolitan area divided by the suburban population (which is measured in 100,000). He finds that the relationships between fragmentation and total expenditures, common expenditures, and the service index are each negative and statistically significant. Schneider's results support the claim that greater fragmentation attenuates leviathan.

Zax (1989) presents a model of intragovernmental competition within the county. His dependent variable is the sum of own-source revenues of all types of governments in the county (county, municipality, township, and special district) divided by total county personal income. He measures the structure of the local government hierarchy by using a centralization measure defined to be the share of total county revenue in the total revenues of all types of governments in the county. He reports a positive and significant coefficient on the centralization variable. This finding supports the Brennan and Buchanan claim that as the fiscal structure becomes more centralized, the public sector becomes larger. In other words, a decentralized fiscal structure restrains leviathan. Additionally, Zax tests the fragmentation hypothesis. He measures the effects of competition among general-purpose (municipalities and townships), single-purpose (special districts and independent school districts), and total governments in the county (general- and single-purpose). He defines each measure of fragmentation in two ways: per county population and per square mile of the county. He concludes that single-purpose and general-purpose governments affect the size of aggregate government revenues in the county differently. Specifically, increases in single-purpose governments lead to increases in aggregate government revenues in the county while increases in general-purpose government lead to decreases in aggregate government revenues in the county.

Forbes and Zampelli (1989) present a model of interjurisdictional competition within the county. They sum all of the taxes (own-revenues) for all counties in a metropolitan area to proxy the size of government. They use four different measures of the dependent variable: taxes per county total income, taxes per capita, own-revenues per county total income, and own-revenues per capita. They use a measure of fragmentation (the number of counties in the metropolitan area) to capture the structure of the metropolitan area. They find significantly positive coefficients for both revenue the regression and the per capita income regression. Therefore, the work of Forbes and Zampelli (1989) does not support the proposition that fragmentation constrains leviathan.

Eberts and Gronberg (1990) use the seemingly unrelated regression technique to estimate their model of the local public sector. They split the local government into three layers: suburbs, central cities, and the combination of special districts and counties. Two measures for each layer proxy the size of the public sector: the sum of expenditures on fire, police, parks, and sanitation divided by personal income and own-source revenues divided by personal income. They use two measures of fragmentation to test the leviathan hypothesis: (1) "municipal fragmentation" which is the number of suburbs and central cities divided by the population of the metropolitan area and (2) "other jurisdiction fragmentation" which is the number of counties, townships, and special districts divided by the population of the metropolitan area. They find significantly negative coefficients for the "municipal fragmentation" variable for all three levels of local government and both dependent variables, which supports the proposition that increased fragmentation constrains leviathan. On the other hand, the "other jurisdiction fragmentation" variable yields positive and significant coefficients in the own-source revenues sample for the county and special district layer of local government. This means that an increase in the number of counties, townships, and special districts leads to increases in the size of the county and special district layer of local government, which does not support the proposition that increased fragmentation constrains leviathan.

The bulk of the empirical evidence supports the proposition that fragmentation and decentralization do constrain leviathan. In light of this, the findings of Forbes and Zampelli (1989) appear curious at first glance. Forbes and Zampelli find greater horizontal competition does not constrain leviathan, but significantly promotes its growth while Schneider (1986) and Eberts and Gronberg (1990) find greater horizontal competition does constrain leviathan. Though Forbes and Zampelli use county data while Schneider and Eberts and Gronberg use municipal data, we believe the inconsistency transcends specific government tiers. Consumers locate in communities based on their preferences for revenue and expenditure patterns. Therefore, governments compete for residents through both tax competition (leading to smaller governments) and benefits competition (leading to larger governments). It is not surprising, then, that reduced form parameters from different samples give rise to different conclusions on the fragmentation hypothesis. We now turn to a discussion of the second hypothesis considered in this research: fiscal illusion.

FISCAL ILLUSION

The original work on fiscal illusion is credited to Puviani, an Italian public finance political economist writing at the turn of the century. Puviani explains government behavior using the following hypothesis: the government always acts to hide the burden of taxes from the public and acts to magnify the benefits of public expenditures (Buchanan 1960, 60). Buchanan and Wagner (1977) posit that complex and indirect tax structures will create fiscal illusion that systematically results in higher levels of public expenditures than would be found under simple and direct tax structures (129). A complex and indirect tax structure is one which extracts payments from citizens in ways that individuals will "sense" them less. Examples include taxing many different sources rather than just a few and withholding taxes from earnings. In addition, taxing individuals over time prevents the aggregation of the entire tax burden, making it more difficult for an individual to easily ascertain his marginal tax price associated with public spending.

On the other hand, Galbraith and Downs both argue that the benefits of public output are not obvious, leading to underestimation of public benefits. Downs suggests that indirect taxation is more apparent than many remote government benefits, which encourages systematic underestimation of benefits and lower levels of public expenditure (Oates 1988). Puviani maintains that the consumer is made to believe he is getting more service than he actually does, which implies an overestimation of benefits (Buchanan 1960 63). Turnbull (1998) is the first to model fiscal illusion over the benefits of government services.

It is important to note that fiscal illusion, though it is systematic misperception, does not imply that individuals are irrational. Buchanan (1967) explains that the differences between behavior under ignorance and/or uncertainty and illusion are subtle. He says that a person facing inadequate information and uncertainty will imperfectly "conceptualize alternatives," and one facing illusion will falsely "conceptualize alternatives" (126). He goes on to say that an irrational individual makes inconsistent choices while an individual under an illusion will act consistently, so that we are able to meaningfully study choices made by individuals under illusion (127). Oates (1988) agrees with Buchanan and says that fiscal illusion does not mean imperfect information. He suggests that imperfect information is necessary, but not sufficient for the existence of fiscal illusion. Oates says,

> "More specifically, fiscal illusion refers to a systematic misperception of fiscal parameters – a recurring propensity, for example, to underestimate one's tax liability associated with certain public programs. Imperfect information alone might well give rise to a random pattern of over- and underestimation of such tax liabilities. Fiscal illusion, in contrast, implies persistent and consistent behavior. As such, it will give rise to recurring, and presumably predictable, biases in budgetary decisions" (67).

How can we assume the consumer misperceives his tax burden in each time period given the modern notion of rational expectations, where individuals learn from their mistakes and, on average, perceive accurately? The first explanation of continued misperception of the tax price is found in Buchanan and Wagner (1977). They give two reasons why consistent misperception exists. First, in the public sector, unlike the private sector, "There is no process through which the taxpayer who has operated under fiscal misperceptions can be led to correct his estimates" (132). They use an analogy of an individual who uses a credit card to make ordinary purchases. This individual may be initially unaware of his costs, but he eventually gets his bill and realizes his charges and therefore has the opportunity to learn and change his future behavior. In the case of government services, however, there is no external entity which plays the role of the creditor. Secondly, they argue that the costs of making an accurate prediction outweigh the benefits; the taxpayer does not have an incentive to make accurate predictions. He realizes that he is just one in many and even if he is able to make an accurate prediction, the potential effects on public or political outcomes may be small. Therefore, he remains rationally ignorant of his tax price (132 -133).

TRADITIONAL FISCAL ILLUSION

Oates' (1979) fiscal illusion hypothesis states that individuals underestimate their marginal tax price due to the complicated budget process which leaves them unaware of intergovernmental grants, giving the government monopoly power to increase its size. The introduction of intergovernmental grants leads to the phenomenon called the flypaper effect. The flypaper effect suggests that "money sticks where it hits," i.e., an increase in the median voter's share of intergovernmental aid which is given directly to the government is more stimulative on government expenditures than an equivalent increase in the median voter's income.

The traditional fiscal illusion hypothesis of government growth is made clearer by a graphical explanation. Figure 2.1 describes the pivotal voter's choice between a private good, x, and a public good, G. The budget line AA serves as a reference budget line, where there is no intergovernmental aid and therefore no illusion at the median voter's utility maximization point, α. The introduction of aid, A, shifts the median voter's actual budget line out to BB, where β would be the point of utility maximization under complete knowledge of the intergovernmental aid. We know that the slope of the perceived budget line, AD, is flatter than the slope of the actual budget line BB, because in equilibrium, the perceived tax bill, τG, equals the actual tax bill $s(G-A)$ where τ is the perceived tax price and s is the true tax price:

$$\tau G = s(G - A),$$

dividing by G gives,

$$\tau = s(1 - A/G),$$

where the level of aid, A, is less than the level of the jurisdiction's expenditures, G. Therefore, τ is equal to s multiplied by something less than one. Though the median voter incorrectly perceives his marginal tax price to be his average tax price, he accurately perceives his total tax bill. The utility maximizing median voter point of tangency under fiscal illusion, δ, occurs where the perceived budget line intersects the actual budget line. Comparing G^{β} with G^{δ} we observe the output effect of fiscal illusion: the output maximizing public sector is able to increase the expenditures on public services beyond what the fully informed voter would support. AD represents a complete fiscal illusion, or absolutely no knowledge of intergovernmental grants. The analysis can also be performed with partial knowledge of the grant, or incomplete fiscal illusion where the median voter has some knowledge of the intergovernmental grants.

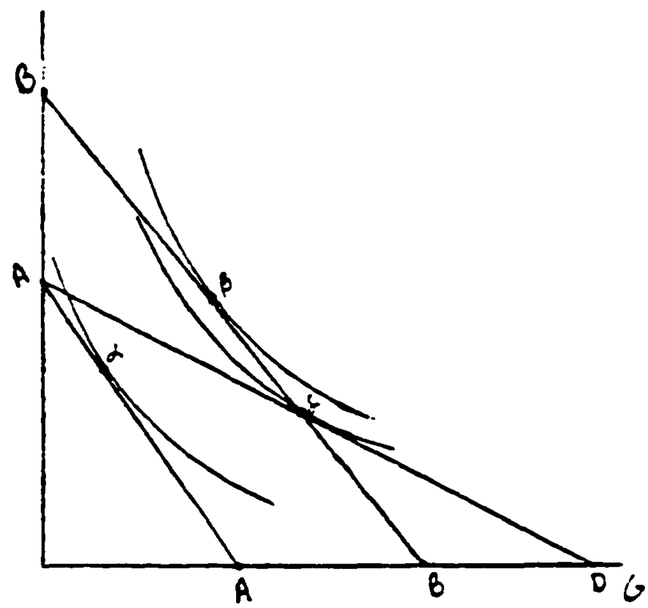

Figure 2.1. TRADITITONAL FISCAL ILLUSION

UNCERTAINTY FISCAL ILLUSION

Turnbull (1997) models fiscal illusion using uncertainty theory and extends the theoretical analysis of fiscal illusion to include the benefits of public services. His notion of fiscal illusion is broader than Buchanan (1967) and Oates (1988). He uses the following notion of fiscal illusion: "fiscal illusion as voter imperfect information <u>per se</u>, the specific form of which may vary by application." As discussed above, Oates (1988) explicitly differentiates the traditional notion of fiscal illusion from imperfect information. Oates says that imperfect information (which is Turnbull's notion of fiscal illusion) will result in a random pattern of over- and underestimation of tax price, where traditional fiscal illusion implies consistent underestimation of tax price. However, Turnbull asks, if imperfect information is a necessary condition for fiscal illusion, shouldn't imperfect information be an important part of the story? Turnbull's notion of fiscal illusion would not result from an institutionally induced bias as does the traditional notion of fiscal illusion (Buchanan and Wagner 1977 129) but arises simply out of the asymmetric information between bureaucrats and voters.[2] Because Turnbull's notion of fiscal illusion is that of imperfect information, he uses an uncertainty model. In this case, risk averse voters know they do not have all of the information and therefore choose a lower quantity of government services when faced with greater uncertainty on the tax price and benefits of public services. The important implications of this model include: an increase in tax price uncertainty reduces government spending, and the flypaper effect exists even when the voter does not systematically underestimate his true tax price.

Additionally, Turnbull extends uncertainty fiscal illusion to the perceptions of benefits of public expenditure. Therefore, his notion of fiscal illusion of the benefits is also different from the traditional notion of McCulloch, Mill, Galbraith, and Downs. Turnbull names imperfect information of benefits, "public consumption uncertainty," or "consumption risk." He shows that public consumption uncertainty induces risk adverse voters to support less government spending and does not result in a flypaper effect.

EMPRICAL TESTS OF THE FISCAL ILLUSION HYPOTHESIS

Table 2.2 summarizes the fiscal illusion empirical tests. The following discussion focuses on only the local government tests. Wagner (1976) was the first to empirically test the fiscal illusion hypothesis. He assumes that the more complicated a tax structure is, the lower are the individual's perceptions of the tax price, which leads to an increase in the quantity demanded of government services. Wagner computes a Herfindahl index to capture the degree of complexity/simplicity of the

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[2] Turnbull's analysis can be extended to include the traditional consistent underestimation of the tax price. In this case, the estimation that occurs each period will be distributed around a tax price that is lower than the true tax price.

tax structure, a construct which all other empirical tests of budgetary complexity employ. Wagner's measure is equal to the sum of the squared shares of the different revenue sources for four different sources of revenue: property tax, general sales tax, selective excise tax, and charges and fees (excluding utility revenue). He uses expenditure data on the fifty largest cities in 1967 and he finds a significant and inverse relationship between the simplicity of the revenue structure and total expenditures, which supports the traditional fiscal illusion hypothesis: as the tax structure becomes more complicated, government expenditures rise.

Munley and Greene (1978) criticize Wagner's (1976) model specification. They suggest that Wagner chose certain independent variables because they had been shown to be significant in prior testing, and point out that Wagner did not use population as an independent variable. Munley and Greene redo Wagner's (1976) analysis using per capita expenditures as the dependent variable and include population as an independent variable. They find the tax simplicity measure to be insignificant, though still negative.

Pommerehne and Schneider (1978) use Swiss municipal expenditure data from 1970. They modify the measure of tax structure by multiplying each municipality's index number by a computed median tax price in order to get a proxy for the perceived tax price in each jurisdiction. They suggest that each revenue source in the Herfindahl index should have a special weight according to its relative visibility to the median voter. Therefore, they calculate two additional measures of concentration. The first measure is a Herfindahl index calculated with the two most visible tax sources: personal income taxes and wealth taxes. They posit that the impact of this measure should be stronger than the original Herfindahl index measure. The second measure is a Herfindahl index calculated with the three most invisible tax sources: public utility taxes, taxes on interest revenue on capital, rents and leases, and the net proceeds from the sale of public property. They posit that impact of this measure should be weaker than the original Herfindahl index. They report negative and significant coefficients on each of the Herfindahl measures of tax structure, supporting the notion that a more complex revenue structure will

TABLE 2.2. SUMMARY OF EMPIRICAL TESTS OF FISCAL ILLUSION

PAPER	TYPE[1]	UNIT	DATA	RESULT
Wagner 1976	CS 1967	municipal	expenditure	finds support
Clotfelter 1976	CS 1970	state	expenditure revenue	finds support
Pommerehne & Schneider 1978	CS 1970	municipal	expenditure	finds support
Munley & Greene 1978	CS 1967	municipal	expenditure	ambiguous
Baker 1983	CS 1975	state	revenue	finds support
Breeden & Hunter 1985	CS 1975	municipal	revenue	finds support
Garand 1988, 1989	TS-CS 1945-1984	state	expenditure	ambiguous
Turnbull 1997	CS 1980	municipal	expenditure	finds support

Notes: [1]CS is cross section, TS is time series, and TS-CS is time series-cross section lead to greater government expenditures. Additionally, they report that the other two measures of the Herfindahl index accounting for visibility of the tax source have the predicted impacts.

Breeden and Hunter (1985) test the fiscal illusion hypothesis using 1975 municipal tax revenues of 37 cities with a population over 200,000. Using a Herfindahl index, they find a negative and significant relationship between simplicity and government revenues, supporting traditional fiscal illusion.

Turnbull (1998) empirically estimates his model, though he points out there is no direct way to measure the degree of voter uncertainty with the type of expenditure data typically available. He uses 1980 municipal data to explore the relationship between the complexity of the revenue system and the complexity of the expenditure system with the level of government expenditures. He measures fiscal complexity with two Herfindahl indexes--one using revenue sources and another using expenditure categories. The joint effect of the parameters and the presence of the flypaper effect determine which type of fiscal illusion is present in the data. Turnbull reports that the combined effect of the Herfindahls is significantly positive, supporting his notion of tax price risk and consumption risk.

As in the empirical results for the decentralization and fragmentation hypotheses, the fiscal illusion empirical results are inconsistent. This research intends to sort out some of these inconsistencies. We now turn to the third hypothesis considered in this research.

OVERLAPPING JURISDICTIONS

As defined by Turnbull and Djoundourian (1993), strategic relationships exist between overlapping jurisdictions. If increases in spending of one tier leads to increases in spending of the other tier, then the demands for county and municipal services have a strategic complementary relationship. On the other hand, if increases in spending of one tier lead to decreases in spending of the other tier, then the demands for county and municipal services exhibit a strategic substitute relationship.

Breton (1987) states that a federal structure adds competition to that already present in a party government (273). Therefore, if spending at one tier is a substitute for spending at another tier, then government growth is naturally constrained by the federal system and vertical competition exists. However, Breton argues that politicians working together to achieve a particular end can easily degenerate into "collusion, conspiracy, and connivance (274)." Therefore, if spending at one tier is a complement to spending at another tier, the growth of government is encouraged by the federal structure.

Suppose Figure 2.2 is a map of a county that is made up of two municipal governments, A and B. The points a and b represent the median voter of each municipality, respectively, and c represents the median voter of the county. All of the analysis assumes that the county median voter is not the municipality median voter. In the case where the county median voter is the same person as the municipality median voter, i.e., a or b equals c, the analysis takes the form of a joint demand function and not interdependent demand functions and is therefore not within the scope of this paper.

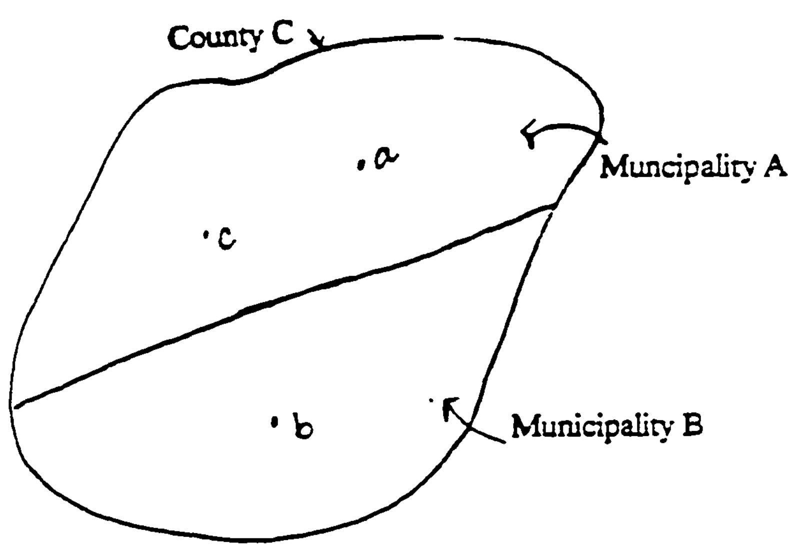

Figure 2.2. MAP OF COUNTY

There are two cases to consider when analyzing the interdependent demands of county and municipal spending. The first case is when the municipal median voter takes county spending as given, i.e., the county spending level is exogenous to the municipal median voter b. The second case is when the municipal median voter's demand for municipal spending is set simultaneously with the county median voter's demand for county spending. For example, the county spending level is endogenous to the municipal median voter a because the county median voter lives in the same municipality. The following analysis will consider both cases in turn and will extend the work of Turnbull and Djoundourian (1993). Appendix I contains the comparative statics and the derivation of the best response functions discussed below.

Municipality B maximizes the utility of its median voter, U^b, subject to his income constraint:

$$\max_{\{x^b,\ E_m^b\}} \quad U^b = U^b(x^b, E_m^b, E_c^b) \quad s.t.\ m^b = x^b + T_m^b + T_c^b \tag{2.1}$$

where x^b is his private consumption, E_m^b is his municipal public good consumption, E_c^b is his county public good consumption, m^b is the median voter's income, T_m^b is the tax bill he pays to the municipality, and T_c^b is the tax bill he pays to the county. Solving the maximization problem for the median voter's demand for municipal public spending yields the municipal best response function:

$$E_m^{b*} = \phi^b(s_m^b, m^b, A_m^b, T_c^b, E_c^b) \tag{2.2}$$

The second case is when the municipal median voter's demand for municipal spending is set endogenously with the county median voter's demand for county spending because the county median voter lives in the same jurisdiction as the municipal median voter. Therefore, there are two median voters, one for the municipality and one for the county. For example, the municipality median voter a and the county median voter c both live in municipality A. The problem is now one of simultaneous maximization. At the same time the county selects the equilibrium county expenditures to maximize the county median voter's utility, the municipality selects the equilibrium municipal expenditures to maximize the municipal median voter's utility. Municipality A's problem is the same as municipality B's, except that it occurs at the same time the county is solving its problem. The county's problem is to maximize the utility of the county median voter:

$$\max_{\{x^c, E_c^c\}} \quad U^c(x^c, E_m^b, E_c^c) \quad s.t \quad m^c = x^c + T_m^c + T_c^c \tag{2.3}$$

where x^c is the county median voter's private consumption, E_c^c is his county public good consumption, E_m^c is his municipal public good consumption, m^c is his income, T_m^c is his municipal tax bill, and T_c^c is his county tax bill. Solving for the county median voter's demand for county spending yields the county best response function,

$$E_c^{c^*} = \phi^c(s_c^c, m^c, A^c, T_m^c, E_m^c). \tag{2.4}$$

The relationship between municipal and county public spending can be analyzed using best response functions. On a graph of county expenditures versus municipal expenditures, strategic complementary best response functions are upward sloping and strategic substitutionary best response functions are downward sloping (Tirole 1988). Figure 2.3 demonstrates the relationship between municipal and county spending when they are strategic complements. The point A represents the

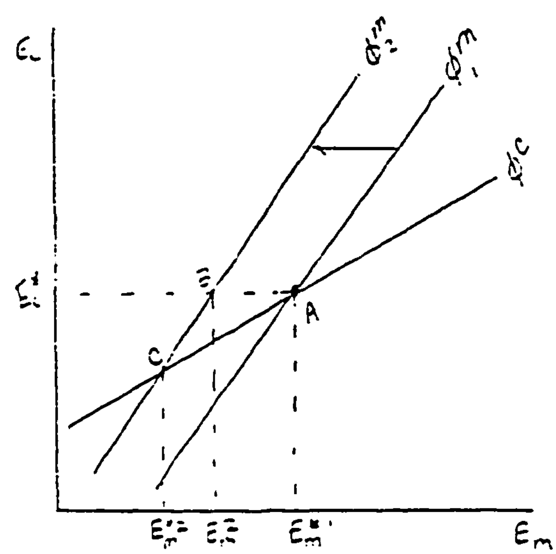

Figure 2.3. STRATEGIC COMPLEMENTS

Nash equilibrium. We observe only the points where the two functions intersect (Tirole 1988 208). Therefore, when there is a decrease in municipal spending, e.g. due to a decrease in the municipal median voter a 's income, the municipal reaction function shifts left and the new Nash equilibrium point we observe is C, where there is a lower level of both municipal and county spending. The reduction in municipal spending leads to a reduction in county spending due to the strategic complements relationship. Figure 2.4 demonstrates the relationship between municipal and county spending when they are strategic substitutes. Again, point A represents the Nash equilibrium and we only observe points of intersection. In this case, a decrease in municipal spending shifts the municipal reaction function left giving the new equilibrium C with a higher level of county expenditures.

The type of relationship, whether substitute or complement, is important in the discussion of the relative size of government. If a substitute relationship exists, spending by one tier reduces spending of the other tier, constraining leviathan. Alternately, a complementary relationship, spending by one tier increases spending by the other, gives leviathan another way to grow.

Turnbull and Djoundourian (1993) estimate the relationship between 139 municipalities in the Midwest and the corresponding counties. They report that there is a strong, positive relationship

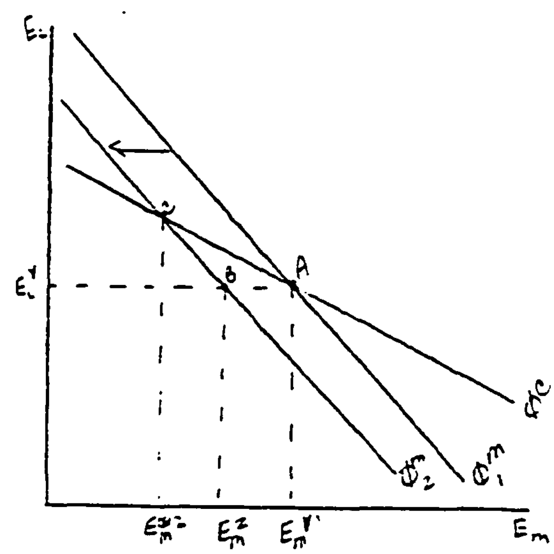

Figure 2.4. STRATEGIC SUBSTITUTES

between county spending and municipal spending using general purpose expenditures. This finding supports the conclusion of a strategic complementary relationship for the Midwestern municipalities. The same is not found using specific services.

RATIONALE FOR MERGING MODELS OF LOCAL GOVERNMENT GROWTH

Traditionally researched separately, we appropriately merge fiscal illusion and overlapping jurisdictions hypotheses with the leviathan hypothesis. Fiscal illusion and collusion of government officials across tiers are two mechanisms the leviathan uses to exploit its citizenry. Brennan and Buchanan state that politicians/bureaucrats can use the information asymmetry that exists between the electorate and the politicians/bureaucrats to mislead the electorate (1980 20). Brennan and Buchanan's argument is the basis of the fiscal illusion hypothesis. Brennan and Buchanan also view collusion as another of leviathan's methods (185). In merging the models, we allow for the possibility of collusion via the overlapping jurisdictions hypothesis.

The vertical relationship has direct implications for measuring the effects of leviathan and fiscal illusion. In Figure 2.3, suppose an increase in horizontal competition among municipalities reduces the municipal reaction function. The increase in the number of municipalities serves to reduce the expenditures in each municipality shifting the municipal reaction function to the left. The actual reduction in equilibrium municipal spending is caused by both the increased fragmentation <u>and</u> the complementary relationship between municipal and county spending demands. The effect of only horizontal competition is the movement from A to B and the corresponding reduction in municipal expenditures is from E_m^{1*} to E_m^2. The complementarity between municipal and county expenditures results in the movement from B to C and a further reduction in municipal expenditures E_m^2 to E_m^{2*}. Therefore, because we only observe points A and C, estimating fragmentation, without accounting for vertical competition, will result in an overestimation of the effect of horizontal competition. This result generalizes to all of the different influences on spending, which is an important reason for merging the three literatures.

Figure 2.4 demonstrates the relationship between municipal and county spending when they are strategic substitutes. The point A represents a Nash equilibrium, when there is a decrease in municipal spending the municipal reaction function shifts left and the new Nash equilibrium point we observe is C. The new point C represents a lower level of municipal equilibrium spending and a higher level of county equilibrium spending. The reduction in municipal spending leads to an increase in county spending due to the strategic substitute relationship. If the reduction in the municipal reaction function is due to an increase in fragmentation, for example, it is important to note that the actual reduction in equilibrium municipal spending is caused by both the fragmentation and the substitute relationship between municipal and county spending demands. The effect of only horizontal competition is the movement from A to B and the corresponding reduction in municipal expenditures is from E_m^{1*} to E_m^2. The substitutability between municipal and county expenditures results in the movement from B to C and a further reduction in municipal expenditures E_m^2 to E_m^{2*}. Again, because we only observe points A and C, estimation of fragmentation, without accounting for vertical competition, will result in an overestimation of the effect of horizontal competition.

CONCLUSION

Integrating the leviathan model of government and fiscal illusion hypothesis into a system of overlapping jurisdictions is the focus of this research. Each model provides insight as to why one local government may be relatively smaller or larger than another. Merging the models enables us to determine whether any of the separate effects reinforce or offset each other. Moreover, controlling for the overlapping jurisdictions parameters allows us to avoid the overestimation of fragmentation, decentralization, budgetary complexity and flypaper effects common in previous papers. Additionally, this research seeks to understand the inconsistency in empirical findings on the leviathan and fiscal illusion hypotheses. We now turn to a discussion of the empirical methodology and data collection.

CHAPTER III

THE MEDIAN VOTER MODEL, DATA, AND METHODOLOGY

MEDIAN VOTER MODEL

In order to isolate the relative effects of decentralization, fragmentation, fiscal illusion, and overlapping jurisdictions, we must first control for heterogeneity in preferences for public services across jurisdictions. The median voter model (MVM) is the most popular method for aggregating preferences of individuals' demand for public goods within a jurisdiction. In the MVM, the median voter's preferences emerge as the jurisdictions preferences.[1] The MVM is not a complete model of the public sector equilibrium, because it only represents the demand side. Holcombe (1989) points out that the MVM serves in much the same way that the summing of individual demand curves results in a market demand curve. The MVM provides a way of controlling for different demands for public goods across jurisdictions. We will add "supply-side" variables to account for the effects of decentralization and fragmentation of the fiscal structure, fiscal illusion, and overlapping jurisdictions to complete our empirical models.

The individual with the median income in the jurisdiction represents the median voter when estimating the demand for public goods. Inman (1979) reviews five sufficient conditions laid out by Bergstrom and Goodman (1973) ensuring that the quantity of public goods demanded by the voter with the median income always equals the median quantity of public goods demanded in each community.[2] Bergstrom and Goodman (1973 286) suggest that if there were "frequent and substantial variations" in these conditions, the median voter model could not be expected to give reasonable estimates of income or tax share elasticity. Other problems of the MVM include accounting for the variation in the cost of public spending across observations due to the difference in factor prices, the

[1] As Holcombe (1989) points out, the median voter model (MVM) should not be confused with the median voter hypothesis (MVH). The MVH implies that the public sector actually provides the quantity demanded by the median voter, while the MVM does not.
[2] income distributions are proportional across the communities; each household's tax share s is a constant elasticity function of household income m, $s = am^{\varepsilon}$; all households have identical log-linear

degree of publicness, and economies or diseconomies of scale in production of the public good. Regardless, there is no widely accepted alternative model of individual preference aggregation. Additionally, there is surprisingly strong empirical support for the MVM, in general (Turnbull and Djoundourian 1994).

IMPLEMENTING THE MEDIAN VOTER MODEL

We obtain the median voter's demand by maximizing his utility subject to his income constraint. The following represents the median voter's simple budget constraint when all intergovernmental aid is lump-sum:

$$P_g G = tB_T + A \tag{3.1}$$

where P_g is the price of the public good, G is the amount of the public good, t is the property tax rate, B_T is the total tax base of the jurisdiction, and A is lump-sum intergovernmental aid received by the jurisdiction. Under a balanced-budget, setting the level of expenditure determines the tax rate:

$$t = (1/B_T)(P_g G - A).$$

The median voter's tax bill is the tax rate multiplied by the value of his property, B_m:

$$tB_m = (B_m/B_T)(P_g G - A).$$

Let s represent the median voter's share of taxes, (B_m/B_T), so that

$$tB_m = s(P_g G - A). \tag{3.2}$$

The median voter's utility is a function of a private good x and the public good G and the median voter's demand is the solution to the problem:

$$\underset{\{x,G\}}{\text{Max}} \quad U(x,G) \quad s.t. \quad m = x + tB_m \tag{3.3}$$

where the price of the private good is assumed to be one and the voter's tax bill is (3.2). Substituting (3.2) into the voter's budget constraint and collecting the income terms gives

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demand for public services as a function only of income and tax shares, $g = Zm^{\alpha}s^{\beta}$; the relevant elasticities do not violate the condition $\alpha + \beta\varepsilon \neq 0$; and all households vote sincerely.

$$(m+sA)=x+sP_gG.$$

We introduce congestion of the public good following Borcherding and Deacon (1972) and Bergstrom and Goodman (1973):

$$g=Gn^{-\pi} \tag{3.4}$$

where g is the median voter's consumption of the public good which depends upon the extent of the congestion of the public good. The value of π must lie between zero and one. If π is equal to one, then the publicly provided good is a purely private good where one individual's consumption precludes all other individual's consumption possibilities by the original reduction. However, if π equals zero, then it is a Samuelsonian pure public good where one individual's consumption does not reduce the level of consumption possibilities available to all other individuals.

Substituting (3.4) into the voter's budget constraint gives,

$$(m+sA)=x+sP_ggn^{\pi} \tag{3.5}$$

Simplifying (3.5),

$$\tilde{m}=x+\tau g \tag{3.6}$$

where $\tilde{m}=(m+sA)$ and $\tau=sP_gn^{\pi}$. Revising the problem gives,

$$\underset{\{x,g\}}{\text{Max}} \quad U(x,gn^{\pi}) \quad s.t. \quad \tilde{m}=x+\tau g \tag{3.7}$$

Solving (3.7) gives the median voter's demand for the public good as a function of his income in addition to his shares of aid and his tax price:

$$g^{*}=f(\tilde{m},\tau)=f(m+sA,sP_gn^{\pi}). \tag{3.8}$$

In order to make (3.8) operational, we employ a constant elasticity form with a multiplicative error (Judge, et al. 1985) giving the following reduced form function:

$$g=a(m+(sA))^{\alpha_1}(sP_gn^{\pi})^{\alpha_2}\exp\{\varepsilon\} \tag{3.9}$$

In order to empirically test the fiscal illusion theoretical prediction of the flypaper effect, we separate median income and share of aid in order to capture the differences in the marginal effects (Turnbull 1995):

$$g = a(m)^{\beta_1}(sA)^{\beta_2}(sP_g n^{\pi})^{\beta_3}\exp\{\varepsilon\} \tag{3.10}$$

Unfortunately, the level of g is not observable. However, we do observe the level of government expenditures. If we multiply (3.9) by population n, we arrive at the following:

$$G^{*} = a(m)^{\beta_1}(sA)^{\beta_2}(sP_g n^{\pi})^{\beta_3} n^{\pi}\exp\{\varepsilon\} \tag{3.11}$$

Further, if we multiply (3.10) by the price of the public good, P_g, we obtain the level of expenditures, EXP, which is observable:

$$EXP^{*} = a(m)^{\beta_1}(sA)^{\beta_2}(sP_g n^{\pi})^{\beta_3} n^{\pi} P_g \exp\{\varepsilon\}. \tag{3.12}$$

Taking the natural logs and collecting terms gives the following:

$$\ln(EXP) = \ln(a) + \beta_1\ln(m) + \beta_2\ln(sA) + \beta_3\ln(s) + \pi(\beta_3+1)\ln(n) + (\beta_3+1)\ln(P_g) + \varepsilon. \tag{3.13}$$

Under constant returns to scale, the unit cost of the public good, P_g, merges with the constant term and we now have the following way to estimate a jurisdiction's spending behavior:

$$\ln(EXP) = \beta_0 + \beta_1\ln(m) + \beta_2\ln(sA) + \beta_3\ln(s) + \pi(\beta_3+1)\ln(n) + \varepsilon. \tag{3.14}$$

In per capita terms:

$$\ln(EXP/n) = \beta_0 + \beta_1\ln(m) + \beta_2\ln(sA) + \beta_3\ln(s) + [\pi(\beta_3+1) - 1]\ln(n) + \varepsilon. \tag{3.15}$$

or simply:

$$\ln(EXP/n) = \beta_0 + \beta_1\ln(m) + \beta_2\ln(sA) + \beta_3\ln(s) + \beta_4\ln(n) + \varepsilon. \tag{3.16}$$

We assume the errors are distributed with mean zero and heteroskedastic variance of an unknown form.

The median voter model gives us a way to control for differing demands for public goods across jurisdictions. Using (3.16) as a point of departure, we want to explain differences in expenditure levels across jurisdictions due to different fiscal structures described by the fragmentation, decentralization, fiscal illusion, and overlapping jurisdiction hypotheses. The following questions summarize each hypothesis:

i.) The fragmentation hypothesis seeks to answer the question:

> Does having more jurisdictions in an area lead to lower expenditures?

ii.) The decentralization hypothesis seeks to answer the question:

> Does having a fiscal structure that spends relatively more at a lower tier of government lead to lower expenditures?

iii.) The fiscal illusion hypothesis seeks to answer the question

> Does the simplicity/complexity of the budgetary structure affect expenditures?

iv.) The overlapping jurisdictions hypothesis seeks to answer the question:

> Is there a strategic relationship between municipal and county expenditures and how does this relationship affect expenditures at either level?

In Chapter IV, we begin by pursuing i.) and ii.), iii.), and iv.) separately, as is typical in the literature. We then extend the empirical analysis to address the three effects simultaneously. Chapter V attempts to answer the question, "Does being located inside (or outside) of an Metropolitan Statistical Area (MSA)significantly affect expenditures?" Additionally, we extend the analysis to include a discussion of the specific organizational type of government. Chapter VI attempts to answer the question, "Does the organizational form of government significantly affect expenditures?"

TAXONOMY OF MODELS

We use the following taxonomy of models in each chapter: Model 1 is the basic median voter model which aggregates preferences for public services in each jurisdiction. Model 2 tests the fragmentation and decentralization hypotheses. Model 3 allows the data to reveal which type of fiscal illusion is present. Model 4 tests the overlapping jurisdictions hypothesis. Model 5 combines the fragmentation and decentralization hypotheses and the fiscal illusion hypothesis, Model 6 combines the fragmentation and decentralization hypotheses and the overlapping jurisdictions hypothesis, and model 7 combines the fiscal illusion and overlapping jurisdictions hypotheses. Finally, model 8 merges all three hypotheses. We append an "a" or a "b" to the model number in order to emphasize differences in the measures used to test the fragmentation hypothesis (explained in Chapter V).

DESCRIPTION OF THE DATA

This is the first research using corresponding municipal and county data. Additionally, this is the first research employing both Metropolitan Statistical Areas (MSA) and nonmetropolitan (nonMSA) data. We use local data, i.e., municipal and county, rather than state or national, to provide the best possible test of the fragmentation hypothesis. The MSA samples come from the fifty most highly populated MSAs in the West, Midwest, and South.[3] We exclude the Northeast because of its unique definitions of "municipality" and "county" relative to definitions used elsewhere.[4] Within these MSAs, data on total municipal property value were available for 530 municipalities. Therefore, we have 530 observations in our MSA regionally pooled municipal sample. These municipalities lie inside of 166 counties. Therefore, we have 166 observations in our MSA regionally pooled county sample. The nonmetropolitan samples include areas not classified as an "MSA" and not classified as "rural." These municipalities and counties are drawn from the nonmetropolitan areas in states corresponding to the states in the MSA samples. Within these nonmetropolitan areas, data on total municipal property value were available for 178 municipalities and the corresponding 178 counties. Appendix V contains summary statistics for these samples.

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[3] The MSAs included in the sample are the following: Los Angeles-Anaheim-Riverside, CA; Chicago-Gary, IL; San Francisco-Oakland-San Jose, CA; Detroit-Ann Arbor, MI; Washington, DC, Dallas-Ft. Worth, TX; Houston-Galveston-Brazoria, TX; Miami-Ft. Lauderdale, FL; Atlanta, Cleveland-Akron-Lorain, OH; Seattle-Tacoma, WA; San Diego, CA; Minneapolis-St.Paul, MN; St. Louis, MO; Baltimore, MD; Phoenix, AZ; Tampa-St.Petersburg-Clearwater, FL; Denver-Boulder, CO; Cincinnati-Hamiltion, OH; Milwakee-Racine, WI; Kansas City, MO-KS; Sacramento, CA; Portland-Vancouver, OR-WA; Norfolk-Virginia Beach-Newport News, VA; Columbus, OH; San Antonio, TX; Indianapolis, IN; New Orleans, LA; Charlotte-Gastonia-Rock Hill, NC-SC; Orlando, Salt Lake City, UT; Nashville, TN; Memphis, TN-AR-MS; Oklahoma City, OK; Louisville, KY-IN; Dayton-Springfield, OH; Greensboro-Winston-Salem-High Point, NC; Birmingham, AL; Jacksonville, FL; Richmond-Petersburgh, VA; W. Palm Beach-Boca Raton-Delray Beach, FL; Austin, TX; Las Vegas, NV; Raleigh-Durham, NC; Tulsa, OK; Grand Rapids, MI; Fresno, CA; Tucson, AZ; Greenville-Spartanburg, SC; and Omaha, NE-IA.

[4] Additionally, we exclude any city that is coterminous with its county (geographically or effectively due to consolidated local governments).

EXPLANATION OF VARIABLES

In the context of municipalities, the median voter model takes the following form:

$$\ln(EXP^m/n^m) = \beta_0 + \beta_1 \ln(m^m) + \beta_2 \ln(s_m^m A^m) + \beta_3 \ln(s_m^m) + \beta_4 \ln(n^m) + \varepsilon^m$$

where EXP^m is municipal common expenditures, the sum of expenditures on highways, police, fire, and park and recreation; n^m is municipal population; m^m is the municipal median voter's household income; $s_m^m A^m$ is the municipal median voter's share of intergovernmental aid received by the municipality; and s_m^m is the municipal median voter's tax share. For counties, the median voter model takes the following form:

$$\ln(EXP^c/n^c) = \beta_0 + \beta_1 \ln(m^c) + \beta_2 \ln(s_c^c A^c) + \beta_3 \ln(s_c^c) + \beta_4 \ln(n^c) + \varepsilon^c$$

where EXP^c is county common expenditures, the sum of expenditures on highways, police, corrections, and park and recreation; n^c is county population; $s_c^c A^c$ is the county median voter's share of intergovernmental aid received by the county; s_c^c is the county median voter's county tax share. See Tables 3.1 and 3.2 for a summary of the above explanations.

The measure of income is median household income. The median voter's tax share is the median house value divided by the jurisdiction's total property tax base. Median income and median house value are taken from 1980 census data while municipal total property tax base comes from 1983 *Moody's Municipal and Government Manual*. All other data were collected from the 1982 Census of Governments. See Table 3.3 for a more complete list of the data sources.

METHODOLOGY

In all but a few cases (which are discussed below), we use ordinary least squares (OLS) to obtain our empirical results. In using OLS, we assume the following: the errors have some distribution such that the expected value of each error is zero and the variances are constant across all observations; each independent variable is not correlated with the error, so that the X matrix is nonstochastic; and the same expenditure process holds for each observation.

Table 3.1. Summary of Variables for Municipal Equation

EXP^m	=	Municipal Common Exp = Highways + Police + Fire + Park and Rec Expenditures
n^m	=	Municipal population
m^m	=	Municipal median voter's household income
s_m^m	=	Municipal median voter's municipal tax price
$s_m^m A^m$	=	Municipal median voter's share of intergovernmental aid

Table 3.2. Summary of Variables for County Equation

EXP^c	=	County Common Exp = Highway + Police + Corrections + Park and Rec Expenditures
n^c	=	County population
m^c	=	County median voter's household income
s_c^c	=	County median voter's county tax price
$s_c^c A^c$	=	County median voter's share of intergovernmental aid

Table 3.3. Summary of Data Sources

Variable	Jurisdiction	Source
Median Household Income	M, C[1]	*Characteristics of the Population, General Social and Economic Characteristics* 1980 Census of Population, PC80-1-by state, Table 57
Median House Value	M, C	*Characteristics of Housing Units, General Housing Characteristics,* 1980 Census of Housing, HC80-1-by state, Municipal: Tables 20, 31, and 37; County: Table 48
Total Property Value	M	*Moody's Municipal and Government Manual,* 1983 Vol. 1 and Vol. 2
Total Property Value	C	*Taxable Property Values and Assessment-Sales Price Ratios,* 1982 Census of Governments, GC82(2) Table 20 Vol. 2
Types of Tax Revenue	M, C	*Finance Summary Statistics,* 1982 Census of Governments, Inter-University Consortium for Political and Social Research, Series 8394[2]
Intergovernmental aid, Population, Total Tax Revenue, Expenditures	M	*Finances of Municipalities* 1982 Census of Governments, GC82(4)-4 Table 18 Vol. 4 No. 4
Intergovernmental aid, Population, Total Tax Revenue, Expenditures	C	*Finances of Counties* 1982 Census of Governments, GC82(4)-3 Table 13 Vol. 4 No. 3
Number of Governments in the County	M, C	*Governmental Organization* 1982 Census of Governments, GC82(1) Vol.1, Table 16

[1] M = municipality, C = county.

[2] We obtained these data through a file-transfer from the Inter-University Consortium for Political and Socal Research. Neither the collectors of the original data (1982 Census of Governments) nor the Consortium bear any responsibility for the analysis or interpretations presented here.

WHITE'S HETEROSKEDASTIC CONSISTENT STANDARD ERRORS

We suspect that heteroskedasticity is present because we are using cross sectional data, however, we have not yet constructed a model for it. Therefore, we use the consistent estimator of the standard errors suggested by White (1980). The estimated covariance matrix becomes $(X'X)^{-1}X'DX(X'X)^{-1}$ where D is a diagonal matrix containing the squares of the OLS estimated errors and X is the usual design matrix. This covariance matrix is preferred over the standard OLS covariance matrix which is inappropriate when heteroskedasticity is thought to be present but is not accounted for in estimation. Therefore we base our conclusions on White's errors.

F-TESTS OF STRUCTURAL BREAKS

Our sample consists of three regions of the United States. We perform F-tests in order to determine whether or not we can pool these regions. Large F-statistics, relative to the F-critical values, signal rejection of the null hypothesis of equal regressions or no structural breaks across regions. The municipal and county results for the MSA, nonMSA, and the pooled MSA and nonMSA (termed "complete") are in Tables 3.4 and 3.5, respectively. We conclude that for each sample there is at least one region that cannot be pooled with the others. However, some of the differences lie only in the intercept and not in the slopes.[5] When this is the case, we can pool the regions and use a dummy variable to allow the intercepts to differ. We can regionally pool models 1, 2, 2a, 3, 4, and 5 for the municipal MSA sample, models 1, 2, 2a, 3, and 5a for the municipal nonmetropolitan sample, and models 1, 2a, 3, and 5a for the county MSA sample when allowing the intercepts for each region to differ. We will limit our discussion of regionally pooled samples to these models.

DURBIN-WU-HAUSMAN TESTS FOR ENDOGENEITY

The theory of overlapping jurisdictions, as discussed in Chapter II, posits county and municipal expenditures may be simultaneously determined. If this is the case, the OLS

Table 3.4. **Municipal F-tests of Pooling West, Midwest, and South Regions**

Model	*Complete*	*MSA*	*nonMSA*
n=	708	530	178
1	9.533**	7.608**[1]	3.153**[1]
	.000	.000	.001
2	-	4.660**[1]	-
		.000	
2a	8.535**	6.927**[1]	2.475**[1]
	.000	.000	.005
3	6.434**	4.676**[1]	2.572**[1]
	.000	.000	.002
4	4.431**	3.053**[1]	2.913**
	.000	.000	.000
5	-	3.155**[1]	-
		.000	
5a	6.035**	4.365**	2.182**[1]
	.000	.000	.008
6	-	2.643**	-
		.000	
6a	4.732**	3.541**	3.450**
	.000	.000	.000
7	3.867**	2.597**	2.355**
	.000	.000	.001
8	-	2.359**	-
		.000	
8a	4.008**	2.915**	2.764**
	.000	.000	.000

Notes: [1] F-test shows the difference only to be in the intercept.
- variable not defined over nonMSA.
Probability values follow F-statistics.* $p < .05$.** $p < .01$.

[5] Johnston (1991) discusses the F-test with the null hypothesis of equivalent slopes allowing the intercepts to differ.

Table 3.5. County F-tests of Pooling West, Midwest, and South Regions

	Complete	*MSA*	*nonMSA*
n=	344	166	178
Model			
1	9.166**	3.637**[1]	7.671**
	.000	.000	.000
2	-	3.436**	-
		.000	
2b	8.112**	3.156**[1]	6.061**
	.000	.000	.000
3	7.453**	2.936**[1]	6.289**
	.000	.001	.000
4	4.106**	2.586**	3.142**
	.000	.001	.000
5	-	2.783**	-
		.000	
5b	6.976**	2.680**[1]	5.323**
	.000	.001	.000
6	-	2.638**	-
		.000	
6b	3.721**	2.175**	2.846**
	.000	.005	.000
7	3.927**	2.306**	2.821**
	.000	.002	.000
8	-	2.252**	-
		.002	
8b	3.700**	1.984**[1]	2.606**
	.000	.008	.000

Notes: [1] F-test shows the difference only to be in the intercept.
- variable not defined over MSA.
Probability values follow F-statistics.* p < .05.** p < .01.

assumption that each independent variable is not correlated with the error may be violated and using OLS would be inappropriate. The Durbin-Wu-Hausman (DWH) test provides a way to determine whether the effects of any endogeneity are serious and therefore would result in biased OLS estimates (Davidson and MacKinnon 1993). The DWH test determines whether the parameters of interest have been estimated consistently, i.e., we can ascertain whether the variable of interest and the error are orthogonal. When explaining municipal per capita expenditures, for example, the DWH null hypothesis is that county per capita expenditures and the error are uncorrelated, so that, both OLS and 2SLS estimates are consistent. The DWH alternative hypothesis is that county expenditures and the error are correlated, making OLS estimates inconsistent while 2SLS estimates remain consistent. If there is a significant difference between the two sets of estimates, the test statistic will be large. If the test statistic is larger than the χ^2 -squared critical value, we reject the null in favor of the alternative hypothesis. If we reject the null we conclude the OLS estimates are biased and inconsistent and use 2SLS estimates which are consistent, though not efficient. If we do not reject the null, we conclude that the OLS estimates are consistent, and proceed using these estimates because they are efficient. Appendix II presents the innovation of using 2SLS with unbalanced samples while Appendix III presents the formulation of the DWH test.

Table 3.6 presents the results of the DWH tests for the municipal samples when county per capita expenditure is the variable of interest. Table 3.7 presents the results of the DWH tests for the county samples when municipal per capita expenditure is the variable of interest. In most cases, we find the OLS estimates to be superior. However, the 2SLS estimates are superior in the municipal and county nonmetropolitan Midwestern samples, and in all of the pooled MSA and nonMSA "complete" Southern county models. Therefore, in the following chapters we report the 2SLS estimates for these models and OLS estimates for all other models.

Table 3.6. Municipal Durbin-Wu-Hausman Tests

Model:	4	6	6a	7	8	8a
Complete	- -	- -	- -	- -	- -	- -
MSA	.000	.000	- -	- -	- -	- -
	.999	.999				
nonMSA	- -	- -	- -	- -	- -	- -
West	.000	-	.000	.000	-	.000
	.999		.999	.999		.999
MSA	.000	.000	.000	.000	.000	.000
	.999	.999	.999	.999	.999	.999
nonMSA	.000	-	.000	.000	-	.000
	.999		.999	.999		.999
Midwest	.000	-	.000	.000	-	.000
	.999		.999	.999		.999
MSA	.000	.000	.000	.000	.000	.000
	.999	.998	.999	.999	.999	.999
nonMSA	6.685*	-	4.467*	.311	-	21.228**
	.012		.039	.579		.000
South	.000	-	.000	.000	-	.000
	.999		.999	.999		.999
MSA	.000	.000	.000	.000	.000	.000
	.999	.999	.999	.999	.999	.999
nonMSA	.000	-	.000	.000	-	.000
	.999		.999	.999		.999

Notes: - variable not defined over MSA.
- - unable to regionally pool.
Probability values follow DWH statistics. * $p < .05$. ** $p < .01$.

Table 3.7. County Durbin-Wu-Hausman Tests

Model:	4	6	6b	7	8	8b
Complete	- -	- -	- -	- -	- -	- -
MSA	- -	- -	- -	- -	- -	- -
nonMSA	- -	- -	- -	- -	- -	- -
West	.000	-	.000	.000	-	.000
	.999		.999	.999		.999
MSA	.000	.000	.000	.000	.000	.000
	.998	.999	.999	.999	.999	.999
nonMSA	.000	-	.000	.000	-	.000
	.992		.999	.998		.999
Midwest	.029	-	.129	.152	-	.643
	.865		.720	.698		.424
MSA	.000	.000	.000	.000	.000	.000
	.995	.999	.999	.999	.999	.999
nonMSA	3.024	-	4.905*	9.686**	-	10.930**
	.088		.031	.003		.002
South	4.290*	-	4.329*	6.094*	-	6.056**
	.040		.039	.015		.015
MSA	.292	.098	.334	.374	.035	.608
	.591	.755	.565	.543	.852	.439
nonMSA	.000	-	.000	.000	-	.000
	.997		.999	.999		.999

Notes: - variable not defined over MSA.
- - unable to regionally pool.
Probability values follow DWH statistics. * p < .05. ** p < .01.

CONCLUSION

The F-tests of pooling the regional samples support the conclusion that the basic expenditure behavior is similar across regions when accounting for different intercepts for each region. Moreover, both metropolitan and nonmetropolitan municipal samples also suggest that the expenditure behavior is similar across regions when controlling for leviathan (model 2), fiscal illusion (model 3), overlapping jurisdictions (model 4), and the leviathan and fiscal illusion model 5. However, when either leviathan and/or fiscal illusion are combined with overlapping jurisdictions variables, the municipal expenditure behavior is significantly different across regions. For the county MSA sample, any model controlling for overlapping jurisdictions shows expenditure behavior to be significantly different across regions.

Through the Durbin-Wu-Hausman tests, we find that the potential endogeneity of county and municipal expenditures does not present a problem for OLS estimation, except in the nonmetropolitan Midwest samples and the pooled MSA and nonMSA South county sample. This is not surprising. In most cases our data set contains several municipalities per each county. However, there will be, at most, one municipality where endogeneity may be present (the case when a municipality holds both the municipal median voter and the county median voter). We say "at most" because our data set does not contain all the municipalities in each county, therefore, this pivotal county voter's municipality may not be included in our data set. Additionally, no data is available on the unincorporated areas within a county and these areas may hold the county median voter.

CHAPTER IV

MERGING LEVIATHAN, FISCAL ILLUSION, AND OVERLAPPING JURISDICTIONS MODELS

This chapter empirically merges three separate models of local government growth: the leviathan, fiscal illusion, and overlapping jurisdictions hypotheses. Each model seeks to explain differences in the size of the local public sector. Testing for a leviathan government includes testing whether a decentralized and/or fragmented fiscal structure reduces public expenditures. Fiscal illusion posits that individuals do not know the true marginal costs and benefits of public activity and therefore support a different level of public service than each would if he were fully informed. Finally, the model of overlapping jurisdictions studies the relationship between municipal and county spending. If overlapping jurisdictions have a complementary relationship, then the local public sector will be larger than if a substitute relationship exists. Integrating these separate strands of literature provides a unique opportunity to see whether the expansion (contraction) effects envisioned by one might be offset by the contraction (expansion) effects envisioned by the others. Additionally, we are able to test each hypothesis more accurately when controlling for the other influences on public spending.

TESTING LEVIATHAN

Brennan and Buchanan (1980) posit that relatively greater fragmentation and greater decentralization will constrain the size of government. In order to test for these effects, we add variables to account for the extent of fragmentation, $\ln(FRAG)$, and the extent of decentralization, $\ln(DEC)$, to the median voter model developed in Chapter III:

$$\ln(EXP/n) = \alpha_0 + \alpha_1 \ln(m) + \alpha_2 \ln(sA) + \alpha_3 \ln(s) + \alpha_4 \ln(n) + \alpha_5 \ln(FRAG) + \alpha_6 \ln(DEC) + \varepsilon. \qquad (4.1)$$

The fragmentation hypothesis predicts a negative relationship between the number of jurisdictions in an area and the size of the leviathan, $\alpha_5 < 0$. This research uses a measure of fragmentation that can be thought of as horizontal competition. Horizontal competition is competition among governments on the same tier, e.g., municipalities v. municipalities or counties v. counties. Fragmentation in a broader sense would include all of the governments (counties, municipalities, townships, and special districts) in an area. Understanding the nature of horizontal competition will inform an understanding of the broader measure of fragmentation. Therefore, this research analyzes horizontal competition while extensions will analyze fragmentation in the broader sense. Our measure of fragmentation follows Schneider (1986): the number of jurisdictions (either municipalities or counties) in a Metropolitan Statistical Area (MSA) per MSA population (measured in 100,000). Therefore, each jurisdiction in an MSA will have the same value of fragmentation.

The decentralization hypothesis predicts a negative relationship between decentralization and the size of the public sector, $\alpha_6 < 0$. The decentralization measure proxies for the structure of local government hierarchies and intends to capture which layer of government spends or collects relatively more. In order to be consistent with our fragmentation measure, our decentralization measure is also defined over the MSA. This is the first research to define decentralization over the MSA: the sum of total expenditures of all the municipalities in the MSA divided by the sum of total expenditures of all the municipalities and counties in the MSA. Oates (1989) advocates combining both fragmentation and decentralization measures in empirical studies. This is the first paper using expenditure data for both municipal and county governments which uses both of these measures.

TESTING FISCAL ILLUSION

Fiscal illusion posits that the size of the public sector demanded by individuals depends upon their perceptions of the marginal costs and benefits of government. When perceptions do not reflect the actual, or true, marginal costs and benefits, voters are fooled into supporting a different size of the public sector than they would have chosen if they knew the true costs and benefits (Buchanan and Wagner 1977). Fiscal illusion empirical models proxy the complexity of the budget structure using a Herfindahl index of tax revenue structure (Wagner 1976, Munley and Green 1978, Pommerhene and Schneider 1978, Breeden and Hunter 1985, Turnbull 1997) and a Herfindahl index of expenditure structure (Turnbull 1997). A jurisdiction with only one tax source (expenditure categories) will have a tax Herfindahl equal to one. On the other hand, the more tax sources (expenditure categories) a jurisdiction has, the lower its Herfindahl value. As the budget structure becomes more complicated, individuals will find it harder to accurately perceive the marginal benefits and marginal costs of additional government services, implying greater fiscal illusion. Following Turnbull (1997) we use two Herfindahl indices: $TXCON$ is a Herfindahl over tax sources and $EXCON$ is a Herfindahl over expenditure categories. Table 4.1 describes our Herfindahl indices which use sources of tax revenues and expenditures that are common in the literature. Adding these proxies to the median voter model determines, in part, the type of fiscal illusion present in the data:

$$\ln(EXP/n) = \delta_0 + \delta_1 \ln(m) + \delta_2 \ln(sA) + \delta_3 \ln(s) + \delta_4 \ln(n) + \delta_5 \ln(TXCON) + \delta_6 \ln(EXCON) + \varepsilon. \quad (4.2)$$

The traditional fiscal illusion hypothesis predicts a negative relationship between the joint effect of $TXCON$ and $EXCON$ and expenditures: the more complicated the budget structure (i.e., a lower Herfindahl), the more inaccurate and lower the perception of the marginal tax price, therefore individuals are induced to support a higher quantity demanded of government services. Turnbull's uncertainty model, on the other hand, predicts that when uncertainty increases on the tax price, on benefits received, or on both, risk averse individuals, who realize they do not know the true marginal costs and benefits, support a smaller public sector (1997). Turnbull's notion of fiscal illusion predicts that a more complex budget structure (i.e., a lower Herfindahl value) is associated with greater taxpayer uncertainty, and therefore, reduced public expenditures. This uncertainty effect of fiscal illusion by itself implies a positive joint effect of coefficients δ_5 and δ_6. When coupled with the traditional fiscal illusion, Turnbull shows that the joint effect of δ_5 and δ_6 can take any sign, depending upon the relative strengths of the offsetting fiscal illusion effects.

In addition to the output effect, information on the extent of the flypaper effect also helps to determine which type of fiscal illusion is present in the data. According to Fisher (1982), a flypaper effect, intergovernmental aid received by the public sector stimulates local government expenditures more than an equivalent increase in private personal income, exists when

$$(E_{G(sA)})_e > (sA/I)(E_{GI})_e$$

where $(E_{G(sA)})_e$ is the estimated elasticity of public expenditures, G, with respect to the median voter's share of lump-sum aid sA, s is the median voter's tax share, A is total lump-sum aid, I is the

Table 4.1. Definition of Herfindahls

$TXCON =$	(property tax revenue / TR)^2 + (general sales tax revenue / TR)^2 + (income tax revenue / TR)^2 + (other tax revenue / TR)^2 where TR is total tax revenue,
$EXCON^m =$	(education / EXP^m)^2 + (public welfare / EXP^m)^2 + (health and hospitals / EXP^m)^2 + (highways / EXP^m)^2 + (police / EXP^m)^2 + (fire / EXP^m)^2 + (park and rec / EXP^m)^2 + (housing and community develop / EXP^m)^2 + (sewerage and sanitation / EXP^m)^2, where EXP^m is total municipal expenditures, and
$EXCON^c =$	(education / EXP^c)^2 + (welfare / EXP^c)^2 + (hospitals/ EXP^c)^2 + (health / EXP^c)^2 + (highways / EXP^c)^2 + (police / EXP^c)^2 + (correction / EXP^c)^2 + (sewerage and sanitation / EXP^c)^2 + (natural resources and park and rec / EXP^c)^2 , where EXP^c is total county expenditures.

median voter's income, and $(E_{GI})_e$ is estimated elasticity of public expenditures with respect to the median voter's income. The size of the flypaper effect is

$$(E_{G(sA)})_e - ({}^{sA}\!/_{I})(E_{GI})_e \text{ [1]} \tag{4.3}$$

A flypaper effect exists when (4.3) is positive. Both the traditional certainty model of fiscal illusion and the uncertainty model of tax price risk predict a flypaper effect, while the benefits uncertainty model does not (Turnbull 1997).

TESTING OVERLAPPING JURISDICTIONS

Overlapping jurisdictions theory posits that there is a systematic, significant relationship between the demands for services provided by governments at different layers in the federalist tier (Turnbull and Djoundourian 1993). If an increase in expenditures of one tier leads to decreases in expenditures of the other tier, then the two types of governments are considered to be strategic substitutes. If this is the case, then a meaningful notion of "vertical competition" exits which reduces the total size of the local government sector. On the other hand, if an increase in expenditures of one tier leads to an increase in expenditures of the other tier, then demand for expenditures of the two governments is considered to be strategically complementary. In the latter case there is no notion of vertical competition, *per se*, but instead possible cooperation/collusion that leads to an overall larger local public sector.

In order to estimate the municipal best response function between municipal expenditures and county expenditures, we add the county variables of population n^c, county intergovernmental aid A^c, the municipal median voter's county tax share s_c^m, and per capita county expenditures, ${}^{EXP^c}\!/_{n^c}$ to median voter model (Turnbull and Djoundourian 1993):

$$\begin{aligned} \ln({}^{EXP^m}\!/_{n^m}) = \gamma_0 + \gamma_1 \ln(m^m) + \gamma_2 \ln(s_m^m A^m) + \gamma_3 \ln(s_m^m) + \gamma_4 \ln(n^m) + \\ \gamma_5 \ln(n^c) + \gamma_6 \ln(A^c) + \gamma_7 \ln(s_c^m) + \gamma_8 \ln({}^{EXP^c}\!/_{n^c}) + \varepsilon^m \end{aligned} \tag{4.4}$$

[1] We arrive at a measure of $({}^{sA}\!/_{I})$ by obtaining the value of $({}^{sA}\!/_{I})$ for each observation and then take the mean of the column

where m^m is the municipal median voter's income, s_m^m is the municipal median voter's municipal tax share, A^m is the total intergovernmental aid the municipality receives. A significantly negative sign on $\ln(EXP^c/_{n^c})$, $\gamma_8 < 0$, reflects a strategic substitute relationship and vertical competition. A significantly positive sign on $\ln(EXP^c/_{n^c})$, $\gamma_8 > 0$, reflects a strategic complementary relationship.

To find the county expenditure best response function, we instead add municipal population n^m, municipal intergovernmental aid A^m, the county median voter's municipal tax share, s_m^c, and per capita municipal expenditures, $EXP^m/_{n^m}$:

$$\begin{aligned}\ln(EXP^c/_{n^c}) = \beta_0 + \beta_1 \ln(m^c) + \beta_2 \ln(s_c^c A^c) + \beta_3 \ln(s_c^c) + \beta_4 \ln(n^c) + \\ \beta_5 \ln(n^m) + \beta_6 \ln(A^m) + \beta_7 \ln(s_m^c) + \beta_8 \ln(EXP^m/_{n^m}) + \varepsilon^c\end{aligned} \tag{4.5}$$

where m^c, s_c^c, and $s_c^c A^c$ are the county median voter's income, county tax price, and share of intergovernmental aid to the county, and n^c is county population. A significantly negative sign on $\ln(EXP^m/_{n^m})$, $\gamma_8 < 0$, indicates a strategic substitute relationship and a significantly positive sign, $\gamma_8 > 0$, indicates a strategic complement relationship.

GENERALIZING THE EMPIRICAL MODELS

The focus of this study is to bring together the different strands of literature in order to determine whether any of the separate effects of the fragmentation, decentralization, fiscal illusion, and overlapping jurisdictions reinforce or offset each other. Recall from Chapter II that estimating the horizontal effects (fragmentation, decentralization, and fiscal illusion) without controlling for the vertical relationship leads to overestimated parameters. We predict that models controlling for the overlapping jurisdictions parameters will result in smaller (absolute value) estimates of fragmentation, decentralization, and fiscal illusion or reduced significance of the parameters.

We use the following taxonomy of models: Model 1 is the basic median voter model which aggregates preferences for public services in each jurisdiction. Model 2 tests the decentalization hypothesis through the effect on $\ln(DEC)$ and the fragmentation hypothesis through the effect on

$\ln(FRAG)$. Model 3 allows the data to reveal which type of fiscal illusion is present through both the $\ln(TXCON)$ and $\ln(EXCON)$ measures and the flypaper effect. Model 4 tests the overlapping jurisdictions hypothesis through the variable $\ln(EXP^c/n^c)$ in equations where $\ln(EXP^m/n^m)$ is the dependent variable or through the variable $\ln(EXP^m/n^m)$ in equations where $\ln(EXP^c/n^c)$ is the dependent variable. Model 5 combines the decentralization and fragmentation hypotheses and the fiscal illusion hypothesis. Model 6 results when the overlapping jurisdictions variables are added to model 2, and model 7 results when the overlapping jurisdictions variables are added to model 3. Finally, model 8 merges all three hypotheses and results from adding the overlapping jurisdictions variables to model 5.

EMPIRICAL RESULTS

The models are estimated using 1980 data from the fifty most highly populated MSAs outside of the Northeast. We use municipal and county data, rather than state or national data, to capture the effects of horizontal competition between jurisdictions and therefore provide the best possible test of the fragmentation hypothesis. This research uses local governments as the unit of analysis due to the fact that mobility costs are lower when moving across local jurisdictions than when moving across state lines and because mobility is the key mechanism in the fragmentation hypothesis. Within the fifty MSAs, data on total municipal property value were available for 530 municipalities. The 530 municipalities are contained in 166 counties. Table 4.2 presents the number of observations for each regional sample. Chapter III presents a discussion on the sources of the data and Appendix IV presents the summary statistics. This chapter presents only the estimates of interest and their corresponding probability values. Complete tables, including White's standard errors, are in Appendix V.

Table 4.2. Number of Observations

	Municipality	*County*
Regionally Pooled	530	166
West	126	38
Midwest	254	57
South	150	71

Table 4.3 presents the coefficients on dummy variables equal to one for Midwestern and Southern regions for both the regionally pooled municipal and county samples. In each case the Midwestern and Southern dummy variables are significantly negative. We therefore conclude that Midwestern and Southern per capita expenditures are significantly lower than Western per capita expenditures for both municipalities and counties. We now turn to the empirical findings for the decentralization and fragmentation hypotheses, the fiscal illusion hypothesis, and the overlapping jurisdictions hypothesis.

LEVIATHAN

Municipalities

Decentralization. Table 4.4 presents the coefficients on $\ln(DEC)$ and the corresponding one-tailed probability values for each municipal sample. Our findings show a lack of support for the decentralization hypothesis at the municipal layer. The decentralization coefficients are in the predicted, negative direction in the Midwest and Southern samples. However, Southern model 5 (Table 4.4 DD) is the only time the coefficient is statistically significant.

Fragmentation. Table 4.5 presents the coefficients on $\ln(FRAG^{m})$ and the corresponding one-tailed probability values for each municipal sample. Our results do not support the fragmentation hypothesis. Similar to the decentralization coefficients, the fragmentation coefficients are generally in the predicted, negative direction in the Midwest and South, but most are not significant. Again, only one case is significant: Midwest model 8 (Table 4.5 CF).

Discussion

These are the first results of testing the decentralization hypothesis at the municipal layer, so we lack any comparable studies. On the other hand, we can compare our fragmentation results to those of Sjoquist (1982), Schneider (1986), and Eberts and Gronberg (1990). We find no evidence that either fragmentation or decentralization constrain government expenditures at the municipal

Table 4.3. **Coefficients on Regional Dummy Variables**

		Municipality		County	
	A	B	C	D	E
	Region:	*Midwest*	*South*	*Midwest*	*South*
	Model:				
A	**1**	-.300** .000	-.254** .000	-.494** .000	-.355** .003
B	**2**	-.289** .000	-.250** .000	- -	- -
C	**3**	-.273** .000	-.225** .000	-.491** .000	-.354** .003
D	**4**	-.250** .000	-.220** .000	- -	- -
E	**5**	-.252** .000	-.216** .000	- -	- -
F	**6**	- -	- -	- -	- -
G	**7**	- -	- -	- -	- -
H	**8**	- -	- -	- -	- -

Notes: - - unable to regionally pool.
Probability values follow estimates. * p < .05. ** p < .01.

Table 4.4. Municipal Decentralization Coefficients

	A	B	C	D	E	F
	Model:		**2**	**5**	**6**	**8**
		n=				
A	***Regionally Pooled***	530	-.049 .213	-.076 .140	- -	- -
B	***West***	126	.130 .820	.140 .848	.188 .860	.187 .864
C	***Midwest***	254	-.139 .243	-.335 .100	-.428 .057	-.458 .058
D	***South***	150	-.119 .065	-.158* .028	-.022 .402	-.047 .294

Notes: - - unable to regionally pool.
One-tailed t-tests.
Probability values follow estimates. * $p < .05$. ** $p < .01$.

Table 4.5. Municipal Fragmentation Coefficients

	A	B	C	D	E	F
	Model:		**2**	**5**	**6**	**8**
		n=				
A	***Regionally Pooled***	530	-.006 .444	-.012 .387	- -	- -
B	***West***	126	.069 .779	.072 .786	.065 .763	.071 .788
C	***Midwest***	254	-.070 .207	-.147 .061	-.064 .267	-.165* .049
D	***South***	150	-.003 .477	-.018 .382	.054 .804	.041 .740

Notes: - - unable to regionally pool.
One-tailed t-tests.
Probability values follow estimates. * $p < .05$. ** $p < .01$.

layer. This is surprising, considering the bulk of empirical evidence supports the fragmentation hypothesis.

Though our measures of the dependent variable and fragmentation are similar to those used by Schneider (1986) and Eberts and Gronberg (1990), we arrive at different conclusions. We believe the differences arise because of different regression procedures. Both Schneider and Eberts and Gronberg have national datasets, use ad hoc empirical models rather than a median voter model, and differentiate between central cities and suburbs. Additionally, both use a regression technique different from ordinary least squares: Schneider uses stepwise regression while Eberts and Gronberg use seemingly unrelated regression. First, both studies use an income variable that is different from the median and both neglect to account for the tax price of government services. Regardless, re-estimating the model using only suburbs and deleting the tax share variable does not change our regionally pooled municipal result that fragmentation does not constrain expenditures. Therefore, it is possible that the use of different estimation techniques may result in different conclusions regarding the fragmentation hypothesis.

Sjoquist (1986) does use a median voter model to test the fragmentation hypothesis, but considers only central cities in the South. His dependent variable is general expenditures and he measures fragmentation as the number of jurisdictions in the metropolitan area. We re-estimate model 2 for only Southern central cities using general per capita expenditures and measure fragmentation as the number of jurisdictions in the metropolitan area. In this case, re-estimating the model results in a significantly negative fragmentation coefficient, supporting Sjoquist's findings. This result holds only for the central cities and does not extend to Southern suburbs. However, the significance of the central city fragmentation coefficient disappears when we use our measure of government size, common expenditures. From these exercises, we conclude that the evidence for fragmentation is not consistent across samples, model specification, variable definition, or estimation technique.

Counties

Decentralization. Table 4.6 presents the coefficients on $\ln(DEC)$ and the corresponding one-tailed probability values for each county sample. We find no evidence of leviathan behavior based on our decentralization coefficients. The county decentralization coefficients are quite different from the municipal decentralization coefficients. For the county sample, the West is the only region with coefficients consistently in the predicted, negative direction. However, significance occurs only once: West model 6 (Table 4.6 BE).

Fragmentation. Table 4.7 presents the coefficients on $\ln(FRAG^c)$ and the corresponding one-tailed probability values for each county sample. The county fragmentation coefficients are consistently negative for both the Midwest and Southern regions. However, the Midwestern coefficients are not significant while the Southern coefficients are highly significant. The consistently negative and significant coefficients on $\ln(FRAG^c)$ in the Southern county sample (Table 4.7 Row D) provide the first time that the empirical evidence strongly and consistently supports the fragmentation hypothesis, and therefore, the model of government as leviathan.

Discussion

The literature offers us two studies, Zax (1989) and Forbes and Zampelli (1989), performed with data related to the county layer. Both studies are very different from the current research. For example, both use revenues rather than expenditures and both use ad hoc empirical models rather than median voter models. Zax (1989) uses an intrajurisdictional competition (competition within a jurisdiction) model to test the effect of decentralization and fragmentation on the total size of government (county, municipalities, townships, and special districts) inside the county. Therefore, we cannot meaningfully compare our current results with those of Zax.

This research presents the first interjurisdictional (competition across jurisdictions) test of decentralization and fragmentation using individual county behavior. Forbes and Zampelli (1989) test interjurisdictional competition, but aggregate all county taxes to the metropolitan area level. Our empirical design is more useful than Forbes and Zampelli's because it shows the marginal effect of a

Table 4.6. County Decentralization Coefficients

	A	B	C	D	E	F
	Model:		**2**	**5**	**6**	**8**
		n=				
A	***Regionally Pooled***	166	- -	- -	- -	- -
B	***West***	38	-.409 .086	-.396 .087	-.353* .039	-.359 .054
C	***Midwest***	57	.114 .602	.032 .528	.237 .709	.211 .693
D	***South***	71	.357 .908	.326 .873	.375 .962	.326 .904

Notes: - - unable to regionally pool.
One-tailed t-tests.
Probability values follow estimates. * p < .05. ** p < .01.

Table 4.7. County Fragmentation Coefficients

	A	B	C	D	E	F
	Model:		**2**	**5**	**6**	**8**
		n=				
A	***Regionally Pooled***	166	- -	- -	- -	- -
B	***West***	38	.066 .767	.047 .691	.103 .883	.084 .823
C	***Midwest***	57	-.058 .273	-.056 .276	-.049 .302	-.037 .341
D	***South***	71	-.404** .000	-.392** .000	-.304* .008	-.293* .008

Notes: - - unable to regionally pool.
One-tailed t-tests.
Probability values follow estimates. * p < .05. ** p < .01.

change in horizontal competition and decentralization on the expenditures of an actual government unit. Forbes and Zampelli's empirical results oppose the predictions of the fragmentation hypothesis. They find that greater county fragmentation increases aggregate county revenues in the metropolitan area.

In contrast to Forbes and Zampelli's (1989) results, we find strong support for the fragmentation hypothesis in the Southern county sample. However, we find no other results consistent with the assumptions of the leviathan model of government. In the South, greater horizontal competition among county governments constrains per capita county expenditures, supporting the fragmentation hypothesis and the leviathan model of government. As is the case for municipalities, we conclude that capturing the presence of leviathan depends, to a great extent, on the measurement of the size of government, model specification, and the sample.

FISCAL ILLUSION

Table 4.8 summarizes the possible types of fiscal illusion. Turnbull (1998) shows that information on both the output effect and the flypaper effect determine the type of fiscal illusion present in the data. We measure the output effect of budget complexity by using a t-test on the joint effect of the coefficients on $\ln(TXCON)$ and $\ln(EXCON)$. The following explains the fiscal illusion possibilities: The combination of significantly negative t-statistics and a flypaper effect support Oates' traditional fiscal illusion—individuals underestimate the marginal tax price of government services because of the existence of intergovernmental aid; Significantly negative t-statistics without a flypaper effect supports Oates' traditional fiscal illusion notion combined with tax price and/or benefits uncertainty fiscal illusion; Significantly positive t-statistics in addition to a flypaper effect supports Turnbull's tax price uncertainty fiscal illusion; Significantly positive t-statistics without a flypaper effect supports Turnbull's benefit uncertainty fiscal illusion; Absence of a significant t-statistic in conjunction with a flypaper effect supports uncertainty fiscal illusion partially offset by traditional fiscal illusion; and finally, absence of both a significant t-statistic and a flypaper effect suggests full information or no fiscal illusion.

Table 4.8. **Summary of Fiscal Illusion Possibilities**

	Sign on Joint Effect	Flypaper Effect
Oates' Traditional Fiscal Illusion	-	Yes
Tax Price Uncertainty Fiscal Illusion	+	Yes
Benefits Uncertainty Fiscal Illusion	+	No
Full Information	0	No

Municipalities

Table 4.9 presents results of t-tests of the joint effect of $\ln(TXCON^{m})$ and $\ln(EXCON^{m})$ and the estimated flypaper effect for each municipal sample. Each municipal sample shows evidence of traditional fiscal illusion (due to the significant flypaper effects) offset by uncertainty fiscal illusion (due to the insignificance of the t-statistics). An exception is Midwest model 8 (Table 4.9 EF) which displays traditional fiscal illusion due to the significantly negative joint effect of the budgetary complexity measures and the presence of a flypaper effect.

Counties

Table 4.10 presents results of t-tests of the joint effect of $\ln(TXCON^{c})$ and $\ln(EXCON^{c})$ and the estimated flypaper effect for each county sample. The county t-statistics are similar to the municipal t-statistics: insignificant. Combining this result with the lack of a consistent flypaper effect, we conclude that county governments tend, especially in the Southern sample, to display full information. In a few instances, however, we do find some evidence of fiscal illusion. The significant flypaper effects in the West (Table 4.10 DC, DE) and Midwest (Table 4.10 FE, FF) combined with the insignificant t-statistics point toward traditional fiscal illusion offset by uncertainty fiscal illusion.

Discussion

Evidence of a flypaper effect is much stronger in the municipal samples than in the county samples. Both traditional fiscal illusion and tax price uncertainty fiscal illusion predict a flypaper effect while benefits uncertainty fiscal illusion does not. We conclude that uncertainty fiscal illusion of the benefits of public expenditures is stronger at the county layer. This is not a surprising finding.

Table 4.9. **Municipal Flypaper and Fiscal Illusion Joint Effect t-statistics**

	A	B	C	D	E	F
	Model:		**3**	**5**	**7**	**8**
		n=				
A	***Regionally Pooled***	530	-1.190 .235	-1.310 .191	- -	- -
B	*Flypaper:*		37.056**	36.228**		
C	***West***	126	-.266 .790	-.228 .820	-.005 .996	.090 .929
D	*Flypaper:*		7.134**	7.706**	5.671*	5.880*
E	***Midwest***	254	-1.335 .183	-1.587 .114	-1.700 .090	-2.079* .039
F	*Flypaper:*		12.875**	13.604**	12.419**	13.710**
G	***South***	150	-.384 .701	-1.187 .237	-.502 .617	-.514 .608
H	*Flypaper:*		64.458**	59.085**	41.505*	42.451*

Notes: - - unable to regionally pool.
Probability values follow t-statistics. * p < .05. ** p < .01.
One-tailed tests for flypaper effect.

Table 4.10. **County Flypaper and Fiscal Illusion Joint Effect t-statistics**

	A	B	C	D	E	F
	Model:		**3**	**5**	**7**	**8**
		n=				
A	***Regionally Pooled***	166	-1.049 .296	- -	- -	- -
B	*Flypaper:*		11.559*			
C	***West***	38	-.460 .649	.119 .906	-.365 .718	.263 .795
D	*Flypaper:*		17.043*	10.377	13.434*	7.424
E	***Midwest***	57	.316 .753	.290 .773	.730 .469	.705 .485
F	*Flypaper:*		6.447	7.326	7.460*	9.692*
G	***South***	71	-1.715 .091	-1.352 .181	-1.055 .296	-.824 .414
H	*Flypaper:*		3.096	16.440	-9.293	10.072

Notes: - - unable to regionally pool.
Probability values follow t-statistics. * p < .05. ** p < .01.
One-tailed tests for flypaper effect.

Counties are often referred to as "the forgotten governments" because county governments are less visible than municipal governments. Therefore, individuals are likely to have greater uncertainty on the benefits of county government services relative to the benefits of municipal government services.

Additionally, both the West (Table 4.10 Row D) an Midwestern (Table 4.10 Row F) county samples show mixed evidence for a flypaper effect but the South lacks any support for a flypaper effect. This is an interesting result considering that in the South, county governments, rather than municipal governments, are more important in the local governing process (Bingham and Hedge 1991 191).

Turnbull (1998) uses Midwestern municipal expenditure data and finds a positive joint effect of ln(*TXCON*) and ln(*EXCON*) in addition to a flypaper effect. He concludes that his sample displays traditional fiscal illusion (due to the flypaper effect) combined with tax price and benefits uncertainty fiscal illusion (due to the positive joint effect). Our conclusion on fiscal illusion for the Midwestern municipal sample is the same as Turnbull's, however, we do not find a significantly positive joint effect. This is surprising because the empirical tests are very similar. The main differences are that Turnbull uses nonlinear least squares, his sample includes both metropolitan and nonmetropolitan municipalities with populations between 20,000 and 150,000, and he uses density in the regression. After re-estimating model 3 for the Midwestern municipal sample including nonmetropolitan municipalities, restricting the population size and adding density to the regression, we still find insignificant t-statistics. Turnbull points out that we should expect output and flypaper effects to vary across governments with different levels of fiscal structure complexity. However, in this case it appears that the method of estimation, nonlinear least squares rather than ordinary least squares, may change our results.

OVERLAPPING JURISDICTIONS

Turnbull and Djoundourian (1993) show that a strategic complementary relationship exists when an increase in expenditures at one layer of government leads to an increase in expenditures of another layer. One the other hand, a strategic substitute relationship exists when an increase in expenditures at one layer of government leads to a decrease in expenditures of another layer. Table 4.11 presents the coefficients on $\ln(EXP^c/n^c)$ for each municipal sample while Table 4.12 presents the coefficients on $\ln(EXP^m/n^m)$ for each county sample. Significantly negative coefficients represent a strategic substitute relationship while significantly positive coefficients represent a strategically complementary relationship.

Municipalities

Based on the positive and significant coefficients on $\ln(EXP^c/n^c)$, we conclude there is a complementary relationship in the Midwest (Table 4.11 Row C), South (Table 4.11 Row D), and regionally pooled (Table 4.11 Row A) samples. In other words, we find evidence of an enlarged local public sector in these areas. Our results confirm those of Turnbull and Djoundourian (1993) who also find that county expenditures have a strategic complementary relationship with municipal expenditures in the Midwest. In the West (Table 4.11 Row B), however, we find no such evidence. The insignificance of the parameters leads to the conclusion of an unrelated relationship between county and municipal per capita expenditures in the West.

Counties

In a metropolitan sample, more than one municipality can exist inside of a county. This presents no problem when estimating municipal expenditures. However, this one-to-many, county-to-municipality relationship poses a problem when estimating the county best response function: We must somehow choose one municipality. Only one municipality within any given county will contain the county median voter, hence only one municipality's spending will affect the demand for county spending. We do not know *ex ante* which municipality houses the county median voter, therefore, we use two different methods for finding the county median voter's municipality. The first method selects the municipality with the median level of household income in the county while the second method uses the municipality whose median household income is closest to that of the county median income. Nonetheless, the estimates are not sensitive to the method, so we only report the results of the first method.

Table 4.11. Municipal Overlapping Jurisdiction Coefficients

	A	B	C	D	E	F
	Model:		4	6	7	8
		n=				
A	***Regionally Pooled***	530	.119** .000	- -	- -	- -
B	***West***	126	.102 .446	.147 .311	.092 .464	.134 .326
C	***Midwest***	254	.178* .011	.179* .012	.245** .003	.247** .002
D	***South***	150	.092* .026	.103* .026	.095* .026	.103* .032

Notes: - - unable to regionally pool.
Probability values follow estimates. * $p < .05$. ** $p < .01$.

Table 4.12. County Overlapping Jurisdictions Coefficients

	A	B	C	D	E	F
	Model:		4	6	7	8
		n=				
A	***Regionally Pooled***	166	- -	- -	- -	- -
B	***West***	38	.335 .193	.297 .219	.235 .397	.221 .411
C	***Midwest***	57	.317 .056	.333 .060	.422* .014	.433* .017
D	***South***	71	.829** .002	.844** .001	.767** .004	.798** .002

Notes: - - unable to regionally pool.
Probability values follow estimates. * $p < .05$. ** $p < .01$.

For the most part, the county results mirror those of municipalities. That is, we find positive and significant coefficients on $\ln({EXP^m}/{n^m})$ for the Midwest and South, identifying a complementary relationship in these regions. The complementary relationship is particularly strong in the South. Additionally, we find an unrelated relationship between municipal and county per capita expenditures in the West. Therefore, we find symmetry in the county-to-municipal relationship and the municipal-to-county relationship.

Discussion

This research presents the first county-layer estimates of the strategic relationship between county and municipal expenditures. In doing so, we solve the problem of unbalanced municipal and county samples. Our results are in line with those of Turnbull and Djoundourian (1993). We find county per capita expenditures to be complementary to municipal per capita expenditures and municipal per capita expenditures to be complementary to county per capita expenditures in the Midwest and South. We find no relationship in the West.

In theory, the federal structure of government adds to the competition present in a party government system. In contrast, our empirical results support the conclusion, not of competition between tiers of local government, but collusion among elected officials in the Midwest and South. In no case do we find a substitute relationship between expenditures of municipalities and counties.

MERGING THE MODELS

Our theoretical model shows that taking the overlapping jurisdictions relationship into account will no longer result in overestimated effects of decentralization, fragmentation, and fiscal illusion. Our model predicts that the presence of the overlapping jurisdictions variables will reduce the significance of these effects. Unfortunately, we find significance in only one case: fragmentation for the Southern county sample (Table 4.7 Row D). In this case, we find that the marginal effect and its significance decrease as the overlapping jurisdictions variables are included in the empirical models, supporting the prediction of our theoretical model. Considering the lack of significant variables, however, we cannot provide a conclusion on whether the empirical estimates bear out the theoretical prediction.

CONCLUSION

We set out to merge the fragmentation, decentralization, fiscal illusion, and overlapping jurisdictions hypotheses of local government growth. Unfortunately, we lack the empirical evidence necessary to determine whether the empirical results bear out the theoretical prediction. However, the design of our empirical study allowed us to learn several important things regarding expenditure behavior of local governments.

Breaking down the municipal and county samples into regions is an important contribution to understanding the differences expenditure behavior across local governments. We find the Western region has the highest per capita expenditures relative to the Midwestern and Southern regions. Additionally, we find striking differences across regions with respect to the presence of leviathan and overlapping jurisdictions. Namely, Western local government expenditure behavior differs from Midwestern and Southern local government expenditure behavior when considering tests of fragmentation, decentralization, and overlapping jurisdictions.

Our horizontal competition findings provide strong support for the fragmentation hypothesis in Southern counties: greater horizontal competition restricts per capita expenditures. This result is consistent with the behavior of a leviathan-like government. On the other hand, this is our only result which is consistent with the leviathan model of government. In all other cases, we find no support for fragmentation or decentralization hypotheses. Our answer to the questions from Chapter III, "Does greater fragmentation/decentralization constrain the size of government?" appears to depend upon the definitions of the size of government, definitions of fragmentation and decentralization, the sample, and the estimation process. In other words, the presence of leviathan has been spotted from certain perspectives, but is not visible from every vantage point.

Our answer to the question from Chapter III regarding fiscal illusion, "Does budgetary complexity significantly affect the size of government?" is a conditional no. We find no evidence that fiscal illusion significantly affects expenditures. However, we do find evidence of fiscal illusion due to the presence of the flypaper effect. Finally, we conclude that a strategic complementary relationship, serving to expand the size of the local public sector, exists between county and municipal per capita expenditures in the Midwest and Southern regions.

CHAPTER V

LOCAL GOVERNMENT EXPENDITURE BEHAVIOR DIFFERENCES ACROSS METROPOLITAN AND NONMETROPOLITAN AREAS

The fragmentation hypothesis posits that a more fragmented area will have smaller governments due to increased competition between governments. This prediction relies heavily on the Tiebout mechanism discussed in Chapter II. Clearly, the existence of more than one jurisdiction within a labor market makes choosing between jurisdictions possible. Zax points out that "with sufficient jurisdictional choice, citizens can inhibit monopoly behavior on the part of officials and bureaucrats by moving out of their jurisdictions" (1989 560). Moreover, the greater the number of jurisdictions, the more competition each jurisdiction faces in attracting a larger tax base. Once the appropriate jurisdiction provides the public good and economies of scale in administration are accounted for, Brennan and Buchanan (1980) argue that leviathan's ability for fiscal exploitation decreases when the number of jurisdictions increases for two reasons. First, increasing the number of jurisdictions increases the potential for individuals to move out of a particular jurisdiction decreasing the leviathan's monopoly power. Second, the potential for collusion among politician/bureaucrats decreases when the number of possible colluders increases (180).

This chapter uses a new method of testing for a leviathan model of government. We employ data from both metropolitan and nonmetropolitan areas.[1] Metropolitan counties in our sample have an average of 16 municipal governments while nonmetropolitan counties average only 6 municipal governments. Due to the greater number of jurisdictions within metropolitan areas, metropolitan governments face greater competition than do their nonmetropolitan counterparts. Therefore, metropolitan samples should provide relatively stronger support for the fragmentation hypothesis than nonmetropolitan samples.

[1] "Metropolitan" refers to jurisdictions within Metropolitan Statistical Areas (MSA) while "nonmetropolitan" refers to jurisdictions with populations above 10,000 that are not in MSAs. Therefore, a nonmetropolitan jurisdiction does not refer to a rural jurisdiction, but an urban jurisdiction that is not located inside of a MSA.

Both the decentralization and fragmentation measures used so far in this research are defined over the MSA. Therefore, a comparable measure capturing the presence of the leviathan in nonmetropolitan areas does not exist. In redefining the measures, we drop decentralization from the analysis because a meaningful measure does not exist for jurisdictions in nonmetropolitan areas where there is just one municipality per county or where data for only one municipality is available and alter the definition of fragmentation.

The measure of fragmentation used in Chapter IV is one of horizontal competition: competition of like-governments. We are able to continue to test for the effects of horizontal competition in the municipal samples. The measure of fragmentation for municipal samples used in this chapter is the total number of municipalities within the county. Unfortunately, there is no meaningful measure of horizontal competition at the county layer because nonmetropolitan areas usually have just one county. However, we do test the leviathan model using a broad measure of county fragmentation: the total number of governments (county + municipalities + townships + special districts) within the county. Zax (1989) defines fragmentation in this manner and uses a measure of the size of total government in the county (county, municipalities, townships, and special districts) in order to capture the effects of fragmentation on the total size of government inside the county. Individual county expenditures proxy the size of government in our study. Therefore, this research looks at the relationship fragmentation (broadly defined) and the size of individual county governments.

Though the fragmentation parameters drive the current research, we also present a discussion of the differences found for fiscal illusion and overlapping jurisdiction parameters across metropolitan and nonmetropolitan areas. Existing empirical studies of fiscal illusion and overlapping jurisdictions either pool the samples or look only at MSA data. Though the literature lacks any *a priori* predictions regarding differences in the nature of fiscal illusion or overlapping jurisdictions across MSAs and nonMSAs, we present these results here in keeping with the theme of this dissertation. Additionally, this chapter will present only the results of each hypothesis modeled separately. We find no patterns with respect to the pairings of the hypotheses, therefore we can focus on models 2, 3, and 4 without losing any insight. Appendix V holds complete tables while this chapter presents only the coefficients of interest.

This chapter does the following: presents the results of F-tests of pooling the MSA and nonMSA divisions of each regional sample; compares MSA and nonMSA estimates for the fragmentation, decentralization, fiscal illusion, and overlapping jurisdictions parameters; and provides conclusions. This is the first research examining the differences in local government expenditure behavior inside and outside of metropolitan areas.

EMPIRICAL RESULTS

As in Chapter IV, we estimate the models for the metropolitan samples using 1980 data from the fifty most highly populated MSAs outside of the Northeast. Within the fifty MSAs, data on total municipal property value were available for 530 municipalities. Therefore, we have 530 observations to explain the differences in municipal spending levels. The 530 municipalities are contained in 166 counties. The nonmetropolitan samples include areas not classified as an "MSA" and not classified as "rural." These municipalities and counties are drawn from the nonmetropolitan areas in states corresponding to the states in the MSA samples. Within these nonmetropolitan areas, data on total municipal property value were available for 178 municipalities and the corresponding 178 counties. Tables 5.1 and 5.2 hold the number of observations for each regional sample for municipalities and counties, respectively. Chapter III describes the data sources while Appendix IV holds summary statistics for each sample.

The current taxonomy of models follows that of Chapter IV. However, in order to denote the differences in the measures used to test the fragmentation hypothesis, we append an "a" or a "b" to the model number. Model 1 is the basic median voter model which aggregates preferences for public services in each jurisdiction. Model 2a tests the fragmentation hypothesis at the municipal tier through the variable $FRAG^{m}$, the number of municipalities in the county, and model 2b tests the fragmentation hypothesis at the county tier through the variable $FRAG^{c}$, the total number of

Table 5.1. Number of Observations for Municipal Samples

	MSA	*nonMSA*	*Complete*
Regionally Pooled	530	178	708
West	126	23	149
Midwest	254	65	319
South	150	90	240

Table 5.2. Number of Observations for County Samples

	MSA	*nonMSA*	*Complete*
Regionally Pooled	166	178	344
West	38	23	61
Midwest	57	65	122
South	71	90	161

jurisdictions—county, municipality, township, and special district—in the county. Model 3 allows the data to reveal which type of fiscal illusion is present through the joint effect of $\ln(TXCON)$ and $\ln(EXCON)$ and the flypaper effect. Model 4 tests the overlapping jurisdictions hypothesis through the variable $\ln(EXP^c/n^c)$ in equations where $\ln(EXP^m/n^m)$ is the dependent variable or through the variable $\ln(EXP^m/n^m)$ in equations where $\ln(EXP^c/n^c)$ is the dependent variable. Models 5a and 5b combine the fragmentation and fiscal illusion hypotheses. Models 6a and 6b combine the fragmentation and overlapping jurisdictions hypotheses. Models 7 combines the fiscal illusion and overlapping jurisdictions hypotheses. Finally, models 8a and 8b merge all three hypotheses.

REGIONAL DUMMY VARIABLE RESULTS

Based on the F-tests in Table 3.4 we are unable to regionally pool the "complete," (pooled MSA and nonMSA sample). We can regionally pool models 1, 2a, 3, and 4 for metropolitan municipalities and 1, 2a, 3, and 5 for nonmetropolitan municipalities. The county F-tests presented in Table 3.5 preclude us from regionally pooling the "complete" sample and all nonmetropolitan models but allow us to pool models 1, 2b, 3, and 5b for metropolitan counties. Table 5.3 presents the coefficients on the regional dummy variables for the nonmetropolitan municipal samples. (Recall that the coefficients on the regional dummy variables for the metropolitan sample are in Table 4.2.) Similar to the metropolitan sample, both the Midwestern and Southern nonmetropolitan municipal samples show that per capita expenditures are significantly lower than Western per capita expenditures. Unlike the metropolitan sample, where Southern per capita expenditures are greater than Midwestern per capita expenditures, we find that per capita expenditures are greater in the Midwest than in the South the nonmetropolitan municipal sample.

F-TESTS OF POOLING MSA AND NONMSA SAMPLES

Table 5.4 presents the results of F-tests of pooling MSA and nonMSA samples of each municipal region. We can use a dummy variable to control for the difference in the intercepts and pool the MSA and nonMSA municipalities for all Western (Table 5.4 Row A) and Midwestern (Table 5.4 Row B) models. Additionally, we can pool Southern (Table 5.4 Row C) models 1, 2a, 3, 5a, and 7, but are unable to pool the municipal MSA and nonMSA samples for Southern models 4, 6a, and 8a. Table 5.5 presents the results of F-tests of pooling MSA and nonMSA subsamples of each county region. Based on these F-statistics, we can pool each model in the Western sample (Table 5.5 Row A) and Midwestern (Table 5.5 Row B) models 4, 7, and 8a. We are unable to pool the MSA and nonMSA subsamples for Midwest models 1, 2a, 3, 5a, and 6a and all Southern county models (Table 5.5 Row C).

LEVIATHAN

Brennan and Buchanan (1980) posit that a significantly negative relationship exists between the number of competing jurisdictions and the size of each jurisdiction. Because metropolitan samples have a greater number of jurisdictions, i. e., more competition, than nonmetropolitan samples, the metropolitan samples should provide more support for the fragmentation hypothesis than the nonmetropolitan samples. In addition to the estimates, an intercept dummy variable (equal to one for metropolitan observations) and slope dummy variable (equal to one multiplied by the independent variable for metropolitan observations) can tell us about the differences in the effects of fragmentation across samples.

Municipalities

Intercept Dummy Variables. The fragmentation hypothesis predicts a negative relationship between the extent of fragmentation in an area and the size of the public sector, *ceteris paribus*. Holding everything else constant, expenditures in metropolitan jurisdictions (where there is greater competition) should be lower than expenditures in nonmetropolitan areas. Therefore, significantly negative coefficients on the dummy variable will lend support to the fragmentation hypothesis. Table 5.6 presents the coefficients on a dummy variable equal to one for municipalities inside a metropolitan area. The intercept dummy variable coefficients do not lend support to the fragmentation hypothesis. The coefficients reveal that, for the most part, municipal expenditure behavior does not depend upon being inside or outside of a metropolitan area. The intercept dummy variable from the Southern median voter model (Table 5.6 CC) shows per capita expenditures in metropolitan municipalities are

Table 5.3. Coefficients on Regional Dummy Variables for Nonmetropolitan Samples

Municipality

	A	B	C
	Region:	*Midwest*	*South*
A	**Model: 1**	-.131* .019	-.303** .000
B	**2a**	-.134* .020	-.289** .000
C	**3**	-.172** .006	-.333** .000
D	**4**	- -	- -
E	**5a**	-.175** .007	-.321** .000
F	**6**	- -	- -
G	**7**	- -	- -
H	**8**	- -	- -

Notes: - - unable to regionally pool.
Probability values follow estimates. * p < .05. ** p < .01.

Table 5.4. **Municipal Chow Tests of Structural Difference Across MSA and Non-MSA**

	A	B	C	D	E
	Model:	**1**	**2a**	**3**	**4**
A	***West***	.688	.859	.565	.385
		.634	.527	.783	.941
B	***Midwest***	1.520	1.558	1.971	.631
		.183	.159	.059	.771
C	***South***	.967	.775	.726	2.357*
		.438	.590	.650	.015

Notes: Probability values follow F-statistics. * $p < .05$. ** $p < .01$.

Table 5.5. **County Chow Tests of Structural Difference Across MSA and Non-MSA**

	A	B	C	D	E
	Model:	**1**	**2b**	**3**	**4**
A	***West***	1.684	1.829	1.050	1.237
		.155	.113	.410	.299
B	***Midwest***	8.859**	8.252**	6.537**	3.708**[1]
		.000	.000	.000	.000
C	***South***	4.475**	3.671**	3.976**	2.753**
		.001	.002	.001	.005

Notes: [1] F-test shows the difference only to be in the intercept.
Probability values follow F-statistics. * $p < .05$. ** $p < .01$.

Table 5.6. **Municipal MSA Intercept Dummy Variable Coefficients**

	A	B	C	D	E	F
	Model:		**1**	**2a**	**3**	**4**
		n=				
A	***West***	149	.112	.096	.119	.011
			.120	.198	.099	.894
B	***Midwest***	319	-.009	-.106	-.111	.025
			.081	.066	.057	.669
C	***South***	240	.087*	.085	.083	- - -
			.045	.071	.053	

Notes: - - - unable to pool MSA and nonMSA.
Probability values follow errors. * p < .05. ** p < .01.

Table 5.7. **County MSA Intercept Dummy Variable Coefficients**

	A	B	C	D	E	F
	Model:		**1**	**2b**	**3**	**4**
		n=				
A	***West***	61	-.211	-.273*	-.193	-.105
			.102	.033	.098	.410
B	***Midwest***	122	- - -	- - -	- - -	-.473**
						.000
C	***South***	161	- - -	- - -	- - -	- - -

Notes: - - - unable to pool MSA and nonMSA.
Probability values follow errors. * p < .05. ** p < .01.

significantly greater than per capita expenditures in nonmetropolitan municipalities. In the Midwest (Table 5.6 Row B), the dummy variable coefficients are in the predicted, negative direction, though they are not significant.

Estimates. Table 5.8 presents the coefficients on the measure of horizontal competition (the number of municipal governments in the county) for each municipal sample. The estimates do not lend support to the fragmentation hypothesis. The coefficients are consistently negative and significant in only one sample, West nonMSA (Table 5.8 FC). Therefore, we find behavior consistent with a leviathan only in the Western nonmetropolitan sample.

Slope Dummy Variables. A significantly negative coefficient on a fragmentation slope dummy variable reveals that fragmentation reduces the expenditures of metropolitan governments significantly more than expenditures of nonmetropolitan governments, supporting the fragmentation hypothesis. We find this outcome in the Midwest. The Midwest fragmentation coefficients themselves (Table 5.8 IC, JC) do not support the fragmentation hypothesis, but the difference in the marginal effects does support the fragmentation hypothesis (Table 5.8 KC). This provides support for the leviathan model of government where it was not previously found. In the West (Table 5,8 GC), on the other hand, we find the presence of fragmentation constrains expenditures in nonmetropolitan municipalities significantly more than expenditures in metropolitan municipalities, which opposes the predictions of the fragmentation hypothesis.

Discussion

The conclusions on leviathan do not change from Chapter IV. Again, we find support for a leviathan in some cases, but there is no general pattern of support for a leviathan model of government. The dummy variable analysis provides an untraditional way of searching for leviathan. In one sample we do find evidence consistent with leviathan behavior when using metropolitan and nonmetropolitan samples where it was not present using traditional methods.

Table 5.8. Municipal Fragmentation Coefficients and Slope Dummy Variables

	A	B	C
	Model:		**2a**
		n=	
A	***Regionally Pooled***	708	- -
B	*MSA*	530	.043 .991
C	*Non-MSA*	178	.023 .755
D	***West***	149	.068 .971
E	*MSA*	126	.092 .991
F	*Non-MSA*	23	-.163** .005
G	*Slope DV*		.014* .017
H	***Midwest***	319	.048 .969
I	*MSA*	254	.047 .957
J	*Non-MSA*	65	.095 .887
K	*Slope DV*		-.011* .036
L	***South***	240	.011 .667
M	*MSA*	150	.002 .528
N	*Non-MSA*	90	.018 .669
O	*Slope DV*		.006 .519

Notes: - - unable to regionally pool.
- - - unable to pool MSA and nonMSA.
Fragmentation coefficient t-tests are one tailed.
Slope dummy coefficient t-tests are two-tailed.
Probability values follow errors.* $p < .05$. ** $p < .01$.

Counties

Intercept Dummy Variables. Table 5.7 presents the coefficients on dummy variables equal to one for counties inside metropolitan areas. Based on the intercept dummy variable coefficients, the fragmentation hypothesis has much greater support at the county layer of government than at the municipal layer for the West (Table 5.7 Row A) and Midwest (Table 5.7 Row B). Coefficients for Western metropolitan counties are all negative, though significant only once (Table 5.7 AD). In models 4, 7, and 8b, Midwestern metropolitan counties have significantly lower expenditures than their nonmetropolitan counterparts, lending strong support to the fragmentation hypothesis. This result is consistent with Zax (1989) who reports negative and significant coefficients on dummy variables equal to one for counties located in metropolitan areas across the country.

Estimates and Slope Dummy Variables. Table 5.9 presents the coefficients on fragmentation for county samples. Recall that fragmentation, in this case, is not a measure of horizontal competition, but defined more broadly to be competition among all jurisdictions within the county. In each region the metropolitan fragmentation coefficients follow the predictions of the fragmentation hypothesis while the nonmetropolitan fragmentation coefficients do not. The Western and Midwestern metropolitan samples provide support for the fragmentation hypothesis.

In the West, both samples have consistently negative coefficients and both samples show statistical significance. The fragmentation coefficients are significantly negative in models 2b and 5b in the metropolitan sample (Table 5.9 EC) while the model 6b and 8b show a significantly negative fragmentation coefficient in the nonmetropolitan West. The slope dummies are consistently negative, though insignificant. Therefore, fragmentation tends to constrain both metropolitan and nonmetropolitan expenditures, supporting the fragmentation hypothesis.

In the Midwest we find that fragmentation constrains metropolitan (Table 5.9 IC) expenditures but not nonmetropolitan (Table 5.9 JC) expenditures. The coefficients on the slope dummy for model 8b (the only model we can pool with the fragmentation variable for the Midwest) is -.0007 with a two-tailed probability value of .001. Therefore, we find support for the fragmentation

Table 5.9. County Fragmentation Coefficients and Slope Dummy Variables

	A	B	C
	Model:		**2b**
		n=	
A	***Regionally Pooled***	344	- -
B	*MSA*	166	-.034 .337
C	*Non-MSA*	178	- -
D	***West***	61	-.181* .046
E	*MSA*	38	-.224* .048
F	*Non-MSA*	23	-.095 .161
G	*Slope DV*		-.003 .103
H	***Midwest***	122	- - -
I	*MSA*	57	-.249* .013
J	*Non-MSA*	65	.301 .989
K	*Slope DV*		- - -
L	***South***	161	- - -
M	*MSA*	71	-.007 .475
N	*Non-MSA*	90	.170 .860
O	*Slope DV*		- - -

Notes: - - unable to regionally pool.
- - - unable to pool MSA and nonMSA.
Fragmentation coefficient t-tests are one-tailed.
Slope dummy coefficient t-tests are two-tailed.
Probability values follow errors.* $p < .05$. ** $p < .01$.

hypothesis through both the estimates and the slope dummy variables in the Midwestern county sample.

Discussion

The fragmentation hypothesis, tested using a broad measure, gets support in both the Western and Midwestern county samples. Our findings, therefore, are consistent with Zax (1989)'s result that increases in the total number of governments in a county reduces the total size of the public sector in the county. In the Midwest, the county sample consistently shows support for the fragmentation hypothesis: through the intercept dummy variable, the fragmentation coefficient, and the fragmentation slope dummy variable. For the first time, leviathan reveals itself in each test of the Midwestern county sample. In the West, both municipal and county samples provide support for the fragmentation hypothesis. Once again, however no pattern is present. For municipalities, the Western nonMSA sample provides evidence of behavior consistent with leviathan while at the county layer, the Western MSA sample supports a leviathan model.

It is not surprising that redefining the fragmentation variable leads to changes in our conclusions. In Chapter IV, we measure horizontal fragmentation only: the number of counties in a MSA per MSA population (measured in 100,000). In the current analysis, we use a broad measure of fragmentation: all the governments in the county. The difference in conclusions when using the different measures is most dramatic in the Southern county sample where horizontal fragmentation defined over the MSA results in coefficients that strongly support the fragmentation hypothesis (Table 4.6 Row D), whereas fragmentation broadly defined over the county results in coefficients which do not support the fragmentation hypothesis (Table 5.9 MC). On the other hand, the broad measure of fragmentation shows support for a leviathan government in the Western and Midwestern county samples.

FISCAL ILLUSION

Recall that Table 4.8 shows the possible types of fiscal illusion. Turnbull (1997) shows that information on both the output effect and the flypaper effect determine the type of fiscal illusion present in the data. In this research we measure the output effect of budget complexity by using a t-test on the joint effect of the coefficients on $\ln(\mathit{TXCON})$ and $\ln(\mathit{EXCON})$. The combination of significantly negative t-statistics and a flypaper effect support Oates' traditional fiscal illusion—individuals underestimate the marginal tax price of government services because of the existence of intergovernmental aid. Significantly negative t-statistics without a flypaper effect supports Oates' traditional fiscal illusion notion combined with benefits uncertainty fiscal illusion. Significantly positive t-statistics in addition to a flypaper effect supports Turnbull's tax price uncertainty fiscal illusion alone while significantly positive t-statistics without a flypaper effect supports Turnbull's benefit uncertainty fiscal illusion. Absence of a significant joint effect in conjunction with a flypaper effect supports uncertainty fiscal illusion partially offset by traditional fiscal illusion. Finally, absence of both a significant joint effect and a flypaper effect suggests full information or no fiscal illusion.

Municipalities

Estimates and Slope Dummy Variables. Tables 5.10 presents results of t-tests of the joint effect of $\ln(\mathit{TXCON})$ and $\ln(\mathit{EXCON})$ for municipalities. On the basis of both the t-statistics of the fiscal illusion variables, the flypaper effects, and the t-statistics of slope dummy variables for $\ln(\mathit{TXCON})$ and $\ln(\mathit{EXCON})$, we find the effects of fiscal illusion to be similar across metropolitan and nonmetropolitan municipalities. As in Chapter IV, we find evidence of traditional fiscal illusion offset by tax price and/or benefits uncertainty fiscal illusion due to the combination of no significant joint effect and the presence of a flypaper effect.

Counties

Estimates and Slope Dummy Variables. Table 5.11 presents results of the fiscal illusion output and flypaper effects and t-statistics of the slope dummies for fiscal illusion variables for each county sample. We find that fiscal illusion is similar across metropolitan and nonmetropolitan counties in the West (Table 5.11 HC, JC) and South (Table 5.11 TC, VC). In the West, both types of county government expenditure behavior reflect traditional fiscal illusion offset by uncertainty fiscal illusion. In the South, both metropolitan and nonmetropolitan counties display full information.

Table 5.10. Municipal t-tests of the Joint Effect of Fiscal Illusion Variables, Flypaper Effects and Slope Dummy Variables

	A	B	C
	Model:		**3**
		n=	
A	***Regionally Pooled***	708	- -
B	*MSA*	530	-1.190 .235
C	*Flypaper:*		37.056**
D	*Non-MSA*	178	.502 .616
E	*Flypaper:*		6.943**
F	*Slope DV:*		- - -
G	***West***	149	-.287 .775
H	*Flypaper:*		6.511**
I	*MSA*	126	-.266 .790
J	*Flypaper:*		7.134**
K	*Non-MSA*	23	-.604 .554
L	*Flypaper:*		5.335**
M	*Slope DV:*		-.772 .441

(table con'd)

	A	B	C
	Model:		**3**
		n=	
N	***Midwest***	319	-1.211
			.227
O	*Flypaper:*		9.354**
P	*MSA*	254	-1.335
			.183
Q	*Flypaper:*		12.875**
R	*Non-MSA*	65	.778
			.440
S	*Flypaper:*		2.792*
T	*Slope DV:*		-.756
			.450
U	***South***	240	-.149
			.882
V	*Flypaper:*		47.721**
W	*MSA*	150	-.384
			.701
X	*Flypaper:*		64.458**
Y	*Non-MSA*	90	.020
			.984
Z	*Flypaper:*		9.053**
AA	*Slope DV:*		-1.687
			.093

Notes: - - unable to regionally pool.
- - - unable to pool MSA and nonMSA.
Probability values follow t-statistics. * p < .05. ** p < .01.
One-tailed t-tests for flypaper effects.

Table 5.11. County t-tests of Joint Effect of Fiscal Illusion Variables, Flypaper Effects and Slope Dummy Variables

	A	B	C
	Model:		**3**
		n=	
A	***Regionally Pooled***	344	- -
B	*MSA*	166	-1.049 .296
C	*Flypaper:*		11.559*
D	*Non-MSA*	178	- -
E	*Slope DV:*		- -
F	***West***	61	-.948 .347
G	*Flypaper:*		16.028**
H	*MSA*	38	-.460 .689
I	*Flypaper:*		17.043*
J	*Non-MSA*	23	-1.474 .160
K	*Flypaper:*		13.682**
L	*Slope DV:*		1.376 .175

(table con'd)

	A	B	C
	Model:		**3**
		n=	
M	***Midwest***	122	- - -
N	*MSA*	57	.316
			.753
O	*Flypaper:*		6.447
P	*Non-MSA*	65	4.444**
			.000
Q	*Flypaper:*		6.833**
R	*Slope DV:*		- - -
S	***South***	161	- - -
T	*MSA*	71	-1.715
			.091
U	*Flypaper:*		3.096
V	*Non-MSA*	90	1.414
			.161
W	*Flypaper:*		-80.04
X	*Slope DV:*		- - -

Notes: - - unable to regionally pool.
- - - unable to pool MSA and nonMSA.
Probability values follow t-statistics. * p < .05. ** p < .01.
One-tailed t-tests for flypaper effects.

In the Midwest, however, we do find differences. The Midwestern nonmetropolitan county sample supports tax price uncertainty fiscal illusion because of the significantly positive joint effect and the presence of a flypaper effect. On the other hand, the Midwest metropolitan county sample supports traditional fiscal illusion in conjunction with uncertainty fiscal illusion due to the insignificant joint effect and the presence of a flypaper effect.

Discussion

The additional fiscal illusion results presented in this chapter leave us with little to discuss. In most cases, our fiscal illusion conclusions from Chapter IV extend to the nonmetropolitan samples. In the Midwestern county sample, though, we find that our fiscal illusion conclusions are strikingly different across metropolitan and nonmetropolitan samples. Unfortunately we are unable to offer any reasons why we find this difference. We present these results as a first step toward understanding the differences in expenditure behavior across metropolitan and nonmetropolitan local governments.

OVERLAPPING JURISDICTIONS

Turnbull and Djoundourian (1993) show that a strategic complementary relationship exists when an increase in expenditures at one layer of government leads to an increase in expenditures of another layer. One the other hand, a strategic substitute relationship exists when an increase in expenditures at one layer of government leads to a decrease in expenditures of another layer. A strategic substitute relationship restricts the local public sector while a strategic complementary relationship promotes larger local public sectors. Table 5.12 presents the coefficients on $\ln(EXP^c/n^c)$ for each municipal sample while Table 5.13 presents the coefficients on $\ln(EXP^m/n^m)$ for each county sample. Significantly positive coefficients represent a strategically complementary relationship while significantly negative coefficients represent a strategic substitute relationship.

Municipalities

Estimates and Slope Dummy Variables. Overlapping jurisdictions coefficients and slope dummy variables for each municipal sample are in Table 5.12. We find differences in the marginal effects of the overlapping jurisdictions variable in each region. In the nonmetropolitan West (Table

5.12 FC), the overlapping jurisdictions estimates show a positive and significant, and therefore complementary, relationship between municipal and county per capita expenditures. As we discovered in Chapter IV, the overlapping jurisdictions coefficients are consistently positive, though insignificant, in the metropolitan West (Table 5.12 EC) sample, which suggests an unrelated relationship. The overlapping jurisdictions slope dummy variable shows that the overlapping jurisdiction relationship affects metropolitan and nonmetropolitan governments similarly.

In the metropolitan Midwest (Table 5.12 IC), we again find evidence of a complementary relationship between municipal and county per capita expenditures. In the nonmetropolitan Midwest (Table 5.12 JC), the overlapping jurisdictions coefficients are insignificantly positive, supporting an unrelated relationship. The overlapping jurisdictions slope dummy variables show a significant difference in the effects of the overlapping jurisdictions variables on metropolitan and nonmetropolitan Midwest expenditures in models 6a and 8a. The overlapping jurisdictions slope dummy variables are significantly positive suggesting that increases in Midwestern county per capita expenditures tends to increase metropolitan municipal per capita expenditures significantly more than nonmetropolitan municipal per capita expenditures.

In the South, the metropolitan sample (Table 5.12 MC) displays a complementary relationship due to the positive and significant overlapping jurisdictions coefficients. On the other hand, the Southern nonmetropolitan sample (Table 5.12 NC) displays an unrelated overlapping jurisdictions relationship due to the insignificant negative coefficients. We are only able to pool the Southern municipal metropolitan and nonmetropolitan samples for model 7. In this case we find no significant difference in the between the Southern metropolitan and nonmetropolitan overlapping jurisdiction relationships using an overlapping jurisdictions slope dummy variable.

Counties

Estimates and Slope Dummy Variables. Coefficients for the overlapping jurisdictions variables and slope dummy variables for each county sample are in Table 5.13. We find differences in the marginal effect of the overlapping jurisdictions variables in the each region. The Western

Table 5.12. Municipal Overlapping Jurisdiction Coefficients and Slope Dummy Variables

	A	B	C
	Model:		**4**
		n=	
A	***Regionally Pooled***	708	- -
B	*MSA*	530	.119** .001
C	*Non-MSA*	178	- -
D	***West***	149	.116 .281
E	*MSA*	126	.102 .446
F	*Non-MSA*	23	.307** .002
G	*Slope DV:*		.001 .949
H	***Midwest***	319	.226** .001
I	*MSA*	254	.178* .011
J	*Non-MSA*[1]	65	.140 .598
K	*Slope DV*[1]*:*		.002 .902
L	***South***	240	- - -
M	*MSA*	150	.092* .026
N	*Non-MSA*	90	-.017 .732
O	*Slope DV:*		- - -

Notes: [1]Based on 2SLS estimation.
- - unable to regionally pool. - - - unable to pool MSA and nonMSA.
Probability values follow errors. * $p < .05$. ** $p < .01$.

Table 5.13. County Overlapping Jurisdiction Coefficients and Slope Dummy Variables

	A	B	C
	Model:		4
		n=	
A	***Regionally Pooled***	344	- -
B	*MSA*	166	- -
C	*Non-MSA*	178	- -
D	***West***	61	.277 .155
E	*MSA*	38	.335 .193
F	*Non-MSA*	23	.531 .053
G	*Slope DV:*		-.019 .438
H	***Midwest***	122	.404** .000
I	*MSA*	57	.317 .056
J	*Non-MSA*	65	.367** .002
K	*Slope DV:*		-.092** .001
L	***South***	161	- - -
M	*MSA*	71	.829** .002
N	*Non-MSA*	90	-.139 .579
O	*Slope DV:*		- - -

Notes: - - unable to regionally pool.
- - - unable to pool MSA and nonMSA.
Probability values follow errors. * $p < .05$. ** $p < .01$.

nonmetropolitan sample (Table 5.13 FC) tends to display a complementary overlapping jurisdictions relationship[2] while the Western metropolitan sample (Table 5.13 EC) displays an unrelated overlapping jurisdictions relationship. In the Southern metropolitan sample (Table 5.13 MC) we find a complementary relationship between county and municipal per capita expenditures due to the positive and significant overlapping jurisdictions coefficients. On the other hand, we find an unrelated overlapping jurisdictions relationship for the Southern nonmetropolitan sample (Table 5.13 NC). We are unable to pool metropolitan and nonmetropolitan samples for the Southern counties, and therefore, we are unable to get any information from slope dummy variables.

Both the metropolitan (Table 5.13 IC) and nonmetropolitan (Table 5.13 JC) Midwestern county samples exhibit a complementary overlapping jurisdictions relationship. The slope dummy variable (Table 5.13 KC) reveals that the nonmetropolitan complementary relationship is stronger than the metropolitan complementary relationship.[3]

Discussion

We find differences in the marginal effects of the overlapping jurisdictions variables across metropolitan and nonmetropolitan municipal governments in each region. In the Midwestern and Southern samples, both the metropolitan municipal per capita expenditures display a complementary relationship with county per capita expenditures. In the West, it is the nonmetropolitan municipal sample which displays a complementary overlapping jurisdictions relationship. As in Chapter IV, we find no evidence of a substitute relationship, which would limit the size of the local sector. Instead, in each region, we find evidence of a complementary relationship which serves to enlarge the size of the local government. We also find differences in the marginal effects of the overlapping jurisdictions variables in each sample at the county layer. For the most part, we again find symmetry in the county-

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[2] West nonMSA model 6b has a positive coefficient and is significant at the five percent level.

[3] Durbin-Wu-Hausman tests reveal that 2SLS should be used for models 6b, 7, and 8b in the Midwest nonmetropolitan sample. These coefficients reveal an unrelated overlapping jurisdictions relationship. Using 2SLS on the metropolitan sample also reveals an unrelated relationship. However, the slope dummy variable coefficient obtained when using 2SLS continues to be significantly negative.

municipal overlapping jurisdictions relationship and the municipal-county overlapping jurisdictions relationship.

CONCLUSION

This chapter set out to compare local government expenditure behavior across highly competitive metropolitan regions and relatively less competitive nonmetropolitan regions. We find differentiating between the two types of samples to be an important contribution. Additionally, again we find that breaking down the municipal and county samples into regions provides important insights. For example, we find that in both metropolitan and nonmetropolitan areas, the West region has the highest per capita expenditures relative to those of the Midwestern and Southern regions. However, Southern metropolitan municipalities have greater per capita expenditures than Midwestern metropolitan municipalities, while Midwestern nonmetropolitan municipalities have greater per capita expenditures than Southern nonmetropolitan municipalities.

Using a new way to search for leviathan, we find behavior consistent with a leviathan model of government in the Midwest sample and the nonmetropolitan Western sample. As in Chapter IV, however, we can identify only scattered evidence supporting leviathan-like municipal governments. County governments in the Midwest are the only exception to our scattered spotting of leviathan. We find evidence consistent with the assumptions of a leviathan government in the Midwestern county sample each way we test the fragmentation hypothesis.

Estimates of fiscal illusion and overlapping jurisdictions parameters are also presented as a first step toward understanding the differences in the budgetary complexity and vertical relationships across metropolitan and nonmetropolitan areas. We find differences across metropolitan and nonmetropolitan areas do exist for the overlapping jurisdictions variables. However, these differences do not emerge in a consistent pattern and therefore we cannot explain the differences due to placement inside or outside of a metropolitan area.

CHAPTER VI

EFFECTS OF ORGANIZATIONAL FORM OF GOVERNMENT ON LOCAL GOVERNMENT EXPENDITURES

Whether a jurisdiction's type of governmental organization significantly affects its expenditures is an important question within the study of local government. Municipalities in the United States take one of three forms of government: mayor-council, council-manager, or commission, while counties take either council-administrator, council-elected executive, or council-commission (International City Management Association 1989). [1] The reform movement within public administration promoted the use of a manager in order to coordinate administrative duties (Bingham and Hedge 1991 227). A manager, more so than a mayor, is said to utilize professionalism. Normally a manager has an advanced degree in public administration and is connected to other public administrators through professional memberships (Bingham and Hedge 1991 222). Therefore, the reformers argued the council manager form of government would be more efficient than the mayor council or commission forms of government, *ceteris paribus*. For example, Booms (1966) states that costs may be lower in council-manager municipalities because managers can cope with administrative problems better than mayors can; managers are more cost conscious because a manager is less concerned with politics and is less influenced by special interest groups.

However, economists make no distinctions between types of bureaucrats. Each, whether a mayor or city manager, is viewed as an agent in the principle-agent problem where the electorate plays the role of the principle. Deno and Mehay (1987) argue that there should be no significant difference in the expenditures of council-manager or mayor-council forms of government because a city manager serves at the pleasure of council members who are elected. In other words, city managers are simply an extension of an elected body, and therefore, the incentives of a city manager no different than those of a mayor.

[1] Municipalities may also take the form of town meeting or representative town meeting. However, only cities in the Northeast take these forms, so a discussion of these types is not relevant for this paper which only considers the West, Midwest, and South.

The question of which form of government leads to relatively lower expenditures is an empirical one. Booms (1966) and Deno and Mehay (1987) test the hypothesis that council-manager forms of government result in significantly lower expenditures. Using Midwestern municipal data Booms finds that per capita expenditures are significantly lower for council-manager cities than for mayor-council cities, supporting the public administration argument that professionally trained city managers are more efficient than mayors. Using a data set similar to that of Booms, Deno and Mehay find that no significant difference exists in per capita expenditures between the two samples. Additionally, Hays and Chang (1990) test the hypothesis that council-manager forms of government are more efficient than mayor-council forms of government. Hays and Chang estimate a cost function and related efficiency measures for municipalities using expenditures on police, fire, and refuse collection. They conclude that no statistical difference exists in the efficiency of council-manager and mayor-council forms of government. Both Deno and Mehay and Hays and Chang's empirical results support the view that the incentives of the city manager and mayor are similarly aligned.

This paper contributes to the literature by exploring whether significant differences in local government expenditures are due to differing forms of governments. This chapter presents the first regression analysis using county level data and adds to the existing municipal studies. Additionally, in keeping with the theme of this dissertation, this chapter presents the first analysis of the leviathan, fiscal illusion, and overlapping jurisdictions hypotheses within the context of different organizational forms of local government. The leviathan hypothesis is linked with the propositions that lower public expenditures will result when the fiscal structure is decentralized and fragmented. Fiscal illusion posits that individuals do not know the true marginal costs and benefits of public activity and therefore support a different level of public service than each would if he were fully informed. Finally, the model of overlapping jurisdictions studies the relationship between municipal and county spending. If overlapping jurisdictions have a complementary relationship, then the local public sector will be larger than if a substitute relationship exists.

This chapter proceeds as follows: section two presents a discussion of the different organizational forms of local governments, section three presents preliminary empirical results when the different samples of governments are pooled, section four presents the empirical results of the leviathan, fiscal illusion, and overlapping jurisdictions hypotheses, and section five provides conclusions.

ORGANIZATIONAL FORMS OF GOVERNMENT

MUNICIPALITIES

The mayor-council form of government is the oldest form in the United States. It was adapted from an older English model while council-manager and commission forms are both twentieth century ideas. The commission form sprang into existence in 1900 when the city of Galveston, Texas was struck by the damage of a severe hurricane (Bingham and Hedge 1991 219). Turn of the century reformers developed the commission form and the Texas governor appointed the first commission to help rebuild Galveston (Keller and Perry 1991 41). By 1920, about 500 cities adopted the plan in order to make their governments more businesslike (Bingham and Hedge 1991 219). In response to coordination problems between commissioners and agency heads, the reformers soon promoted replacement of both the commission and the mayor-council forms with the council-manager form (Keller and Perry 1991 42).[2] Sumter, South Carolina, became the first municipality with the council-manager form of government in 1912 (Bingham and Hedge 1991 220).[3] The relationship between legislative and executive powers distinguishes different organizational forms of government.

Mayor-Council Form of Government

The mayor-council form provides the traditional separation between legislative and executive power found in federal and state governments. The council members are elected to be policy makers while the mayor is elected to be the chief executive. In <u>strong-mayor</u> governments, mayors normally have the following responsibilities: control over the budget, appointment and dismissal of department heads without the approval of the council, power to make legislative recommendations, in addition to

[2] "Council-manager" is sometimes referred to as "city-manager."

possible veto power. In weak-mayor governments the mayor's duties may be significantly reduced so that the council is in charge of the budget and appointment of key agency heads. In many municipalities with the mayor-council form, the mayor appoints a city manager, or Chief Administrative Officer (CAO). The CAO serves at the pleasure of the mayor (and not the council) and is responsible for only the mayor's administrative duties (Bingham and Hedge 1991 220). The mayor-council form with a CAO is significantly different from the council-manager form of government (Whitaker and Jenne 1995 86). Contrary to the mayor-council form, both the council-manager and commission forms have no distinct separation of legislative and executive powers (Bingham and Hedge 1991 221).

Council-Manager Form of Government

Under a council-manager form, the council appoints a city manager who is responsible to the council for formulating the proposed budget, the council agenda, and administrative duties. To be recognized as a council-manager municipality by the International City Management Association, the professional association of city managers, the city manager must possess the following responsibilities:

1. Full authority for the appointment and removal of most of the heads of the major departments in the city.
2. Administrative responsibility over those department heads the manager appoints.
3. Responsibility for the preparation and administration of the municipal budget.
4. Direct responsibility for policy formulation on overall problems (Bingham and Hedge 1991 222).

The city manager under a council-manager form of government has the added responsibilities of legislative, or policy making, duties whereas a CAO within a mayor-council form only has administrative duties. In a council-manager form of government, the mayor is a legislative officer, serving as a council member (Whitaker and Jenne 1995 84-86).

Commission Form of Government

Under the commission form of municipal government, individuals are elected to head up a specific agency and serve on the legislative body. A mayor, who has very little power under this form

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[3] Staunton, VA introduced the first city manager in 1908.

of government, may be elected by the voters or may be appointed by the commissioners from one of their own members. Under this form of government, individual departments remain separate. Bingham and Hedge report that a commissioner often keeps to himself so that his own department will be left alone (1991 221).

COUNTIES

There are three prevalent forms of county government: council-elected executive, council-administrator, and council-commission. The council-commission is the traditional county form of government (Bingham and Hedge 1991 198). Very little work exists on the organizational forms of government at the county level. Schneider and Park (1989) use an analysis of means and find council-elected executive governments spent about 100% more than council-commission governments and 75% more than council-administrator governments.

Council-Elected Executive Form of Government

The council-elected executive form of government parallels the strong-mayor mayor-council municipal government form (MacManus 1996). The elected-executive acts as the formal head of the county and may have veto power, as a state governor would. He is responsible for county administration, preparation of the budget, hiring and firing department heads, carrying out council policy, and making policy recommendations to the council. The council adopts the budget, sets policy, and acts as auditor of the county administration (Bingham and Hedge 1991 199-200).

Council-Administrator Form of Government

The adoption of the council-administrator form is a product of the same public administration reform movement that promotes the use of professional managers in local government. Similarly, we find that the elected council creates policy and the appointed administrator (manager), who serves at the pleasure of the council, administers the policy. Additionally, the administrator prepares and implements the budget, hires and fires department heads, and provides policy recommendations to the council (Bingham and Hedge 1991 199). Again, we find that the council expects the administrator to participate in legislative duties by setting board agendas and helping form policy (Bingham and Hedge 1991 202).

Council-Commission Form of Government

It is possible for a commission to have between one and one hundred members, though most average between 3 and 5. The council-commission is responsible for appointing advisory boards and special commissions, adopting the budget, and legislating (Bingham and Hedge 1991 198). The commission shares the responsibility of administrative duties with the other officials elected to run specific functions such as the county clerk, coroner, sheriff, assessor, and treasurer (Bingham and Hedge 1991 198-199).

PRELIMINARY EMPIRICAL RESULTS

SUMMARY STATISTICS

Tables A6.1 through A6.12 present summary statistics for each form of municipal government. Most metropolitan municipalities are either mayor-council (34%) or council-manager (64%) while only a few take the commission form (2%). There is a disproportionate amount of council-manager municipalities in the West (86%) and the South (77%) whereas the Midwest is relatively balanced between mayor-council (53%) and council-manager (45%) municipalities. Tables A6.13 through A6.24 present summary statistics for each form of county government. Again, we find the regionally pooled sample to be made up of mainly two forms of government: council-administrator (49%) and council-commission (42%). The county regional samples appear to be more evenly distributed than the municipal samples, though the Western county sample is still disproportionate. Tables 6.1 and 6.2 contain the number of observations for each metropolitan municipal and county sample, respectively.

The taxonomy of models in this chapter follows that of the previous chapters: Model 1 is the basic median voter model which aggregates preferences for public services in each jurisdiction. Model 2 tests the decentralization hypothesis through the effect on ln(*DEC*) and tests the fragmentation hypothesis through the effect on ln(*FRAG*). Model 3 allows the data to reveal which type of fiscal

Table 6.1. **Number of Observations for Municipal Samples**

	Mayor-Council (MC)	*Council-Manager* (CM)	*Commission* (CO)
Regionally Pooled	180	339	11
West	14	108	4
Midwest	135	115	4
South	31	116	3

Table 6.2. **Number of Observations for County Samples**

	Council-Executive (CE)	*Council-Administrator* (CA)	*Council-Commission* (CC)
Regionally Pooled	15	82	69
West	2	25	11
Midwest	6	26	25
South	7	31	33

illusion is present through the joint effect of $\ln(TXCON)$ and $\ln(EXCON)$ and the flypaper effect. Model 4 tests the interdependent demands hypothesis through the variable $\ln(EXP^c/_{n^c})$ in equations where municipal per capita expenditures are the dependent variable or through the variable $\ln(EXP^m/_{n^m})$ in equations where county per capita expenditures are the dependent variable. Model 5 combines the decentralization and fragmentation hypotheses and fiscal illusion hypothesis. Model 6 combines the decentralization and fragmentation hypotheses and interdependent demands hypothesis. Model 7 combines the fiscal illusion and interdependent demands hypotheses. Finally, Model 8 merges all three hypotheses. We present only the coefficients of interest in this chapter. Additionally, we only present the results of the hypotheses modeled separately (model 2, 3 and 4). In most cases, this provides enough information in order to draw our conclusions. Complete tables are in Appendix VI.

POOLING ALL THREE FORMS OF GOVERNMENT

Table 6.3 presents the results of F-tests for structural breaks for all three types of municipal governments.[4] In all but a few cases, the value of the F statistic is larger than the critical value, so we must reject the null hypothesis of no structural breaks between the three types of governments and conclude that at least one form of government is significantly different than the others. In a few cases, however, the F-statistics are small. Table 6.3 shows that we can pool the three different municipal forms of government for the following models: regionally pooled models 1, 2, and 3 (Table 6.3 Row A); Midwestern model 1 (Table 6.3 CE); Southern models 1, 2, and 3 (Table 6.3 Row D). Further, we find the structural difference is in the intercept and not in the slopes for one additional model[5]: Midwest model 3 (Table 6.3 CG). We capture the differences in per capita expenditures by pooling the samples and employing a dummy variable equal to one for mayor council (MC) and council manager (CM) municipalities. Table 6.4 presents the coefficients of the dummy variables for the municipal sample. We find no significant difference in per capita expenditures of mayor-council, council-manager, or commission governments in the regionally pooled (Table 6.4 Row A, Row B) and

[4] Johnston (1991 Chapter 6) explains the appropriate F-tests when the number of observations in a subsample is less than the number of explanatory variables $(n_i < k)$.

Southern samples (Table 6.4 Row E, Row F). However, in the Midwest, the median voter model (Table 6.4 CC) shows that the commission form of government has significantly greater per capita expenditures than the mayor-council form. We also conclude that the median voter model shows council-manager forms also have significantly lower per capita expenditures than commission forms (Table 6.4 DC).

Table 6.5 reveals that we can pool the three types of county government forms for the West model 4 (Table 6.5 AH) and Midwest model 1 (Table 6.5 BE)[6]. We capture the differences in per capita expenditures by pooling the samples and employing a dummy variable equal to one for council administrator (CA) and council commission (CC) counties. Table 6.6 shows that per capita expenditures of council-elected executive forms are significantly greater than per capita expenditures of both council-administrative and council-commission forms using the median voter model for the Midwestern sample of counties (Table 6.6 CC, DC). This supports the previous findings of Schneider and Park (1989). Western model 4 (Table 6.6 BD) shows that the council-elected executive form of government has significantly greater per capita expenditures than the council-commission form of government.

POOLING ONLY THE MAIN FORMS OF GOVERNMENTS

Booms (1966) and Deno and Mehay (1987) compare per capita expenditures between only council-manager and mayor-council municipalities. Using an F-test on a sample of Michigan and Ohio municipalities of population 25,000 - 100,000, Booms finds a significant structural difference between the two types of governments. However, he finds the difference is in the intercept term only and not in the slopes. Therefore, he pools the samples and includes a dummy variable equal to one for council-manager municipalities and finds that per capita expenditures of council-manager municipalities are significantly lower than those of mayor-council municipalities. This supports the

[5] Johnston (1991 Chapter 6) explains the appropriate tests.

[6] We cannot test whether the CA, CE, and CC samples can be pooled because we cannot regionally pool the CA sample due the F-test results.

Table 6.3. Municipal MSA Chow Tests of Pooling Mayor-Council (MC), Council-Manager (CM), and Commission (CO)

	A	B	C	D	E	F	G	H
	Model:				**1**	**2**	**3**	**4**
		MC *n*=	CM *n*=	CO *n*=				
A	***Regionally Pooled***	180	339	11	1.207 .266	1.162 .289	1.467 .097	2.710** .002
B	***West***	14	108	4	3.022* .021	7.241** .000	5.439** .000	5.105** .001
C	***Midwest***	135	115	4	1.652 .162	3.240* .013	2.959*[1] .021	4.310** .002
D	***South***	31	116	3	1.084 .358	1.776 .155	1.505 .216	3.160* .027

Notes: [1] F-test shows the difference only to be in the intercept.
Probability values follow F-statistics. * p < .05. ** p < .01.

Table 6.4. Dummy Variable Coefficients for Mayor-Council (MC) and Council-Manager (CM)

	A	B	C	D	E
		Model:	**1**	**2**	**3**
A	***Regionally Pooled***	*MC*	-.075 .314	-.081 .276	-.082 .302
B		*CM*	-.056 .423	-.064 .361	-.052 .492
C	***Midwest***	*MC*	-.221* .031	----	-.251 .056
D		*CM*	-.192 .051	----	-.192 .136
E	***South***	*MC*	.005 .973	-.012 .941	.046 .764
F		*CM*	.023 .876	.004 .979	.061 .686

Notes: ---- unable to pool MC, CM, and CO.
Probability values follow F-statistics. * p < .05. ** p < .01.

Table 6.5. **County MSA Chow Tests of Pooling Council-Executive (CE), Council-Administrator (CA), and Council-Commission (CC)**

	A	B	C	D	E	F	G	H
	Model:				**1**	**2**	**3**	**4**
		CA *n=*	CE *n=*	CC *n=*				
A	***West***	25	2	11	5.482** .010	9.870** .001	5.109* .015	3.266 .062
B	***Midwest***	26	6	25	1.139 .358	3.585** .007	4.860** .001	2.588* .036
C	***South***	31	15	33	4.390** .000	10.983** .000	7.436** .000	5.603** .000

Notes: Probability values follow F-statistics. * $p < .05$. ** $p < .01$.

Table 6.6. **Dummy Variable Coefficients for Council-Administrator (CA) and Council-Commission (CC)**

	A	B	C	D
		Model:	**1**	**4**
A	*West*	*CA*	----	-.088 .604
B		*CC*	----	-.322* .013
C	*Midwest*	*CA*	-.362** .009	----
D		*CC*	-.399* .012	----

Notes: ---- unable to pool MC, CM, and CO.
Probability values follow F-statistics. * $p < .05$. ** $p < .01$.

public administration argument that a professionally trained city manager can utilize resources more efficiently than a mayor.

Using a sample similar to Booms (1967) and a median voter model rather than an ad hoc model, Deno and Mehay (1987) find no significant difference exists between council-manager and mayor-council samples and proceed with dummy variable analysis. They find no significant difference in the per capita expenditures of the two types of governments which supports their theory that no significant difference should be found between mayor-council and council-manager forms of government.

Table 6.7 presents results of structural break F-tests when only considering two out of the three types of municipal governments: mayor-council and council-manager. When only considering mayor-council and council-manager governments, we find that we can pool all but two models for each municipal sample. Table 6.8 holds the coefficients on dummy variables equal to one for council-manager municipalities. Our results mirror those of Deno and Mehay (1987): there is no significant difference in per capita expenditures between the two types of governments in the Midwest (Table 6.7 Row C), and additionally, in the West (Table 6.7 Row B) or South (Table 6.7 Row D). Hays and Chang (1990) use an institutional explanation of why we may find no significant difference. They report that the two forms of government, though seemingly distinct, in fact, operate similarly. They state that this is mainly due to the role of the mayor in the council-manager form of government. Though said to be mainly a figurehead, in actuality, these mayors appear to be actively involved in policy. Coupling the Hays and Chang explanation with the presence of a professionally trained CAO in a mayor-council government, it appears that the distinctions between these two types of governments are not, in practice, as stark as on paper.

Table 6.9 presents the F-statistics when considering only council-administrator and council-commission county governments. We find that the two samples can be pooled for the West (Table 6.9 Row A)and Midwest samples (Table 6.9 Row B) and model 4 in the South sample (Table 6.9 CG). Table 6.10 presents the coefficients of dummy variables equal to one for council-administrator

Table 6.7. **Municipal Chow Tests of Pooling Mayor-Council (MC) and Council-Manager (CM)**

	A	B	C	D	E	F	G
	Model:			**1**	**2**	**3**	**4**
		MC	CM				
		n=	*n*=				
A	***Regionally Pooled***	180	339	.925 .532	.905 .572	1.173 .279	1.149 .290
B	***West***	14	108	.898 .538	1.825* .044	1.236 .260	1.021 .443
C	***Midwest***	135	115	.422 .935	.750 .723	.592 .870	.872 .613
D	***South***	31	116	.126 .999	.231 .998	.188 .999	.440 .976

Table 6.8. **Dummy Variable Coefficients for Council-Manager (CM) Governments**

	A	B	C	D	E	F
	Model:		**1**	**2**	**3**	**4**
		n=				
A	***Regionally Pooled***	519	.017 .607	.017 .623	.030 .390	.018 .596
B	***West***	122	-.046 .707	----	-.035 .764	-.065 .589
C	***Midwest***	250	.029 .499	.028 .523	.061 .165	.004 .926
D	***South***	147	.018 .757	.017 .777	.015 .795	.073 .229

Notes: ---- unable to pool MC and CM.
Probability values follow F-statistics. * $p < .05$. ** $p < .01$.

Table 6.9. **County Chow Tests of Pooling Council-Administrator (CA) and Council-Commission (CC)**

	A	B	C	D	E	F	G
	Model:			**1**	**2**	**3**	**4**
		CA	CC				
		n=	*n*=				
A	*West*	25	11	1.065	1.392	.726	.314
				.422	.236	.728	.991
B	*Midwest*	26	25	.488	.870	1.275	.606
				.888	.595	.268	.869
C	*South*	31	33	2.825**	4.515**	2.750**	1.108
				.007	.000	.004	.375

Table 6.10. **Dummy Variable Coefficients for Council-Administrator (CA) Governments**

	A	B	C	D	E	F
	Model:		**1**	**2**	**3**	**4**
		n=				
A	*West*	36	.330*	.315*	.361*	.235
			.019	.014	.014	.109
B	*Midwest*	51	.043	.049	.041	.033
			.680	.678	.698	.755
C	*South*	64	----	----	----	.081
						.594

Notes: ---- unable to pool CA and CC.
Probability values follow errors. * p < .05. ** p < .01.

governments. We find no significant difference for the Midwestern (Table 6.10 Row B) or Southern samples (Table 6.10 Row C), supporting the economists' argument. However, per capita expenditures in the West (Table 6.10 Row A) are significantly higher in council-administrator governments than in council-commission governments. The findings in the Western county sample do not support the arguments of either economists or public administration reformers.

EMPIRICAL RESULTS

Explaining the differences in the relative size of government across jurisdictions using the leviathan, fiscal illusion, and overlapping jurisdictions models is the main focus of this dissertation. Within the context of specific organizational forms of government, we now return to this theme. This is the first attempt to seek out the differences in the effects of decentralization, fragmentation, fiscal illusion, and overlapping jurisdictions variables across different forms of government.

LEVIATHAN

Municipalities

Decentralization. Table 6.11 presents coefficients for decentralization and the corresponding one-tailed probability values. The decentralization hypothesis predicts a negative relationship between decentralization and government expenditures. There is a striking difference in the marginal effect of decentralization across mayor-council and council-manager governments in each sample. In the West (Table 6.11 DC) and Midwest (Table 6.11 FC), mayor-council governments provide support for the decentralization hypothesis while in the South (Table 6.11 IC), council-manager governments provide support for the decentralization hypothesis. We conclude that decentralization tends to constrain expenditures in mayor-council governments in the West and Midwest and council-manager governments in the South.

Fragmentation. Table 6.12 presents the coefficients for fragmentation for each metropolitan municipal sample and the corresponding one-tailed probability values. The fragmentation hypothesis also predicts an inverse relationship: greater horizontal competition decreases government expenditures. We find differences across types of governments in the marginal effects of fragmentation

Table 6.11. Municipal Decentralization Coefficients

		A	B	C
	Model:			**2**
			n=	
	Regionally Pooled			
A		*MC*	180	-.315 .030
B		*CM*	339	-.015 .412
C		*CO*	11	1.321 .943
	West			
D		*MC*	14	-15.71** .001
E		*CM*	108	.145 .845
	Midwest			
F		*MC*	135	-.600* .022
G		*CM*	115	.357 .931
	South			
H		*MC*	31	.006 .516
I		*CM*	116	-.163* .037

Notes: - too few degrees of freedom.
One-tailed t-tests.
Probability values follow estimates.* p < .05. ** p < .01.

Table 6.12. Municipal Fragmentation Coefficients

			A	B	C
	Model:				**2**
				n=	
	Regionally Pooled				
A			*MC*	180	-.104 .062
B			*CM*	339	.017 .635
C			*CO*	11	-.291 .278
	West				
D			*MC*	14	.260 .702
E			*CM*	108	.133 .905
	Midwest				
F			*MC*	135	-.131 .147
G			*CM*	115	-.058 .323
	South				
H			*MC*	31	-.119* .037
I			*CM*	116	.017 .589

Notes: - too few degrees of freedom.
One-tailed t-tests.
Probability values follow estimates.* p < .05. ** p < .01.

in the South. Southern mayor-council governments (Table 6.12 HC) support the fragmentation hypothesis while council-manager governments do not (Table 6.12 IC). Greater fragmentation constrains Southern mayor-council government per capita expenditures but not Southern council-manager government per capita expenditures.

Discussion

We discover several results which were not previously apparent by breaking down each sample by organizational form of government. Comparing the decentralization coefficients from the stratified samples (Table 6.11) to the decentralization coefficients from the pooled samples (Table 4.2), we reveal support for the decentralization hypothesis by mayor-council governments in the West and Midwest and council-manager governments in the South. Therefore, we find evidence consistent with leviathan model assumptions where we had previously found none.

It is reasonable that greater fragmentation (Table 6.12) affects mayor-council and council-manager governments differently because city managers may have more solidarity with neighboring city managers than mayors have with neighboring mayors due to membership in professional organizations. This may lead to more collusion among council-manager municipalities, and therefore, relatively more competition among mayor-council municipalities. This distinction may explain the support for the fragmentation hypothesis in Southern mayor-council municipalities and the lack of support for the fragmentation hypothesis in Southern council-manager municipalities. If this rationale rings true, however, we should see similar differences in the West and Midwest.

We find evidence supporting the leviathan model of government through both the decentralization and fragmentation hypotheses in Southern municipalities. It is interesting that evidence for leviathan is not consistent across types of government. Southern council-manager governments support the decentralization hypothesis while it is Southern mayor-council governments which support the fragmentation hypothesis.

Counties

Decentralization. Table 6.13 presents the decentralization coefficients for counties and the corresponding one-tailed probability values. We find negative coefficients on the decentralization parameters in each council-commission sample. In both the regionally pooled (Table 6.13 BC) and Southern samples (Table 6.13 HC), greater decentralization constrains council-commission government per capita expenditures, while greater decentralization also tends to constrain Midwestern (Table 6.13 FC) council-commission government expenditures.[7] In the West, however, it is council-administrator governments (Table 6.13 CC) that provide support for the decentralization hypothesis rather than council-commission governments (Table 6.13 DC).

Fragmentation. Table 6.14 presents the fragmentation coefficients for each county sample and the corresponding one-tailed probability values. In only one case do we find significance of the fragmentation variable. Coefficients for council-administrator governments follow the predictions of the fragmentation hypothesis in the South. This result is consistent with the prediction of a leviathan model of government.

Discussion

Separating the samples yields new insights in the case of county decentralization variables. Each pooled sample (Table 4.4) has no significant parameters. However, when we sort the samples by type of government (Table 6.13), we find the following: council-commission governments provide support for the decentralization hypothesis for the Southern and regionally pooled samples and Western council-administrator governments support the decentralization hypothesis. Therefore, we find support for the leviathan model of government for council-commission governments in the South; and council-administrator governments in the West.

Sorting each sample by organizational form of government is also important because, in some cases, we discover what drives the results in the pooled samples. Comparing the fragmentation coefficients from Table 6.14 (GC) to those in Table 4.5 (Row D), we learn that the council-

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[7] Midwest model 5 shows the significance of decentralization at the 5 percent level.

Table 6.13. County Decentralization Coefficients

	A		B	C
	Model:			**2**
			n=	
	Regionally Pooled			
A		*CE*	15	-1.508** .004
B		*CC*	69	-.695** .002
	West			
C		*CA*	25	-.593* .023
D		*CC*	11	-1.418 .342
	Midwest			
E		*CA*	26	2.052 .993
F		*CC*	25	-.773 .057
	South			
G		*CA*	31	.891 .999
H		*CC*	33	-1.000** .003

Notes: - too few degrees of freedom.
One-tailed t-tests.
Probability values follow estimates.* $p < .05$. ** $p < .01$.

Table 6.14. County Fragmentation Coefficients on Fragmentation

	A		B	C
	Model:			**2**
			n=	
	Regionally Pooled			
A		*CE*	15	.330
				.988
B		*CC*	69	.108
				.824
	West			
C		*CA*	25	-.075
				.174
D		*CC*	11	.995
				.934
	Midwest			
E		*CA*	26	.052
				.577
F		*CC*	25	-.034
				.407
	South			
G		*CA*	31	-.473**
				.000
H		*CC*	33	.501
				.958

Notes: - too few degrees of freedom.
One-tailed t-tests.
Probability values follow estimates.* $p < .05$. ** $p < .01$.

administrator sample drives the strong support for the fragmentation hypothesis in the South. It is also interesting that we find evidence supporting the leviathan model through both decentralization and fragmentation for Southern counties, as is the case for Southern municipalities. Again, however, we find the support for the leviathan model of government is not consistent across types of governments. Southern council-administrator governments support the decentralization hypothesis while it is Southern council-commission governments which support the fragmentation hypothesis.

FISCAL ILLUSION

Recall that Table 4.6 shows the possible types of fiscal illusion. Turnbull (1998) shows that information on both the output effect and the flypaper effect determine the type of fiscal illusion present in the data. We measure the output effect of budget complexity by using a t-test on the joint effect of the coefficients on $\ln(TXCON)$ and $\ln(EXCON)$. The following explains the fiscal illusion possibilities: The combination of significantly negative t-statistics and a flypaper effect support Oates' traditional fiscal illusion—individuals underestimate the marginal tax price of government services because of the existence of intergovernmental aid; Significantly negative t-statistics without a flypaper effect supports Oates' traditional fiscal illusion notion combined with tax price and/or benefits uncertainty fiscal illusion; Significantly positive t-statistics in addition to a flypaper effect supports Turnbull's tax price uncertainty fiscal illusion; Significantly positive t-statistics without a flypaper effect supports Turnbull's benefit uncertainty fiscal illusion; Absence of significant joint effect in conjunction with a flypaper effect supports uncertainty fiscal illusion partially offset by traditional fiscal illusion; and finally, absence of both a significant joint effect and a flypaper effect suggests full information or no fiscal illusion.

Municipalities

Table 6.15 provides the results of t-tests of the fiscal illusion output and flypaper effects for each municipal sample. We find no major differences across types of governments with regard to fiscal illusion parameters. Both the mayor-council and council-manager samples for each municipal

Table 6.15. Municipal t-tests of the Joint Effect of Fiscal Illusion Variables and Flypaper Effects

	A	B	C
	Model:		**3**
		n=	
	Regionally Pooled		
A	*MC*	180	-.693
			.489
B	*Flypaper:*		20.842**
C	*CM*	339	-1.652
			.100
D	*Flypaper:*		47.695**
E	*CO*	11	-2.023
			.108
F	*Flypaper:*		27.439
	West		
G	*MC*	14	2.037
			.081
H	*Flypaper:*		70.262**
I	*CM*	108	-1.502
			.136
J	*Flypaper:*		7.495**

(table con'd)

	A	B	C
	Model:		**3**
		n=	
	Midwest		
K	*MC*	135	-.687
			.493
L	*Flypaper:*		13.570**
M	*CM*	115	-1.551
			.124
N	*Flypaper:*		13.118**
	South		
O	*MC*	31	.383
			.705
P	*Flypaper:*		11.670
Q	*CM*	116	-.560
			.577
R	*Flypaper:*		79.324*

Notes: - too few degrees of freedom.
Probability values follow t-statistics. * $p < .05$. ** $p < .01$.
One-tailed t-tests for flypaper effects.

sample show uncertainty fiscal illusion (due to insignificant joint t-statistics) in conjunction with traditional fiscal illusion (due to the positive flypaper effects).

Counties

Table 6.16 provides the results of t-tests of the joint effect of the fiscal illusion parameters and flypaper effects for each county sample. We find no differences across types of governments in the West or regionally pooled samples. The Midwest and South, however, do provide different fiscal illusion conclusions for council-administrator and council-commission governments. In Midwestern council-administrator governments (Table 6.16 IC, JC) there is strong support for uncertainty fiscal illusion due to the significantly positive joint effect and the absence of a flypaper effect, while Midwestern council-commission governments (Table 6.16 KC, LC) show no evidence of fiscal illusion. In the South, council-administrator governments have a tendency to support traditional fiscal illusion when leviathan variables are in the model[8] and provide no evidence of a flypaper effect. The Southern council-commission sample estimates are very different than Southern council-administrator estimates. First, we find a strong tendency for the joint effect of the fiscal illusion variables to be significantly positive.[9] Second, we find a flypaper effect.

Discussion

Separating the samples by council-administrator and council-commission allows us to find evidence of fiscal illusion which was not found in Chapter IV's analysis. We find positive and significant t-statistics for Midwest council-administrator and Southern council-commission samples. We also find significant negative t-statistics in the Southern council-administrator sample when leviathan variables are present. Additionally, we also find that in every region, council-commission government support a flypaper effect while in every sample, council-administrator governments do not.

[8] The joint t-statistics for Southern CA models 5 and 8 are significantly negative at the 1 percent level.
[9] The joint t-statistics for Southern CC models 5, 7, and 8 are significantly positive at the 5 percent level.

Table 6.16. County t-tests of the Joint Effect of Fiscal Illusion Variables and Flypaper Effects

	A	*B*	C
	Model:		**3**
		n=	
	Regionally Pooled		
A	*CE*	15	.439
			.676
B	*Flypaper:*		14.117*
C	*CC*	69	.953
			.345
D	*Flypaper:*		33.143*
	West		
E	*CA*	25	-.259
			.798
F	*Flypaper:*		2.267
G	*CC*	11	.094
			.930
H	*Flypaper:*		15.099

(table con'd)

	A		B	C
	Model:			3
			n=	
	Midwest			
I		*CA*	26	4.785**
				.000
J		*Flypaper:*		4.455
K		*CC*	25	-1.498
				.151
L		*Flypaper:*		-.326
	South			
M		*CA*	31	-1.394
				.176
N		*Flypaper:*		-11.320
O		*CC*	33	1.856
				.075
P		*Flypaper:*		83.746*

Notes: - too few degrees of freedom.
Probability values follow t-statistics. * $p < .05$. ** $p < .01$.
One-tailed t-tests for flypaper effects.

OVERLAPPING JURISDICTIONS

Hypothesizing about the reasons for differences of the effects of different organizational forms of governments is very difficult in this case due to the number of different types of county governments which one form of municipal government can meet, e.g., mayor-council municipality and council-administrator county, mayor-council municipality and council-elected executive county, or mayor-council municipality and council-commission county.[10] The same problem applies when the dependent variable is county per capita expenditures. Again, we offer these estimates as a first step toward understanding the relationships.

Municipalities

Coefficients on per capita county expenditures $\ln(EXP^c/n^c)$ provide the basis for conclusions on the differences in the strategic relationship between counties and municipalities when the municipality takes the mayor-council or council-manager form. Table 6.17 presents the overlapping jurisdictions coefficients for municipalities. Complementary relationships exist between per capita county expenditures and per capita municipal expenditures for both mayor-council and council-manager municipalities for the regionally pooled sample (Table 6.17 AC, BC). In the West (Table 6.17 CC, DC), we find that making comparisons is difficult because of inconsistent signs on the coefficients.[11] In the South (Table 6.16 GC, HC), both mayor-council and council-manager municipal per capita expenditures have insignificant overlapping jurisdictions coefficients, supporting an unrelated relationship. The main difference across types of governments exists in the Midwest (Table 6.16 EC, FC). In the Midwest a complementary relationship exists in mayor-council municipalities while an unrelated relationship exists in council-manager municipalities.

Counties

Table 6.18 presents the interdependent demand coefficients for counties. We find a complementary relationship between municipal per capita expenditures and county per capita

[10] This is also the case when explaining the differences in the effects on decentralization.
[11] West MC models 6 and 8 have significantly negative overlapping jurisdictions coefficients at the 5 percent level.

Table 6.17. **Municipal Overlapping Jurisdiction Coefficients**

	A		B	C
	Model:			4
			n=	
	Regionally Pooled			
A		*MC*	180	.265** .000
B		*CM*	339	.072* .040
	West			
C		*MC*	14	1.586 .061
D		*CM*	108	-.037 .782
	Midwest			
E		*MC*	135	.299** .003
F		*CM*	115	-.010 .909
	South			
G		*MC*	31	.060 .457
H		*CM*	116	.091 .074

Notes: Probability values follow estimates. * $p < .05$. ** $p < .01$.

Table 6.18. County Overlapping Jurisdiction Coefficients

	A		B	C
	Model:			**4**
			n=	
	Regionally Pooled			
A		*CE*	15	.415
				.134
B		*CC*	69	.772**
				.000
	West			
C		*CA*	25	.053
				.851
D		*CC*	11	.566
				.396
	Midwest			
E		*CA*	26	-.183
				.504
F		*CC*	25	.723**
				.002
	South			
G		*CA*	31	.473
				.203
H		*CC*	33	.889**
				.002

Notes: Probability values follow estimates. * $p < .05$. ** $p < .01$.

expenditures for council-commission counties in the regionally pooled (Table 6.18 BC), Midwestern (Table 6.16 FC), and Southern (Table 6.16 HC) samples. Differences across types of governments exist for both the Midwestern and the Southern samples. In both regions, council-commission municipal per capita expenditures exhibit a complementary relationship with county per capita expenditures. On the other hand, council-administration counties in both regions display an unrelated relationship. We find no difference in the Western council-administrator and council-commission samples: both exhibit an unrelated relationship.

Discussion

Table 4.9 reports the coefficients for overlapping jurisdictions for the pooled municipal samples. By sorting the samples into mayor-council and council-manager forms of government, we unmask the tendency of Western mayor-council per capita expenditures to be substitutes to Western county per capita expenditures. Additionally, we find that it is the mayor-council sample which drives the Midwestern pooled result of a strategic complementary relationship with Midwestern county per capita expenditures.

Separating the pooled samples (Table 4.12) by type of government allows us to expose the patterns among county council-administrator and council-commission governments. In every region council-administrator governments display an unrelated strategic relationship. In the regionally pooled, Midwestern, and Southern samples, council-commission governments display a strong complementary relationship with municipal per capita expenditures. Further, we find that it is the council-commission samples which drive the conclusions of the pooled samples in the Midwest (Table 4.12 Row C) and South (Table 4.12 Row D).

CONCLUSION

The public administration reform movement advocates the adoption of the council-manager/council-administrator form of government over the mayor-council/council-executive and commission/council-commission forms. Debate about the effects of a council-manager form continues today. This chapter explores the differences in per capita expenditure levels and the effects on leviathan, fiscal illusion, and overlapping jurisdictions parameters. This chapter contributes to the literature on different organizational forms of local government in several different ways. First, this research updates and extends the work of Booms (1966) and Deno and Mehay (1987). Second, this chapter presents the first empirical regression analysis on the different forms of county governments. Third, the analysis incorporates the leviathan, fiscal illusion, and overlapping jurisdictions hypotheses into the context of different organizational forms of government.

We find that when only considering the demand factors (model 1) of local government service, the three different organizational forms of government behave similarly for the municipal Midwest and Southern regions and for the regionally pooled and Midwestern samples of counties. In these cases we pool the samples across organizational form of government: mayor-council, council-manager, and commission for municipalities and council-elected executive, council-administrator, and council-commission for counties. By pooling and using dummy variables, we conclude that commission forms have significantly higher per capita expenditures than that of mayor-council and council-manager forms in Midwest municipalities, but this difference does not exist in Southern municipalities. Additionally, we establish that council-elected executive forms have significantly higher per capita expenditures than council-administrator and council-commission forms of government. These findings are the first of their kind. We also find that by adding supply factors (models 2-8) significant structural differences appear in at least one of the three samples, prohibiting the pooling of all three samples in most cases.

We then followed the pattern of Booms (1966) and Deno and Mehay (1987) of considering only the most prevalent types of governments: mayor-council and council-manager forms for municipalities and council-administrator and council-commission forms for counties. Our results support the findings of Deno and Mehay: no significant difference exists between mayor-council and council-manager governments. For the county layer, we do find a significant difference between council-administrator and council-commission forms of government in the West: county per capita expenditures are significantly higher in council-administrator governments. However, the Midwest sample of counties shows no significant difference in the two samples.

Stratifying each sample by organizational form of government proves to be an important contribution. First, we discover several results by breaking down each sample which were not previously apparent, and second, in some cases we discover what drives the results of the pooled samples presented in Chapter IV. We find support for the fragmentation hypothesis in Southern mayor-council and council-administrator samples. We learn that the strong support for the fragmentation hypothesis in the pooled Southern county sample (Chapter IV) is driven by Southern council-administrator governments. We find support for the decentralization hypothesis in each region for both municipalities and counties. Unfortunately, the results are not consistent across types of governments or regions. Therefore, we find support for the leviathan model of government in each region, though no general patterns emerge. This conclusion supports our conclusions in Chapter IV that the evidence for a leviathan model of government is not pervasive, but is prevalent.

We conclude that no differences exist across types of municipal governments for fiscal illusion. At the county layer we find differences across types of governments in the Midwest and South. However, the only pattern we find with respect to fiscal illusion is that council-commission governments support a flypaper effect while council-administrator governments do not. This explains the inconsistency in the county flypaper effects reported in Chapter IV.

At the county layer we find that council-administrator governments exhibit an unrelated relationship between municipal and county per capita expenditures while council-commission governments exhibit a complementary relationship between municipal per capita expenditures and county per capita expenditures in the Midwest and South. Looking at the differences across types of governments in overlapping jurisdictions variables, we find the tendency of Western mayor-council government per capita to be a substitute for Western county per capita expenditures. This is the only time our results show a substitute relationship between municipal and county expenditures. In this case, symmetry does not hold. Additionally, we find that it is the mayor-council sample which drives the Midwestern pooled result of a strategic complementary relationship with Midwestern county per capita expenditures.

CHAPTER VII

CONCLUSIONS

Understanding the fiscal behavior of subnational governments is increasingly important as fiscal responsibilities are devolved. In order to get a clearer picture of subnational government behavior, we employ local government data and perform tests of the fragmentation, decentralization, fiscal illusion, and overlapping jurisdictions hypotheses. Each model seeks to explain differences in the size of government across jurisdictions. We conclude that our research does contribute to a better understanding of fiscal behavior of municipal and county governments in metropolitan and nonmetropolitan areas and across different forms of governments in the Western, Midwestern, and Southern regions of the United States.

This dissertation makes the first attempt at empirically merging the leviathan, fiscal illusion, and overlapping jurisdictions models of government. The focus of this study is to bring together the different strands of literature in order to determine whether any of the separate effects of the fragmentation, decentralization, fiscal illusion, and overlapping jurisdictions reinforce or offset each other. Our theoretical model predicts that failing to control for the vertical relationship between a municipality and a county leads to overestimated parameters. We predict that models controlling for the overlapping jurisdictions variables will result in smaller (absolute value) estimates of fragmentation, decentralization, and fiscal illusion or reduced significance of the parameters. In ten of the fourteen instances that we find significance in either fragmentation, decentralization, or fiscal illusion variables, the estimates follow the predictions of our model. In some cases, the significance disappears. We conclude that controlling for the overlapping jurisdictions relationship is important in order to obtain unbiased coefficients.

We use a cross-sectional data set of corresponding municipal and county governments in the Western, Midwestern, and Southern regions of the United States. This is the first study to examine the behavior of corresponding municipal and county governments. In doing so, we solve the empirical problem of unbalanced samples due to the one-to-many county-to-municipality relationship. Our analysis employs a median voter model, uses ordinary least squares and two-stage least squares where appropriate, and presents White's (1980) heteroskedastic consistent standard errors.

This is the first study to examine the differences in local government fiscal behavior across regions of the United States. Breaking the data into regions is an important contribution due to the many differences we find in expenditure behavior. Using the median voter model, we find that government expenditure behavior is similar across the Western, Midwestern, and Southern regions for both the metropolitan and nonmetropolitan samples and the metropolitan county sample. However, after adding "supply-side" variables to the model, we find that, in many cases, regionally pooling is inappropriate. Regionally pooling when it is appropriate, we find both municipal and county expenditures in the West to be significantly higher than expenditures in the Midwest and South.

This is also the first study that examines local government fiscal behavior across metropolitan and nonmetropolitan areas. As in the case of regionally pooling, we find expenditure behavior is similar across municipal metropolitan and nonmetropolitan areas when using the median voter model. This does not hold for counties. Additionally, we find that adding the "supply-side" factors makes pooling across metropolitan and nonmetropolitan areas inappropriate in many cases. We also find differences across metropolitan and nonmetropolitan expenditure behavior due to the presence of fragmentation, decentralization, fiscal illusion, and overlapping jurisdictions relationship for each county sample. We also gain insight on the differences across metropolitan and nonmetropolitan expenditures due to the presence of fragmentation and overlapping jurisdictions for each municipal sample.

Further, this research is the first to examine the fiscal behavior of different types of local governments at both municipal and county layers and, additionally, in the context of leviathan, fiscal illusion, and overlapping jurisdictions models. In stratifying the samples according to the type of organizational government, we find municipal commission governments have significantly higher expenditures than mayor-council or council-manager governments in the Midwest. We find no significant difference exists in the expenditure behavior of mayor-council and council-manager governments supporting the conclusions of the existing public finance literature on this topic. We present the first regression results stratifying county governments by form of government. In the Midwest we find council-executive governments have significantly higher expenditures than council-administrator and council-commission governments. In the West, we find council-executive and council-administrator governments have significantly higher expenditures than council-commission governments, which does not support the public administration argument that types of governments with professional administrators are relatively more efficient than other forms of governments.

LEVIATHAN

Does decentralization constrain the size of local government?

We do not find consistent support for the decentralization hypothesis until breaking down the samples by types of organizational form. In doing so we find that greater decentralization constrains municipal expenditures in mayor-council governments in the West and Midwest and in council-manager governments in the South. Additionally, we find greater decentralization constrains county government expenditures in council-administrator governments in the West and council-commission governments in the South.

Does fragmentation constrain the size of local government?

We find at least some evidence supporting the fragmentation hypothesis in each municipal region. In the municipal nonmetropolitan West and the municipal Southern sample of mayor-councils, coefficients support the fragmentation hypothesis. In the municipal Midwestern sample, slope dummy variables support the fragmentation hypothesis.

We find much stronger support for the fragmentation hypothesis at the county layer. In each region, we find evidence supporting the fragmentation hypothesis in metropolitan areas. In both the West and Midwest, greater competition among all governments in the county reduces county expenditures while in the South, greater competition among county governments in the Metropolitan Statistical Area reduces county expenditures. We also learn that the nonmetropolitan Western county sample supports the fragmentation hypothesis and that it is council-administrator governments driving the support for horizontal fragmentation in the Southern metropolitan sample. We conclude that greater competition among governments does tend to constrain county government expenditures in metropolitan areas.

Conclusions on Leviathan

Though we find support for both the decentralization and fragmentation hypotheses in each municipal region, it is rarely in a consistent pattern. We find more evidence of behavior consistent with a leviathan at the county layer rather than at the municipal layer. This is not surprising due to the relatively fewer substitutes available to residents of a county, compared to the relatively greater number of substitutes available to residents of a municipality. This means that county residents have relatively less choice than do municipal residents, and therefore, county governments tend to have more monopoly power than municipal governments.

FISCAL ILLUSION

Does budgetary complexity affect the size of government?

We find no evidence that budgetary complexity significantly affects the size of municipal governments. In each sample, the output effect, i. e., the joint t-test, is insignificant. However, we do find evidence of a flypaper effect, an increase in the median voter's share of intergovernmental aid given directly to the local government increases government expenditures more than an equivalent increase in the median voter's income because "money sticks where it hits," in each municipal region.

At the county layer, we do find some evidence that budgetary complexity significantly affects the size of government, though there is no consistent pattern. The lack of a consistent pattern with respect to the fiscal illusion results is expected. Turnbull (1998) notes that we should expect output and flypaper effects to vary across governments with different levels of fiscal structure complexity. We find the joint t-test of the fiscal illusion variables to be significantly positive in the nonmetropolitan Midwest, metropolitan Midwestern council-administrator, and metropolitan Southern council-commission samples. The joint effect is significantly negative in only one sample: metropolitan Southern council-administrator.

Our main fiscal illusion finding is the difference in the extent of the flypaper effects across municipal and county samples. Municipal samples display a flypaper effect while the flypaper effect is much less prevalent at the county layer. We conclude that benefits uncertainty fiscal illusion, which does not predict a flypaper effect, is stronger at the county layer. This is not a surprising finding. Counties are often referred to as "the forgotten governments" because county governments are less visible than municipal governments. Therefore, individuals are likely to have greater uncertainty on the benefits of county government services relative to the benefits of municipal government services.

OVERLAPPING JURISDICTIONS

Does the overlapping jurisdictions relationship affect the size of government?

In all but one case, we find symmetry in the overlapping jurisdictions relationships, i. e., changes in county expenditures affect municipal expenditures in the same way that changes in municipal expenditures affect county expenditures. We find symmetric strategic relationships in nonmetropolitan West, metropolitan Midwest, and metropolitan Southern samples. In each case, we find a complementary relationship. That is, an increase in the expenditures of one layer leads to an increase in the expenditures of the other layer, enlarging the size of the public sector. In only one case, the metropolitan Western mayor-council sample, do we find any evidence of a substitute relationship. We conclude that the federal structure, which was intended to increase the competition of a party system, may result in collusion among elected officials, leading to larger local public sectors.

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APPENDIX I

DERIVATION OF BEST RESPONSE FUNCTIONS

COMPARATIVE STATISTICS

Consider the case of municipality B: The median voter's utility function is represented by the following regular strict quasi concave utility function,

$$U^b = U^b(x^b, E_m^b, E_c^b) \tag{A1.1}$$

where U^b is the utility of the median voter in municipality B, x^b is his private consumption, E_m^b is his municipal public good consumption, and E_c^b is his county public good consumption. Public good consumption depends on the congestability of the service, therefore

$$E_m^b = {EXP_m^b}/{(n_m^b)^\alpha} \text{ and } E_c^b = {EXP_c}/{n_c^\beta} \tag{A1.2}$$

where EXP_m^b is the total municipal spending in B, n_m^b is the total population in B, EXP_c is the total county spending, and n^c is the total population in the county. α and β are the congestion parameters, where $0 < \alpha, \beta < 1$. If either parameter equals 1, then the public service is considered a pure private good, while if either parameter equals 0, then the public service is considered a pure public good.

The median voter is faced with an income constraint,

$$m^b = x^b + T_m^b + T_c^b \tag{A1.3}$$

where m^b is the median voter's income, T_m^b is the tax bill he pays to the municipality, and T_c^b is the tax bill he pays to the county. In addition, the municipality receives intergovernmental aid from higher levels of government, A_m^b. The municipal median voter's municipal tax bill is equal to his marginal tax rate multiplied by expenditures minus aid,

$$T_m^b = s_m^b(EXP_m^b - A_m^b)$$

or equivalently,

$$T^b = s_m^b((n_m^b)^\alpha E_m^b - A_m^b) \qquad \text{(A1.4)}$$

where s_m^b is the municipal median voter's marginal tax price of municipal services. The municipal median voter's county tax bill is a function of his county marginal tax price s_c^b, the population of the county n_c, the county expenditures E_c^b, and the intergovernmental aid the county receives A^c,

$$T_c^b = T_c^b(s_c^b, n^c, E_c^b, A^c). \qquad \text{(A1.5)}$$

Following Turnbull and Djoundourian (1993) we assume that an increase in the municipal median voter's county marginal tax rate increases the municipal median voter's county tax bill, $\partial T_c^b / \partial s_c^b > 0$, an increase in county spending raises his county tax bill, $\partial T_c^b / \partial E_c^b > 0$, and an increase in intergovernmental aid received by the county decreases his county tax bill, $\partial T_c^b / \partial A^c < 0$.

Substituting (A1.4) and (A1.5) into (A1.3) gives

$$m^b = x^b + s_m^b((n_m^b)^\alpha E_m^b - A_m^b) + T_c^b(s_c^b, n^c, E_c^b, A^c),$$

rearranging gives the following,

$$m^b + s_m^b A_m^b - T_c^b(s_c^b, n^c, E_c, A^c) = x^b + s_m^b(n_m^b)^\alpha E_m^b. \qquad \text{(A1.6)}$$

Municipality B 's problem is to maximize the median voter's utility (A1.1) subject to (A1.6). Solving the constraint for x^b and plugging it into the utility function (A1.1) we can simplify the problem,

$$x^b = m^b + s_m^b A_m^b - T_c^b - s_m^b(n_m^b)^\alpha E_m^b$$

Municipality B 's augmented problem becomes:

$$\max_{\{E_m^b\}} \quad U^b = U^b(m^b + s_m^b A_m^b - T_c^b - s_m^b(n_m^b)^\alpha E_m^b, E_m^b, E_c^b).$$

Maximizing this gives the first order condition,

$$\Gamma^b = (-s_m^b(n_m^b)^\alpha)\,\partial U^b/\partial x^b + \partial U^b/\partial E_m^b = 0. \qquad \text{(A1.7)}$$

Applying the implicit function rule, we obtain the following derivatives: $\partial E_m^{b} / \partial m^b$ and $\partial E_m^{b} / \partial s_m^b$.

$\partial \Gamma^b / \partial E_m^b$ is the second derivative of the municipal problem and represents the Jacobian, J^m, of the system. It is negative by maximization of a regular strict quasi concave function:

$$J^m = \partial \Gamma^b / \partial E_m^b = (s_m^b (n_m^b)^\alpha) U_{xx} - 2 s_m^b (n_m^b)^\alpha + U_{mm}^b < 0$$

where $U_i^b = \partial U^b / \partial i$ and $U_{ij} = \partial^2 U^b / \partial i \partial j$.

The first step in understanding how the municipal median voter's demand for municipal spending changes when exogenous factors change is to obtain the effect of a change in income, m^b.

$$\partial E_m^{b*} / \partial m^b = (s_m^b (n_m^b)^\alpha U_{xx}^b - U_{mx}^b) / J^m$$

Assuming that municipal spending is a normal good, the effect of an increase in the municipal median voter's income results in an increase in his demand for municipal public spending.

The municipal tax share effect simplifies to the following:

$$\partial E_m^{b*} / \partial s_m^b = \left((n_m^b)^\alpha U_x^b / J^m + (A_m^b - (n_m^b)^\alpha E_m^b) \, \partial E_m^b / \partial m^b \right)$$

in which we can identify the traditional substitution and income effects found in the literature. Both terms are negative, which means that an increase in the municipal median voter's tax price leads to a decrease in his quantity demand for municipal expenditures.

To introduce fragmentation, we add a shift parameter, θ, where $\partial \Gamma^m / \partial \theta < 0$, i.e., as fragmentation in each area increases, expenditures in each municipality fall. This analysis can be extended to consider the case for the municipality with endogenous county spending and the county with endogenous municipal spending.

BEST RESPONSE FUNCTION ANALYSIS

We can define best response functions given the first order conditions of the simultaneous county and municipal maximization problem:

Municipal Reaction Function: $E_m^* = \phi^m(E_c^*, \theta)$ which is defined by $\Gamma^m(E_m, E_c, \theta) = 0$

County Reaction Function: $E_c^* = \phi^c(E_m^*)$ which is defined by $\Gamma^c(E_m, E_c) = 0$.

The next step is to determine the relative slopes of the reaction functions on a graph with municipal expenditures on the horizontal axis and county expenditures on the vertical axis. The slope of the municipal reaction function is,

$$\left({}^{dE_c}\!/_{dE_m}\right)_{\phi^m} = -\left({}^{\partial\Gamma^m}\!/_{\partial E_m}\right)/\left({}^{\partial\Gamma^m}\!/_{\partial E_c}\right) \quad \text{(A1.8)},$$

and the slope of the county reaction function is,

$$\left({}^{dE_c}\!/_{dE_m}\right)_{\phi^c} = -\left({}^{\partial\Gamma^c}\!/_{\partial E_m}\right)/\left({}^{\partial\Gamma^c}\!/_{\partial E_c}\right). \quad \text{(A1.9)}$$

The Jacobian of the system is,

$$\begin{bmatrix} {}^{\partial\Gamma^m}\!/_{\partial E_m} & {}^{\partial\Gamma^m}\!/_{\partial E_c} \\ {}^{\partial\Gamma^c}\!/_{\partial E_m} & {}^{\partial\Gamma^c}\!/_{\partial E_c} \end{bmatrix}$$

where the Jacobian, J, is negative definite by the Hicksian stability condition. Therefore, $|J_1|$ must be less than zero and $|J_2|$ must be greater than zero: $|J_1| = {}^{\partial\Gamma^m}\!/_{\partial E_m} < 0$ by second order conditions, and $|J_2| = \left({}^{\partial\Gamma^m}\!/_{\partial E_m}\right)\left({}^{\partial\Gamma^c}\!/_{\partial E_c}\right) - \left({}^{\partial\Gamma^m}\!/_{\partial E_c}\right)\left({}^{\partial\Gamma^c}\!/_{\partial E_m}\right) > 0$ by Lipschitz's condition: the direct effects outweigh the indirect effects. Therefore,

$$\left({}^{\partial\Gamma^m}\!/_{\partial E_m}\right)\left({}^{\partial\Gamma^c}\!/_{\partial E_c}\right) > \left({}^{\partial\Gamma^m}\!/_{\partial E_c}\right)\left({}^{\partial\Gamma^c}\!/_{\partial E_m}\right) \quad \text{(A1.10)}$$

Both left hand side terms are negative by second order conditions and the signs of the right hand side terms depend upon the strategic relationship between municipal and county spending demands. $\left({}^{\partial\Gamma^m}\!/_{\partial E_c}\right), \left({}^{\partial\Gamma^c}\!/_{\partial E_m}\right) > 0$ when they are complements, and $\left({}^{\partial\Gamma^m}\!/_{\partial E_c}\right), \left({}^{\partial\Gamma^c}\!/_{\partial E_m}\right) < 0$ when they are substitutes. Rearranging (A1.10) to obtain (A1.8) and (A1.9) and determining the appropriate signs gives us the relative slopes of the best reaction functions.

To find the effect of fragmentation on expenditures, we take the total differential and using Cramer's Rule, we find the effect on municipal expenditures,

$$\partial E_m^* / \partial \theta = -((\partial \Gamma^m / \partial \theta)(\partial \Gamma^c / \partial E_c) / |J_2|) < 0,$$

where $\left(\partial \Gamma^m / \partial \theta\right) < 0$, $\left(\partial \Gamma^c / \partial E_c\right) < 0, \textit{and} \; |J_2| > 0$. We find the effect on county expenditures to be,

$$\partial E_c^* / \partial \theta = -((\partial \Gamma^m / \partial \theta)(\partial \Gamma^c / \partial E_m) / |J_2|)$$

which is negative when municipal and county expenditures are complements, and is positive when they are substitutes.

APPENDIX II

2SLS METHODOLOGY

The use of two-stage least squares to obtain estimates for both the municipal and county equations is another contribution this paper makes. The municipal-to-county relationship is a one-to-many relationship. That is, for each county there is more than one municipality. Therefore, the number of observations for the municipality data set does not equal the number of observations in the county data set. This is not a problem when the dependent variable is municipal expenditures. In this case, the same county information, e.g. income, aid, population, $TXCON$, and $EXCON$, can be repeated for each municipality in that particular county. On the other hand, when county expenditures is the dependent variable, we can only use information on one municipality on the right-hand side. This paper presents results of choosing the municipality on the basis of median household income. The municipality that is kept is the municipality which has the median value in the county of median household income.

Two-stage least squares is desirable because it is an equation by equation estimator which allows us to keep as much information as possible. We want to estimate the following system:

$$y_m = \alpha_1 y_c + X_1 \beta_m + \varepsilon_m \tag{A2.1}$$

$$y_c = \alpha_2 y_m + X_2 \beta_c + \varepsilon_c \tag{A2.2}$$

where in the regionally pooled sample y_m is a (530 x 1) vector holding municipal per capita common expenditures ${}^{EXP_m}/_{n^m}$, y_c is a (166 x 1) vector holding county per capita common expenditures ${}^{EXP_c}/_{n^c}$, X_1 is a (530 x 13) matrix of exogenous variables, and X_2 is a (166 x 13) matrix of exogenous variables. y_m and y_c are endogenously determined and are therefore correlated with the errors, ε_m and ε_c, respectively.

We use two-stage least squares to get an estimate of ${}^{EXP_c}/_{n^c}$ that is not correlated with an error. Stage one for equation (A.2.1) is to obtain the reduced form parameters of (A2.2):

$$y_c = X_c \Pi_c + v_c,$$

where X_c is a (166 x 20) matrix of all the exogenous variables in the system, Π_c is a vector of parameters of all the exogenous variables in the system, and v_c is an error term. We get the estimated parameters by applying OLS: $\hat{\Pi}_c = (X_c{}' X_c)^{-1} X_c y_c$ and the predicted values of $^{EXP_c}\!/_{n^c}$, $\hat{y}_c$, are:

$$\hat{y}_c = X_m \hat{\Pi}_c$$

where X_m is a (530 x 20) matrix of all the exogenous variables. The resulting values of $\hat{y}_c$ now contain information on each of the municipal observations and can be used as a right hand side variable because each is no longer correlated with the error term, ε_c. Stage two for equation (A2.1) is:

$$y_m = \hat{Z}_m \delta_m + \mu_m$$

where $\hat{Z}_m$ is $[\hat{y}_c | X_1]$. The two-stage least squares estimator is $\hat{\delta}_m = (\hat{Z}'_m \hat{Z}_m)^{-1} \hat{Z}'_m y_m$.

The estimated covariance matrix of $\hat{\delta}_m$ is the following:

$$\hat{\text{cov}}(\hat{\delta}_m) = \hat{\sigma}^2_m (\hat{Z}'_m \hat{Z}_m)^{-1}$$

In order to obtain estimated standard errors using standard equations we must have the true Z_m matrix:

$$\hat{\sigma}^2_m = (y_m - Z_m \hat{\delta}_m)'(y_m - Z_m \hat{\delta}_m)/(t-k)$$

where Z_m is $[y_c | X_1]$ where y_c is a (166 x 1) vector of true y_c values and X_1 is a (530 x 13). Therefore, the true Z_m matrix is non-conformable. We define Z^c_m as $[y_c | X^c_1]$ where X^c_1 is a (166 x 13) matrix which contains the median municipality within each county. We can now obtain

$$\hat{\hat{\sigma}}^2_m = (y^c_m - Z^c_m \hat{\delta}_m)'(y^c_m - Z^c_m \hat{\delta}_m)/(t-k)$$

where y^c_m is a (166 x 1) vector containing municipal expenditure data corresponding to the median municipality in the county and t is 166.

Again, we employ two-stage least squares in order to arrive at an estimate of ${}^{EXP_m}\!/_{n_m}$ that is not correlated with an error term. Stage one for equation (A2.2) is to obtain the reduced form parameters of (A2.1):

$$y_m = X_m \Pi_m + v_m$$

where X_m is a (530 x 20) matrix of all the exogenous variables in the system, Π_m is a vector of parameters of all the exogenous variables in the system, and v_m is an error term. We get the estimated parameters by applying OLS: $\hat{\Pi}_m = (X_m' X_m)^{-1} X_m' y_m$ and the predicted values of ${}^{EXP_m}\!/_{n_m}$, $\hat{y}_m$, are:

$$\hat{y}_m = X_m \hat{\Pi}_m$$

where X_m is defined as above and $\hat{y}_m$ is a (530 x 1) matrix. In order to make $\hat{y}_m$ conformable to equation (A2.2) we must again keep only the observations where the municipality is the median municipality in the county and we are then left with $\hat{y}_m^c$ which is (166 x 1). The resulting values of $\hat{y}_m^c$ can now be used as a right hand side variable because they are no longer correlated with the error term, ε_m. Stage two for equation (A2.2) is:

$$y_c = \hat{Z}_c \delta_c + \mu_c$$

where $\hat{Z}_c$ is $\left[\hat{y}_m^c | X_2\right]$. The two-stage least squares estimator is $\hat{\delta}_c = (\hat{Z}_c' \hat{Z}_c)^{-1} \hat{Z}_c' y_c$.

The estimated covariance matrix of $\hat{\delta}_c$ is:

$$\hat{\text{cov}}(\hat{\delta}_c) = \hat{\sigma}_c^2 (\hat{Z}_c' \hat{Z}_c)^{-1}.$$

In order to obtain estimated standard errors using standard equations we must have the true Z_c matrix:

$$\hat{\sigma}_c^2 = (y_c - Z_c \hat{\delta}_c)'(y_c - Z_c \hat{\delta}_c) / (t - k)$$

where $\hat{Z}_c$ is $\left[y_m | X_2\right]$ where y_m is a (530 x 1) vector of actual y_m values and X_2 is a (166 x 13). Again, the true Z_c matrix is non-conformable. We define Z_c^m as $\left[y_m^c | X_2\right]$ and we can now obtain

$$\hat{\hat{\sigma}}_c^2 = (y_c - Z_c^m\hat{\delta}_c)'(y_c - Z_c^m\hat{\delta}_c)/(t-k)$$

where t is 166.

APPENDIX III

DURBIN-WU-HAUSMAN TEST FOR ENDOGENEITY

As stated in Chapter III, the DWH allows us to test the effects of possible endogeneity. Davidson and MacKinnon (1993) suggest the use of this test when "economic theory suggest that certain explanatory variables could be endogenous, but does not unambiguously indicate that they are, and does not say whether their correlation with the error terms is likely to be great enough that using least squares will result in serious bias" (237). The Hausman (1978) Specification Error Test tests the orthogonality of the design matrix and the error:

$$H_0: \quad p\lim \frac{X'e}{T} = 0$$

$$H_1: \quad p\lim \frac{X'e}{T} \neq 0$$

where X is the usual design matrix, e the error term, and T the number of observations. The OLS estimator, $\hat{\beta}_{OLS}$ is consistent and efficient under the null hypothesis and inconsistent under the alternate hypothesis. $\tilde{\beta}_{2SLS}$ is consistent, though not efficient, under both the null and the alternate hypotheses. The test statistic is based on a vector of contrasts, i.e., a vector of differences between two vectors of estimates, one (2SLS) which is consistent under weaker conditions than the other (OLS). The vector of contrasts idea was first proposed by Durbin and Wu presented tests similar to those of Hausman, therefore, Davidson and MacKinnon term the test Durbin-Wu-Hausman (237).

Implementing the test as Hausman (1978) proposes is sometimes precluded due to the inability to invert the covariance matrix of the vector of contrasts when it is not full rank, as is the case in this research. Davidson and MacKinnon show that using artificial regressions (which do not require inversion) is equivalent to using the vector of contrasts approach. They show that the vector of contrasts reduces to the following:

$$\tilde{\beta}_{2SLS} - \hat{\beta}_{OLS} = (X'P_W X)^{-1} X'P_W M_X y$$

where $P_W = W(W'W)^{-1}W'$ and W is the matrix of instrumental variables and $M_X =$ $I - X(X'X)^{-1}X'$. Suppose the following: let k be the number of columns in W which are also in X and k^* be the number of columns in W which are not in X. In our case $k^* = 1$ because we only have one endogenous variable.

Because $(X'P_W X)^{-1}$ will take the same value under both estimators it will have no effect on any test statistic based on differences in the estimators. The presence of M_X eliminates all columns of $P_W X$ that are instruments:

$$X'P_W M_X y = X'W(W'W)^{-1}W'[I - X(X'X)^{-1}X']y$$

multiplying through and using only the columns of X which are instruments gives:

$$X'P_W M_X y = [X'X(X'X)^{-1}X' - X'X(X'X)^{-1}X'X(X'X)^{-1}X']y$$

which simplifies to,

$$X'P_W M_X y = [X' - X']y = 0.$$

Therefore, we are only interested in testing whether the k^* by 1 vector $X^{*\prime}P_W M_X y$ has mean zero asymptotically. Davidson and MacKinnon propose the following artificial regression,

$$y_1 = X\beta + P_W X^* \delta + error. \tag{A3.1}$$

In the case where y_1 represents municipal expenditures, the possibly endogenous variable, X^* is county expenditures, y_2. The first stage in the 2SLS process gives $\hat{y}_2 = W(W'W)^{-1}W'y_2 = P_W X^*$. Therefore, we can substitute $\hat{y}_2$ into (A3.1):

$$y_1 = X\beta + \hat{y}_2\delta + error$$

Multiplying through by M_X give the following:

$$M_X y_1 = M_X X\beta + M_X \hat{y}_2 \delta + M_X error$$

which simplifies to,

$$M_X y_1 = M_X \hat{y}_2 \delta + M_X error \tag{A3.2}$$

The DWH test now is:

$$H_0: \quad \delta = 0$$

$$H_1: \quad \delta \neq 0.$$

Performing OLS on (A3.2) gives

$$\hat{\delta}_{OLS} = [(M_X \hat{y}_2)'(M_X \hat{y}_2)]^{-1}(M_X \hat{y}_2)' M_X y_1.$$

We can see how OLS on the artificial regression (A3.2) arrives at a test of whether $X^{*\prime} P_W M_X y_1$ has mean zero asymptotically by replacing $\hat{y}_2$ with $P_W X^{*}$:

$$\hat{\delta}_{OLS} = (X^{*\prime} P_W M_X P_W X^{*})^{-1} X^{*\prime} P_W M_X y_1.$$

Again, the first term will have no effect on any test statistic we compute.

The test statistic is derived from the F-distribution where the unrestricted sum of squared errors comes from the artificial regression (A3.2) with degrees of freedom $T - k - k^{*}$ and the restricted sum of squared errors come from the following artificial regression with 1 degree of freedom:

$$M_X y_1 = M_X error.$$

If the $F \geq F_c$, we reject the null in favor of the alternative hypothesis. In this case we conclude that the effects of the endogeneity seriously affect the OLS estimates and we use the consistent 2SLS estimates to base our conclusions. Otherwise, we do not reject the null hypothesis and conclude the effects of endogeneity do not affect the OLS estimates and use the OLS estimates because they are consistent and efficient.

APPENDIX IV

SUMMARY STATISTICS FOR CHAPTERS IV AND V

Table A4.1. **Municipal Regionally Pooled**
Pooled MSA + nonMSA
n=708

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	13763	44745	2.00E+9	184	651295	3.251
n^m	65.161	198	39098	10.073	3005.072	3.035
Inc^m	18.915	6	33	9.544	48.872	.302
Aid^m	9048	43391	1.88E+9	56	736841	4.796
s_m^m	.000419	.000454	2.06E-7	7.60E-7	.00672	1.0829
n^c	827.234	1363	1.86E+6	15.801	7477.421	1.648
Aid^c	116571	312166	9.74E+10	113	2445491	2.678
s_c^m	8.91E-5	.000205	4.22E-8	3.50E-7	.00275	2.306
#muni gov'ts	23	26	667	1	121	1.121
$TXCON^m$	.5779	.2037	.0415	.2609	1	.352
$EXCON^m$	.0844	.0637	.0041	.001	.4956	.755
EXP^c	50266	93732	8.79E+9	321	677669	1.865

Table A4.2. **Municipal Regionally Pooled**
MSA
n=530

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	17357	51219	2.62E+9	184	651295	2.951
n^m	80.586	226	51285	10.073	3005.072	2.810
Inc^m	20.613	6	30	10.553	48.872	.267
Aid^m	11260	49936	2.49E+9	56	736841	4.435
s_m^m	.000379	.000447	2.0E-7	7.6E-7	.00672	1.181
n^c	1089.743	1486	2.21E+6	21.2	7477.421	1.364
Aid^c	153948	353064	1.25E+11	188	2445491	2.293
s_c^m	3.76E-5	.000135	1.83E-8	3.5E-7	.00275	3.602
DEC	.6208	.1308	.0171	.2497	.9796	.212
$FRAG^m$	1.404	.4748	.2254	.1819	2.3864	.338
#muni gov'ts	29	28	760	1	121	.963
$TXCON^m$	.5666	.1988	.0395	.2609	1	.351
$EXCON^m$	.0875	.0605	.0037	.0036	.4301	.691
EXP^c	66101	103638	1.074E+10	752	677669	1.568

Table A4.3. **Municipal Regionally Pooled non-MSA n=178**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	3064	1751	3.065E+6	808	9692	.571
n^m	19.233	8	62	10.199	46.577	.409
Inc^m	13.859	2	6	9.544	20.321	.169
Aid^m	2462	3086	9.52E+6	74	28303	1.254
s_m^m	.000539	.000453	2.05E-7	6.39E-5	.0022	.841
n^c	45.605	20	381	15.801	108.525	.428
Aid^c	5282	6919	4.79E+7	113	41884	1.310
s_c^m	.000243	.000287	8.23E-8	9.52E-6	.0019	1.183
#muni gov'ts	6	4	18	1	20	.675
$TXCON^m$	.6115	.2145	.0460	.3367	.9959	.351
$EXCON^m$	.0750	.0718	.0052	.001	.4956	.957
EXP^c	3115	2284	5.21E+6	321	14466	.733

Table A4.4. **County Regionally Pooled Pooled MSA + nonMSA n=344**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	17093	46347	2.15E+9	321	677669	2.712
n^c	247.663	591	348879	15.801	7477.421	2.385
Inc^c	16.557	4	13	8.931	30.011	.214
Aid^c	36851	145956	2.13E+10	113	2445491	3.961
s_c^c	.000155	.000254	6.43E-8	5.21E-7	.0026	1.631
n^m	36.422	69	4782	10.073	786.023	1.899
Aid^m	4053	8601	7.40E+7	74	87842	2.122
s_m^c	.000466	.000505	2.55E-7	8.03E-6	.00637	1.083
#total gov't	42	48	2283	2	516	1.132
$TXCON^c$	.73	.1865	.0348	.3555	.9979	.256
$EXCON^c$	.6686	.1424	.0203	.2381	.9487	.213
EXP^m	6610	13658	1.87E+8	808	131909	2.066

Table A4.5. **County Regionally Pooled MSA n=166**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	32081	63427	4.02E+9	752	677669	1.977
n^c	464.328	796	633564	21.2	7477.421	1.714
Inc^c	18.795	3	11	11.687	30.011	.179
Aid^c	70703	204952	4.20E+10	188	2445491	2.899
s^c_c	7.79E-5	.000227	5.15E-8	5.21E-7	.00261	2.913
n^m	54.854	96	9214	10.073	786.023	1.750
Aid^m	5759	11743	1.38E+8	75	87842	2.039
s^c_m	.000414	.000578	3.34E-7	8.03E-6	.00637	1.397
DEC	.6150	.1521	.0231	.2497	.9796	.247
$FRAG^c$	.4358	.2557	.0654	.0435	1.0691	.587
#total gov't	58	62	3878	2	516	1.069
$TXCON^c$	.7243	.1803	.0325	.3555	.9924	.249
$EXCON^c$	.6425	.1466	.0215	.2381	.9487	.228
EXP^m	10413	18878	3.56E+8	810	131909	1.813

Table A4.6. **County Regionally Pooled non-MSA n=178**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	3115	2284	5.21E+6	321	14466	.733
n^c	45.605	20	381	15.801	108.525	.428
Inc^c	14.469	2	5	8.931	19.513	.150
Aid^c	5282	6919	4.79E+7	113	41884	1.310
s^c_c	.000228	.000256	6.56E-8	9.44E-6	.00183	1.125
n^m	19.233	8	62	10.199	46.577	.409
Aid^m	2462	3086	9.52E+6	74	28303	1.254
s^c_m	.000515	.000421	1.77E-7	6.93E-5	.00244	.817
#total gov't	27	18	341	3	104	.679
$TXCON^c$	.7354	.1926	.0371	.3849	.9979	.262
$EXCON^c$	.693	.1342	.018	.3014	.9319	.194
EXP^m	3064	1751	3.06E+6	808	9692	.571

Table A4.7. **Municipal Western**
Pooled MSA + nonMSA
n=149

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	23688	59189	3.50E+9	1453	632495	2.499
n^m	100.783	268	71730	10.146	2968.579	2.657
Inc^m	19.063	4	19	9.751	36.525	.226
Aid^m	12088	36515	1.33E+9	379	360849	3.021
s^m_m	.000403	.000455	2.07E-7	3.57E-6	.00211	1.131
n^c	1226.860	1876	3.52E+6	17.349	7477.421	1.529
Aid^c	313107	620941	3.86E+11	1008	2445491	1.983
s^m_c	5.68E-5	.000146	2.13E-8	3.50E-7	.00111	2.568
#muni gov'ts	19	19	365	2	82	1.007
$TXCON^m$	.4423	.1065	.0113	.3334	.7888	.241
$EXCON^m$	.0904	.0652	.0043	.0055	.4209	.722
EXP^c	101652	168432	2.84E+10	1416	677669	1.657

Table A4.8. **Municipal Western**
MSA
n=126

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	27323	63724	4.06E+9	1453	632495	2.332
n^m	115.775	289	83450	10.146	2968.579	2.495
Inc^m	19.860	4	17	13.211	36.525	.209
Aid^m	13860	39466	1.56E+9	379	360849	2.848
s^m_m	.00035	.00038	1.44E-7	3.57E-6	.00211	1.092
n^c	1441.009	1966	3865965	55.332	7477.421	1.365
Aid^c	368766	660504	4.36E+11	4220	2445491	1.791
s^m_c	2.20E-5	3.56E-5	1.27E-9	3.50E-7	.00022	1.624
DEC	.5543	.0916	.0084	.2497	.6936	.165
$FRAG^m$	1.1837	.2828	.0800	.1882	1.9775	.239
#muni gov'ts	21	20	401	2	82	.955
$TXCON^m$	.4382	.1059	.0112	.3334	.7888	.242
$EXCON^m$	.0895	.0606	.0037	.0055	.3536	.677
EXP^c	119181	177708	3.16E+10	3307	677669	1.491

Table A4.9. **Municipal Western non-MSA n=23**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	3775	2282	5.21E+6	1504	9225	.605
n^m	18.657	8	64	10.629	40.960	.430
Inc^m	14.700	2	4	9.751	18.471	.132
Aid^m	2382	1864	3.47E+6	461	6876	.782
s_m^m	.00070	.00068	4.63E-7	8.29E-5	.00193	.967
n^c	53.696	26	680	17	109	.486
Aid^c	8189	9980	9.96E+7	1008	41884	1.219
s_c^m	.000248	.000302	9.10E-8	2.02E-5	.00111	1.217
#muni gov'ts	8	5	21	2	19	.584
$TXCON^m$	.4651	.1092	.0119	.3367	.6742	.235
$EXCON^m$	.0949	.0878	.0077	.0198	.4209	.925
EXP^c	5622	3913	1.53E+7	1416	14466	.696

Table A4.10. **County Western Pooled MSA + nonMSA n=61**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	40606	89907	8.08E+9	1416	677669	2.214
n^c	470.876	1016	1032583	17.349	7477	2.158
Inc^c	17.597	3	9	12.703	24.554	.173
Aid^c	109902	323970	1.05E+11	1008	2445491	2.948
s_c^c	.000109	.000204	4.15E-8	5.21E-7	.00105	1.871
n^m	57.340	96	9229	10.394	629.531	1.675
Aid^m	6195	11796	1.39E+8	439	66431	1.904
s_m^c	.000488	.000505	2.55E-7	9.83E-6	.00182	1.034
#total gov't	68	48	2332	9	276	.711
$TXCON^c$	.6991	.1677	.0281	.415	.9864	.240
$EXCON^c$	.6601	.0869	.0076	.4838	.8187	.132
EXP^m	12199	21705	4.71E+8	1453	131909	1.675

Table A4.11. County Western MSA n=38

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	61780	108985	1.19E+10	3307	677669	1.764
n^c	723.379	1225	1.50E+6	55.332	7477.421	1.693
Inc^c	19.125	3	7	15.339	24.554	.142
Aid^c	171465	399771	1.60E+11	4220	2445491	2.332
s_c^c	3.10E-5	4.40E-5	1.94E-9	5.21E-7	.000196	1.419
n^m	80.754	116	13434	10.394	629.531	1.435
Aid^m	8503	14459	2.09E+8	439	66431	1.701
s_m^c	.000377	.000370	1.37E-7	9.83E-6	.00165	.983
DEC	.5412	.1124	.0126	.2497	.6936	.208
$FRAG^c$	.2898	.1601	.0256	.0435	.5393	.552
#total gov't	84	53	2841	19	276	.635
$TXCON^c$	.7066	.1558	.0243	.4385	.9648	.220
$EXCON^c$	.6565	.0928	.0086	.4838	.8187	.141
EXP^m	17299	26269	6.90E+8	1453	131909	1.519

Table A4.12. County Western non-MSA n=23

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	5622	3913	1.53E+7	1416	14466	.696
n^c	53.696	26	680	17.349	108.525	.486
Inc^c	15.073	1	2	12.703	18.593	.098
Aid^c	8189	9980	9.96E+7	1008	41884	1.219
s_c^c	.000238	.000287	8.22E-8	2.00E-5	.00105	1.207
n^m	18.657	8	64	10.629	40.96	.430
Aid^m	2382	1864	3.47E+6	461	6876	.782
s_m^c	.000672	.000639	4.08E-7	8.56E-5	.00182	.951
#total gov't	42	20	410	9	93	.488
$TXCON^c$	.6866	.1887	.0356	.415	.9864	.275
$EXCON^c$	.6661	.0779	.0061	.5337	.8078	.117
EXP^m	3775	2282	5.21E+6	1504	9225	.605

Table A4.13. **Municipal Midwest**
Pooled MSA + nonMSA
n=319

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	11057	44608	1.99E+9	184	651295	4.034
n^m	54.203	192	36720	10.093	3005.072	3.535
Inc^m	20.757	6	35	9.622	48.872	.284
Aid^m	10096	57679	3.33E+9	249	736841	5.713
s_m^m	.000453	.000347	1.20E-7	3.90E-6	.00192	.766
n^c	955.541	1424	2.03E+6	23.825	5253.628	1.490
Aid^c	87226	97850	9.57E+9	381	278792	1.122
s_c^m	8.09E-5	.000167	2.78E-8	6.00E-7	.00152	2.060
#muni gov'ts	32	32	1033	2	121	.996
$TXCON^m$	.6606	.2161	.0467	.2789	1	.327
$EXCON^m$	.0886	.0558	.0031	.0099	.3984	.630
EXP^c	41615	51542	2.66E+9	531	170702	1.239

Table A4.14. **Municipal Midwestern**
MSA
n=254

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	13029	49811	2.48E+9	184	651295	3.823
n^m	63.139	214	45745	10.093	3005.072	3.388
Inc^m	22.340	6	30	11.511	48.872	.246
Aid^m	11905	64507	4.16E+9	249	736841	5.419
s_m^m	.000420	.000334	1.12E-7	3.90E-6	.001920	.796
n^c	1188.482	1510	2.28E+6	53.84	5253.628	1.271
Aid^c	108409	99099	9.82E+9	1521	278792	.914
s_c^m	2.99E-5	4.84E-5	2.35E-9	6.00E-7	.000566	1.617
DEC	.6508	.0880	.0077	.5160	.7745	.135
$FRAG^m$	1.6521	.4562	.2081	.6836	2.3864	.276
#muni gov'ts	38	33	1114	3	121	.871
$TXCON^m$	.6406	.2145	.046	.2789	1	.335
$EXCON^m$	.0910	.0520	.0027	.0063	.3984	.572
EXP^c	51426	53519	2.86E+9	1713	170702	1.041

Table A4.15. **Municipal Midwest non-MSA Sample n=65**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	3352	1846	3.41E+6	1051	9692	.551
n^m	19.284	8	64	10.199	41.843	.414
Inc^m	14.570	2	4	9.622	18.948	.143
Aid^m	3029	4124	1.70E+7	365	28303	1.362
s_m^m	.000581	.000368	1.35E-7	.000136	.001756	.633
n^c	45.276	18	325	23.825	97.408	.398
Aid^c	4446	3335	1.11E+7	381	14251	.750
s_c^m	.000280	.000279	7.81E-8	2.91E-5	.00152	.998
#muni gov'ts	9	4	20	2	20	.515
$TXCON^m$	.7385	.2061	.0425	.3525	.9959	.279
$EXCON^m$	.0794	.0684	.0047	.0010	.3048	.861
EXP^c	3276	1429	2.04E+6	531	7785	.436

Table A4.16. **County Midwestern Pooled MSA + nonMSA n=122**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	12151	24572	6.04E+8	531	170702	2.022
n^c	237.028	560	313759	23.825	5253.628	2.363
Inc^c	17.553	3	12	9.981	27.509	.198
Aid^c	22680	48408	2.34E+9	381	278792	2.134
s_c^c	.000165	.000199	3.97E-8	6.82E-7	.000985	1.210
n^m	28.567	35	1229	10.108	313.939	1.227
Aid^m	3628	6318	3.99E+7	249	46025	1.741
s_m^c	.000476	.000303	9.21E-8	2.24E-5	.00173	.638
#total gov't	56	52	2675	14	516	.932
$TXCON^c$	.7750	.2018	.0407	.4042	.9967	.260
$EXCON^c$	.6729	.1272	.0162	.3522	.9079	.189
EXP^m	5080	7513	5.64E+7	855	67870	1.479

Table A4.17. **County Midwestern MSA n=57**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	22271	33266	1.11E+9	1713	170702	1.494
n^c	455.693	766	586226	53.840	5253.628	1.680
Inc^c	20.061	3	9	11.698	27.509	.152
Aid^c	43472	64998	4.22E+9	1521	278792	1.495
s_c^c	5.97E-5	8.81E-5	7.75E-9	6.82E-7	.000623	1.475
n^m	39.153	49	2367	10.108	313.939	1.243
Aid^m	4311	8118	6.59E+7	249	46025	1.883
s_m^c	.000383	.000237	5.59E-8	2.24E-5	.000896	.617
DEC	.6549	.0899	.0081	.5160	.7745	.137
$FRAG^c$	.3843	.1914	.0366	.1638	.8572	.498
#total gov't	73	70	4959	18	516	.968
$TXCON^c$	.7606	.1998	.0399	.4042	.9924	.263
$EXCON^c$	.6347	.1277	.0163	.3522	.9018	.201
EXP^m	7052	10519	1.11E+8	855	67870	1.492

Table A4.18. **County Midwestern non-MSA n=65**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	3276	1429	2040963	531	7785	.436
n^c	45.276	18	325	23.825	97.408	.398
Inc^c	15.354	2	4	9.981	19.513	.133
Aid^c	4446	3335	1.11E+7	381	14251	.750
s_c^c	.000257	.000223	4.98E-8	2.95E-5	.000985	.869
n^m	19.284	8	64	10.199	41.843	.414
Aid^m	3029	4124	1.70E+7	365	28303	1.361
s_m^c	.000557	.000333	1.11E-7	.000138	.00173	.598
#total gov't	40	15	221	14	104	.368
$TXCON^c$	.7877	.2042	.0417	.4122	.9967	.259
$EXCON^c$	.7065	.1178	.0139	.3568	.9079	.167
EXP^m	3352	1846	3.41E+6	1051	9692	.551

Table A4.19. Municipal Southern
Pooled MSA + nonMSA
n=240

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	11199	32059	1.03E+9	808	331852	2.863
n^m	57.611	146	21372	10.073	1595.138	2.538
Inc^m	16.374	5	28	9.5440	36.5930	.322
Aid^m	5767	17304	2.99E+8	56	180224	3.000
s_m^m	.000384	.000564	3.18E-7	7.60E-7	.00672	1.467
n^c	408.591	567	321460	15.801	2409.547	1.388
Aid^F	33561	67935	4.62E+9	113	382578	2.024
s_c^m	.000120	.000270	7.31E-8	9.08E-7	.00275	2.252
#muni gov'ts	13	12	152	1	89	.928
$TXCON^m$	.5522	.1797	.0323	.2609	.9950	.325
$EXCON^m$	.0750	.0713	.0051	.0025	.4956	.950
EXP^c	29862	52180	2.72E+9	321	214029	1.747

Table A4.20. Municipal Southern
MSA
n=150

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	16313	39714	1.58E+9	810	331852	2.435
n^m	80.571	181	32830	10.073	1595.138	2.249
Inc^m	18.320	6	31	10.553	36.593	.304
Aid^m	7984	21537	4.64E+8	56	180224	2.697
s_m^m	.000336	.000628	3.94E-7	7.60E-7	.00672	1.871
n^c	627.481	622	386805	21.200	2409.547	.991
Aid^F	50612	81158	6.59E+9	188	382578	1.604
s_c^m	6.36E-5	.000243	5.89E-8	9.08E-7	.00275	3.820
DEC	.6259	.1877	.0352	.3279	.9796	.300
$FRAG^m$	1.1690	.4222	.1783	.1819	2.0802	.361
#muni gov'ts	19	13	161	1	89	.679
$TXCON^m$	.5492	.1710	.0292	.2609	.9800	.311
$EXCON^m$	.0800	.0722	.0052	.0036	.4301	.903
EXP^c	46364	60287	3.64E+9	752	214029	1.300

Table A4.21. **Municipal Southern non-MSA n=90**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	2675	1419	2.01E+6	808	6575	.530
n^m	19.344	8	61	10.462	46.577	.403
Inc^m	13.131	2	6	9.544	20.321	.184
Aid^m	2072	2335	5.45E+6	74	15216	1.127
s_m^m	.000465	.000427	1.82E-7	6.39E-5	.0022	.917
n^c	43.774	18	336	15.801	83.435	.419
Aid^c	5143	7738	5.99E+7	113	34265	1.505
s_c^m	.000214	.000288	8.32E-8	9.52E-6	.0019	1.347
#muni gov'ts	4	3	8	1	14	.665
$TXCON^m$	.5572	.1942	.0377	.3439	.9950	.349
$EXCON^m$	.0668	.0693	.0048	.0025	.4956	1.038
EXP^c	2358	1702	2.90E+6	321	8148	.722

Table A4.22. **County Southern Pooled MSA + nonMSA n=161**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	11929	29338	8.61E+8	321	214029	2.459
n^c	171.151	314	98438	15.801	2409.547	1.833
Inc^c	15.408	3	12	8.9310	30.0110	.223
Aid^c	19913	45402	2.06E+9	113	382578	2.280
s_c^c	.000166	.000302	9.12E-8	1.15E-6	.00261	1.818
n^m	34.449	75	5643	10.073	786.023	2.181
Aid^m	3564	8607	7.41E+7	74	87842	2.415
s_m^c	.000450	.000616	3.80E-7	8.03E-6	.006370	1.369
#total gov't	22	35	1212	2	402	1.558
$TXCON^c$	.7076	.1757	.0309	.3555	.9979	.248
$EXCON^c$	.6686	.1684	.0283	.2381	.9487	.252
EXP^m	5652	28811	1.66E+8	808	111725	2.279

Table A4.23. **County Southern MSA n=71**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	24062	41190	1.70E+9	752	214029	1.711
n^c	332.613	421	177272	21.200	2409.547	1.266
Inc^c	17.603	4	12	11.687	30.011	.200
Aid^c	38635	63241	4.00E+9	188	382578	1.637
s_c^c	.000118	.000333	1.11E-7	1.15E-6	.00261	2.834
n^m	53.597	110	12156	10.073	786.023	2.057
Aid^m	5454	12487	1.56E+8	75	87842	2.290
s_m^c	.000458	.000817	6.67E-7	8.03E-6	.00637	1.784
DEC	.6225	.1926	.0371	.3279	.9796	.309
$FRAG^c$	.5552	.2883	.0831	.0756	1.069	.519
#total gov't	33	50	2488	2	402	1.518
$TXCON^c$	.7045	.1738	.0302	.3555	.9917	.247
$EXCON^c$	.6414	.1814	.0329	.2381	.9487	.283
EXP^m	9426	18730	3.51E+8	810	111725	1.987

Table A4.24. **County Southern non-MSA n=90**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	2358	1702	2.90E+6	321	8148	.722
n^c	43.774	18	336	15.801	83.435	.419
Inc^c	13.676	2	5	8.931	19.082	.155
Aid^c	5143	7738	5.99E+7	113	34265	1.505
s_c^c	.000204	.000270	7.31E-8	9.44E-6	.00183	1.324
n^m	19	8	61	10.462	46.577	.403
Aid^m	2072	2335	5.45E+6	74	15216	1.127
s_m^c	.000445	.000398	1.59E-7	6.93E-5	.00244	.896
#total gov't	14	8	64	3	50	.567
$TXCON^c$	.7100	.1780	.0317	.3849	.9979	.251
$EXCON^c$	.6901	.1550	.0240	.3014	.9319	.225
EXP^m	2675	1419	2.01E+6	808	6575	.530

APPENDIX V

ESTIMATION RESULTS FOR CHAPTERS IV AND V

Table A5.1. Municipal–Regionally Pooled–MSA

Model:	1	2	2a	3	4	5
Constant	3.373**	3.353**	3.378**	3.245**	3.177**	3.171**
	.278	.281	.278	.340	.298	.360
	.000	.000	.000	.000	.000	.000
$ln\ m^m$	.205**	.208**	.164*	.211**	.134	.222**
	.065	.066	.068	.069	.070	.070
	.002	.002	.017	.002	.055	.002
$ln\ (s^m_m A^m)$	.153**	.149**	.163**	.173**	.140**	.169**
	.024	.025	.025	.027	.025	.027
	.000	.000	.000	.000	.000	.000
$ln\ s^m_m$	-.238**	-.233**	-.246**	-.260**	-.235**	-.255**
	.032	.033	.032	.037	.038	.037
	.000	.000	.000	.000	.000	.000
$ln\ n^m$	-.152**	-.146**	-.170**	-.180**	-.154**	-.175**
	.038	.092	.038	.044	.044	.044
	.000	.000	.000	.000	.001	.000
$ln\ n^c$					.048	
					.030	
					.111	
$ln\ s^m_c$					.024	
					.022	
					.287	
$ln\ A^c$					-.011	
					.017	
					.513	

(table con'd)

Model:	1	2	2a	3	4	5
ln DEC		-.049				-.076
		.062				.070
		.425				.279
ln FRAG^m		-.006				-.012
		.041				.042
		.888				.774
# muni			.042*			
gov'ts.			.018			
			.018			
lnTXCON^m				-.095		-.109
				.058		.062
				.099		.081
lnEXCON^m				.016		.013
				.023		.023
				.473		.574
ln(EXP^c*/n*^{c}*)*					.119**	
					.030	
					.000	
DV-MW	-.300**	-.289**	-.325**	-.273**	-.250**	-.252
	.039	.043	.041	.041	.043	.049
	.000	.000	.000	.000	.000	.000
DV-S	-.254**	-.250**	-.251**	-.225**	-.220**	-.216
	.047	.047	.047	.049	.050	.049
	.000	.000	.000	.000	.000	.000
Flypaper:	- -	- -	- -	37.056**	- -	36.228**
Adj. R^2	.284	.282	.286	.287	.299	.285
F	35.99**	26.98**	31.33**	27.55**	23.53**	22.12**
d.f.	523	521	522	521	519	519

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A5.2. Municipal—Regionally Pooled—nonMSA

Model:	1	2a	3	5a
Constant	3.444**	3.418**	3.408**	3.393**
	.375	.378	.416	.416
	.000	.000	.000	.000
$ln\ m^m$	.208	.198	.218	.210
	.122	.121	.121	.119
	.090	.102	.073	.081
$ln\ (s_m^m A^m)$	.157**	.155**	.147**	.146**
	.025	.025	.028	.029
	.000	.000	.000	.000
$ln\ s_m^m$	-.223**	-.224**	-.214**	-.215**
	.035	.036	.038	.038
	.000	.000	.000	.000
$ln\ n^m$	-.158*	-.159*	-.140*	-.140*
	.069	.069	.070	.070
	.023	.022	.047	.046
# muni		.023		.018
gov'ts.		.034		.033
		.491		.585
$lnTXCON^m$			.074	.075
			.077	.077
			.334	.330
$lnEXCON^m$			-.030	-.029
			.020	.020
			.138	.156
DV-MW	-.131*	-.133*	-.172**	-.175**
	.055	.056	.062	.064
	.019	.019	.006	.007
DV-S	-.303**	-.290**	-.334**	-.321**
	.055	.062	.056	.061
	.000	.000	.000	.000
Flypaper:	--	--	6.943**	6.879**
Adj. R^2	.339	.338	.345	.343
F	16.16**	13.92**	12.67**	11.29**
d.f.	171	170	169	168

Notes: White's errors follow estimates. Probability values follow errors. * p < .05. ** p < .01.

Table A5.3. **Municipal—Western—Pooled MSA + nonMSA**

Model:	1	2a	3	4	5a	6a	7	8a
Constant	3.633**	3.649**	3.893**	3.481**	4.031**	3.360**	3.868**	3.761**
	.491	.473	.685	.595	.671	.659	.735	.743
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ m^m$	.092	.048	.028	.002	-.034	.013	-.071	-.065
	.130	.122	.156	.117	.154	.119	.149	.148
	.479	.691	.858	.986	.826	.915	.633	.660
$ln\ (s_m^m A^m)$	.202**	.208**	.184**	.162**	.186*	.168**	.144*	.150**
	.053	.052	.058	.050	.057	.051	.058	.057
	.000	.000	.002	.002	.011	.001	.014	.010
$ln\ s_m^m$	-.251**	-.254**	-.239**	-.213**	-.238**	-.218**	-.205**	-.210**
	.050	.048	.053	.054	.050	.055	.058	.058
	.000	.000	.000	.000	.000	.000	.001	.000
$ln\ n^m$	-.187**	-.203**	-.173*	-.173*	-.180*	-.176	-.159*	-.160
	.066	.066	.072	.072	.070	.072	.078	.077
	.005	.003	.018	.018	.001	.164	.043	.041
$ln\ n^c$				.091		.066	.101	.069
				.065		.074	.066	.075
				.165		.373	.130	.358
$ln\ s_c^m$				.005		.009	.011	.015
				.024		.025	.026	.027
				.834		.728	.678	.575
$ln\ A^c$				-.023		-.018	-.024	-.016
				.054		.054	.051	.052
				.670		.748	.635	.761

(table con'd)

Model:	1	2a	3	4	5a	6a	7	8a
# muni		.068			.074	.039		.048
gov'ts.		.035			.039	.058		.063
		.058			.057	.503		.446
lnTXCON^m			-.097		-.034		-.043	-.026
			.147		.153		.149	.155
			.513		.822		.771	.868
lnEXCON^m			.046		.058		.052	.056
			.053		.053		.051	.053
			.382		.278		.307	.289
ln(EXP^c/n^c)				.116		.131	.107	.123
				.107		.114	.102	.109
				.281		.254	.296	.259
DV-MSA	.112	.083	.119	.011	.087	.038	.014	.045
	.072	.075	.071	.084	.074	.094	.081	.093
	.120	.271	.099	.894	.242	.690	.860	.628
Flypaper:	- -	- -	6.511**	- -	6.472**	- -	5.196**	5.601**
Adj. R^2	.197	.220	.198	.207	.223	.207	.206	.209
F	8.28**	7.95**	6.21**	5.29**	6.32**	4.85**	4.5**	4.26**
d.f.	143	142	141	139	140	138	137	136

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A5.4. Municipal–Western–MSA

Model:	1	2	2a	3	4	5	5a	6	6a	7	8	8a
Constant	3.561**	3.662**	3.625**	3.758**	3.405**	3.892**	3.997**	3.381**	3.210**	3.738**	3.740**	3.595**
	.626	.690	.595	.817	.786	.872	.801	.774	.813	.906	.891	.900
	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ m^m$	.140	.115	.070	.090	.048	.060	-.005	.019	.079	-.014	-.049	.006
	.151	.159	.140	.174	.136	.183	.173	.140	.141	.169	.175	.169
	.356	.469	.619	.608	.725	.745	.975	.892	.574	.932	.781	.970
$ln\ (s_m^m A^m)$	.214**	.229**	.216**	.202*	.172*	.217**	.196**	.177*	.188**	.158*	.163*	.172*
	.071	.074	.067	.078	.069	.079	.074	.071	.070	.080	.081	.079
	.003	.002	.002	.011	.014	.007	.010	.014	.009	.049	.047	.032
$ln\ s_m^m$	-.264**	-.274**	-.257**	-.259**	-.226**	-.268**	-.244**	-.221**	-.230**	-.222**	-.218**	-.225**
	.066	.069	.061	.069	.070	.072	.065	.073	.069	.073	.076	.072
	.000	.000	.000	.000	.002	.000	.000	.003	.001	.003	.005	.002
$ln\ n^m$	-.204*	-.214*	-.216**	-.196*	-.187*	-.204*	-.193*	-.180	-.185*	-.177	-.169	-.171
	.084	.087	.080	.092	.089	.094	.088	.092	.090	.096	.098	.096
	.016	.015	.008	.036	.038	.033	.030	.052	.041	.067	.088	.077
$ln\ n^c$					.098			.085	.038	.105	.090	.038
					.073			.076	.081	.074	.078	.085
					.184			.263	.638	.158	.246	.653
$ln\ s_c^m$					.004			-.001	.014	.009	.004	.020
					.025			.025	.025	.026	.026	.027
					.880			.974	.585	.734	.876	.473
$ln\ A^c$					-.032			-.026	-.027	-.032	-.024	-.023
					.063			.064	.062	.063	.065	.064
					.616			.682	.662	.611	.710	.720

(table con'd)

Model:	1	2	2a	3	4	5	5a	6	6a	7	8	8a
ln DEC		.130				.140		.188			.187	
		.142				.136		.173			.170	
		.359				.304		.279			.272	
ln FRAG^m		.069				.072		.065			.071	
		.090				.090		.091			.089	
		.443				.427		.474			.423	
# muni gov'ts.			.092*				.101*		.111			.119
			.039				.043		.081			.083
			.018				.021		.177			.157
lnTXCON^m				-.104		-.099	-.006			-.055	-.036	-.028
				.179		.179	.185			.196	.198	.198
				.563		.582	.974			.778	.857	.888
lnEXCON^m				.047		.050	.062			.054	.056	.061
				.060		.060	.060			.058	.057	.059
				.435		.405	.306			.353	.327	.307
ln(EXP^c/n^c)					.102			.147	.152	.092	.134	.141
					.133			.144	.145	.126	.135	.136
					.446			.311	.296	.464	.326	.301
Flypaper:	- -	- -	- -	7.134**	- -	7.706**	6.924**	- -	- -	5.671*	5.880*	6.374*
Adj. R^2	.165	.157	.193	.163	.167	.156	.194	.162	.171	.165	.160	.172
F	7.18**	4.89**	6.99**	5.07**	4.13**	3.90**	5.31**	3.42**	3.87**	3.47**	2.98**	3.36**
d.f.	121	119	120	119	117	117	118	115	116	115	113	114

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A5.5. **Municipal–Western–nonMSA**

Model:	1	2a	3	4	5a	6a	7	8a
Constant	4.698**	4.985**	5.492**	4.065**	5.523**	5.379**	4.130**	5.474**
	.571	.458	.752	.621	.570	.580	.600	.651
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ m^m$	-.419*	-.287	-.626*	-.608*	-.449	-.600*	-.620**	-.619**
	.190	.178	.242	.208	.243	.212	.200	.183
	.041	.125	.020	.011	.084	.014	.009	.006
$ln\ (s_m^m A^m)$	.182**	.138*	.138**	.098*	.100*	.072	.091*	.073
	.050	.058	.040	.042	.044	.037	.040	.039
	.002	.029	.003	.037	.040	.073	.041	.092
$ln\ s_m^m$	-.218**	-.156**	-.182**	-.074	-.126*	.083	-.085	.090
	.043	.051	.040	.097	.043	.107	.104	.119
	.000	.008	.000	.458	.011	.453	.426	.466
$ln\ n^m$	.008	.058	.028	.179	.078	.165	.172	.164
	.086	.073	.089	.103	.064	.101	.103	.101
	.924	.439	.760	.104	.242	.127	.122	.132
$ln\ n^c$				.015		.139	.006	.157
				.141		.134	.143	.143
				.917		.319	.966	.296
$ln\ s_c^m$				-.013		-.145	.003	-.152
				.093		.093	.092	.105
				.893		.144	.974	.178
$ln\ A^c$				.020		-.112	.036	-.127
				.060		.062	.047	.087
				.737		.097	.454	.173

(table con'd)

Model:	1	2a	3	4	5a	6a	7	8a
# muni		-.163**			-.170*	-.199**		-.201**
gov'ts.		.056			.060	.052		.057
		.010			.013	.002		.005
$lnTXCON^m$			-.171		-.221		-.061	.032
			.174		.107		.208	.146
			.340		.056		.776	.833
$lnEXCON^m$			.063		.039		.008	.005
			.038		.037		.044	.039
			.120		.307		.865	.892
$ln(EXP^c/n^c)$				.307**		.249**	.288*	.264*
				.080		.077	.122	.093
				.002		.007	.037	.017
Flypaper:	- -	- -	5.335**	- -	3.635*	- -	3.729**	2.511*
Adj. R^2	.442	.529	.422	.548	.510	.656	.476	.603
F	5.36**	5.94**	3.68*	4.34**	4.27**	5.66**	3.00*	4.04*
d.f.	18	17	16	14	15	13	12	11

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A5.6. Municipal–Midwestern–Pooled MSA + nonMSA

Model:	1	2a	3	4	5a	6a	7	8a
Constant	2.765**	2.784**	2.523**	2.439**	2.587**	2.118**	1.744**	1.703**
	.342	.343	.480	.384	.478	.424	.608	.597
	.000	.000	.000	.000	.000	.000	.004	.005
$ln\ m^m$	.258**	.205*	.283**	.169	.238*	.174	.201*	.195*
	.082	.088	.084	.096	.093	.094	.097	.094
	.002	.021	.001	.080	.011	.064	.039	.040
$ln\ (s_m^m A^m)$	.200**	.206**	.234**	.176**	.231**	.177**	.216**	.203**
	.034	.034	.040	.042	.040	.045	.039	.038
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ s_m^m$	-.320**	-.329**	-.361**	-.366**	-.359**	-.414**	-.432**	-.450**
	.044	.046	.062	.057	.061	.064	.064	.068
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ n^m$	-.271**	-.287**	-.323**	-.311**	-.323**	-.336**	-.388**	-.383**
	.051	.052	.070	.066	.070	.069	.072	.073
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ n^c$				.131*		-.007	.109	-.0002
				.056		.070	.059	.071
				.019		.921	.067	.997
$ln\ s_c^m$				.085		.084	.097*	.092
				.049		.055	.048	.053
				.083		.128	.042	.086
$ln\ A^c$				-.050		-.040	-.024	-.025
				.029		.028	.029	.029
				.083		.159	.400	.388

(table con'd)

Model:	1	2a	3	4	5a	6a	7	8a
# muni		.048			.035	.213**		.179**
gov'ts.		.026			.028	.053		.053
		.063			.205	.000		.001
$lnTXCON^m$			-.120		-.093		-.250**	-.163
			.076		.079		.093	.087
			.116		.236		.008	.063
$lnEXCON^m$			.010		.007		.014	.006
			.030		.030		.027	.027
			.735		.816		.609	.834
$ln(EXP^c/n^c)$				.226**		.228**	.290**	.269**
				.057		.056	.068	.066
				.000		.000	.000	.000
DV-MSA	-.099	-.134*	-.111	.025	-.134*	.073	.035	.072
	.056	.061	.058	.059	.061	.058	.061	.060
	.081	.029	.057	.669	.029	.210	.568	.228
Flypaper:	- -	- -	9.354**	- -	9.369**	- -	8.727**	8.234**
Adj. R^2	.171	.172	.175	.209	.173	.241	.234	.256
F	14.15**	12.03**	10.63**	10.35**	9.34**	11.10**	9.85**	10.10**
d.f.	313	312	311	309	310	308	307	306

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A5.7. Municipal–Midwestern–MSA

Model:	1	2	2a	3	4	5	5a	6	6a	7	8	8a
Constant	2.379**	2.367**	2.356**	2.018**	2.485**	1.808**	2.045**	2.494**	1.981**	1.711	1.648	1.523
	.439	.469	.442	.591	.579	.686	.591	.629	.659	.886	.885	.898
	.000	.000	.000	.001	.000	.009	.001	.000	.003	.055	.064	.091
$ln\ m^m$	.279**	.298**	.224*	.311**	.182	.367**	.278**	.205	.208	.214	.246*	.225*
	.089	.091	.097	.093	.109	.103	.103	.110	.108	.116	.117	.114
	.002	.001	.021	.001	.096	.000	.008	.063	.056	.065	.037	.049
$ln\ (s_m^m A^m)$	.216**	.216**	.230**	.284**	.207**	.300**	.285**	.222**	.226**	.272**	.300**	.270**
	.043	.046	.041	.051	.055	.055	.050	.054	.050	.051	.054	.047
	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ s_m^m$	-.369**	-.353**	-.385**	-.452**	-.419**	-.436**	-.453**	-.413**	-.481**	-.518**	-.513**	-.543**
	.055	.056	.057	.076	.066	.072	.075	.064	.072	.073	.072	.076
	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ n^m$	-.322**	-.306**	-.347**	-.425**	-.369**	-.414**	-.429**	-.362**	-.413**	-.487**	-.490**	-.492**
	.062	.065	.065	.087	.078	.084	.086	.078	.081	.084	.085	.084
	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ n^c$					.155			.232**	-.034	.121	.184*	-.021
					.082			.079	.115	.093	.084	.119
					.061			.004	.767	.193	.029	.862
$ln\ s_c^m$					.101			.119	.083	.112	.138*	.096
					.074			.074	.084	.072	.069	.081
					.172			.112	.324	.122	.048	.240
$ln\ A^c$					-.055			-.102*	-.029	-.020	-.045	-.009
					.031			.051	.033	.035	.048	.036
					.080			.046	.367	.570	.349	.805

(table con'd)

Model:	1	2	2a	3	4	5	5a	6	6a	7	8	8a
ln DEC		-.139				-.335		-.428			-.458	
		.198				.261		.270			.290	
		.486				.201		.114			.116	
ln $FRAG^m$		-.070				-.147		-.064			-.165	
		.086				.095		.102			.100	
		.415				.122		.534			.098	
# muni			.047				.025		.245**			.196**
gov'ts.			.028				.029		.071			.068
			.087				.400		.001			.004
$lnTXCON^m$				-.188*		-.239*	-.171			-.284*	-.323**	-.210*
				.085		.104	.089			.111	.112	.102
				.028		.022	.056			.011	.004	.041
$lnEXCON^m$				.048		.035	.047			.057	.043	.046
				.040		.043	.040			.040	.041	.040
				.224		.411	.242			.160	.291	.255
$ln(EXP^c/n^c)$					.178*			.179*	.175**	.245**	.247**	.226**
					.069			.071	.066	.080	.080	.076
					.011			.012	.008	.003	.002	.003
Flypaper:	- -	- -	- -	12.875**	- -	13.604**	12.950**	- -	- -	12.419**	13.710**	11.965**
Adj. R^2	.181	.176	.183	.201	.202	.202	.198	.203	.235	.240	.245	.263
F	14.99**	10.03**	12.33**	11.58**	9.00**	9.01**	9.93**	7.45**	9.620**	9.00**	7.84**	9.20**
d.f.	249	247	248	247	245	245	246	243	244	243	241	242

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A5.8. Municipal–Midwestern–nonMSA

Model:	1	2a	3	4[1]	5a	6a[1]	7	8a[1]
Constant	3.220**	3.088	3.623**	3.326**	3.632	3.018	1.947	2.156
	.712	.757	.886	1.156	.860	1.055	1.071	1.820
	.000	.000	.000	.006	.000	.006	.075	.242
$ln\ m^m$	.515*	.490	.437	.224	.344	.088	.119	-.021
	.249	.254	.276	.343	.275	.266	.288	.299
	.043	.059	.120	.516	.215	.743	.682	.944
$ln\ (s^m_m A^m)$	.183**	.169	.155*	.106	.124	.086	.125	.094
	.057	.060	.066	.077	.066	.073	.066	.062
	.002	.007	.022	.171	.066	.246	.065	.134
$ln\ s^m_m$	-.166**	-.164	-.134	-.103	-.121	-.239	-.201	-.305
	.061	.064	.077	.159	.073	.167	.143	.170
	.008	.013	.086	.519	.102	.157	.166	.079
$ln\ n^m$	-.260*	-.252	-.223	-.051	-.195	-.044	-.136	-.119
	.129	.125	.143	.196	.127	.140	.171	.164
	.048	.048	.125	.795	.131	.754	.427	.470
$ln\ n^c$				-.145		-.270	.079	-.087
				.281		.165	.149	.318
				.609		.109	.597	.786
$ln\ s^m_c$				-.016		.030	.041	.070
				.097		.093	.073	.087
				.870		.746	.580	.429
$ln\ A^c$				.047		.019	-.020	-.035
				.098		.061	.057	.089
				.635		.755	.724	.694

(table con'd)

Model:	1	2a	3	4[1]	5a	6a[1]	7	8a[1]
# muni gov'ts.		.095			.125	.192		.188
		.078			.083	.107		.101
		.227			.134	.079		.068
$lnTXCON^m$			.127		.207		-.200	-.084
			.150		.143		.178	.285
			.403		.153		.266	.770
$lnEXCON^m$			.004		-.006		-.014	-.025
			.037		.040		.036	.039
			.923		.875		.690	.515
$ln(EXP^c/n^c)$				.140		.215	.427**	.414
				.263		.167	.138	.370
				.598		.204	.003	.268
Flypaper:	--	--	2.792*	--	2.328*	--	2.477*	2.005
Adj. R^2	.152	.158	.133	--	.149	--	.226	--
F	3.88**	3.41**	2.64*	--	2.60*	--	2.87**	--
d.f.	60	59	58	--	57	--	54	--

Notes: [1]2SLS estimation. White's errors follow estimates. Probability values follow errors. * p < .05. ** p < .01.

Table A5.9. **Municipal–Southern–Pooled MSA + nonMSA**

Model:	1	2a	3	5a	7
Constant	3.205**	3.213**	3.020**	3.039**	2.926**
	.337	.338	.372	.380	.403
	.000	.000	.000	.000	.000
$ln\ m^m$	.174	.165	.213*	.204*	.137
	.091	.094	.092	.096	.101
	.058	.080	.021	.035	.177
$ln\ (s_m^m A^m)$	.116**	.118**	.110**	.111**	.083**
	.024	.024	.028	.028	.029
	.000	.000	.000	.000	.005
$ln\ s_m^m$	-.190**	-.191**	-.183**	-.183**	-.175**
	.039	.038	.042	.042	.055
	.000	.000	.000	.000	.002
$ln\ n^m$	-.071	-.075	-.062	-.064	-.066
	.049	.049	.054	.053	.064
	.146	.127	.251	.228	.303
$ln\ n^c$					.027
					.046
					.551
$ln\ s_c^m$					.029
					.032
					.357
$ln\ A^c$					.036
					.022
					.106

(table con'd)

Model:	1	2a	3	5a	7
# muni		.011		.010	
gov'ts.		.024		.025	
		.667		.682	
*lnTXCON^m^*			.030	.035	-.052
			.067	.070	.084
			.655	.615	.534
*lnEXCON^m^*			-.041*	-.040*	-.044**
			.017	.017	.017
			.016	.017	.009
ln(EXP^c^/n^c^)					.045
					.034
					.189
DV-MSA	.087*	.077	.083	.073	.021
	.043	.051	.043	.051	.051
	.045	.133	.053	.158	.683
Flypaper:	- -	- -	47.721**	47.939**	35.885**
Adj. R^2	.311	.308	.318	.315	.344
F	22.55**	18.71**	16.93**	14.77**	12.39**
d.f.	234	233	232	231	228

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A5.10. Municipal–Southern–MSA

Model:	1	2	2a	3	4	5	5a	6	6a	7	8	8a
Constant	3.493**	3.530**	3.491**	3.297**	3.340**	3.164**	3.301**	3.285**	3.353**	3.029**	2.995**	3.022**
	.444	.438	.443	.502	.471	.499	.510	.487	.470	.544	.547	.539
	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ m^m$	.138	.136	.137	.175	.078	.196	.171	.094	.078	.125	.142	.129
	.111	.111	.115	.115	.126	.115	.123	.127	.124	.131	.131	.130
	.215	.224	.236	.129	.537	.090	.165	.457	.531	.341	.278	.324
$ln\ (s^m_m A^m)$	.096**	.081*	.097**	.099*	.060	.091*	.099*	.061	.060	.064	.065	.064
	.034	.035	.034	.039	.037	.038	.039	.037	.037	.038	.038	.038
	.006	.022	.006	.012	.110	.018	.011	.104	.108	.099	.092	.094
$ln\ s^m_m$	-.164**	-.141**	-.164**	-.166**	-.116	-.150*	-.166**	-.112	-.115	-.119	-.117	-.118
	.049	.050	.049	.055	.066	.054	.055	.066	.066	.065	.065	.065
	.001	.006	.001	.003	.082	.006	.003	.094	.087	.068	.072	.070
$ln\ n^m$	-.042	-.018	-.043	-.046	.013	-.031	-.047	.019	.013	.005	.010	.005
	.059	.062	.059	.068	.079	.067	.067	.079	.079	.078	.078	.078
	.477	.776	.467	.500	.874	.638	.481	.808	.870	.946	.901	.945
$ln\ n^c$					-.032			-.041	-.021	-.031	-.032	-.021
					.065			.067	.070	.072	.074	.072
					.621			.540	.771	.666	.668	.773
$ln\ s^m_c$					-.004			-.005	-.006	-.004	-.002	-.006
					.043			.042	.043	.041	.041	.042
					.928			.914	.892	.930	.965	.880
$ln\ A^c$					.030			.030	.025	.032	.028	.029
					.024			.029	.026	.032	.036	.032
					.221			.298	.335	.323	.436	.359

Model:	1	2	2a	3	4	5	5a	6	6a	7	8	8a
ln DEC		-.119				-.158		-.022			-.047	
		.078				.082		.087			.087	
		.130				.056		.803			.588	
ln FRAG		-.003				-.018		.054			.041	
		.059				.059		.063			.064	
		.953				.764		.392			.520	
# muni			.002				.005		-.019			-.022
gov'ts.			.030				.036		.036			.039
			.943				.890		.605			.573
lnTXCON[m]				-.009		-.086	-.003			-.026	-.029	-.041
				.093		.100	.110			.135	.136	.144
				.924		.389	.980			.845	.832	.777
lnEXCON[m]				-.027		-.035	-.028			-.040	-.040	-.040
				.027		.026	.027			.026	.026	.026
				.301		.180	.307			.125	.132	.129
ln(EXP[c]/n[c])					.092*			.103*	.092*	.095*	.103*	.094*
					.041			.045	.041	.042	.048	.043
					.026			.026	.024	.026	.032	.030
Flypaper:	- -	- -	- -	64.458**	- -	59.085**	64.438**	- -	- -	41.505*	42.451*	40.615*
Adj. R^2	.275	.275	.270	.269	.299	.275	.264	.293	.297	.299	.292	.298
F	15.12**	10.44**	12.02**	10.16**	8.94**	8.08**	8.65**	7.16**	8.00**	7.36**	6.13**	6.75**
d.f.	145	143	144	143	141	141	142	139	140	139	137	138

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A5.11. Municipal--Southern--nonMSA

Model:	1	2a	3	4	5a	6a	7	8a
Constant	2.806**	2.806**	2.599**	2.500**	2.595**	2.412**	2.424**	2.349
	.514	.507	.556	.493	.561	.524	.486	.513
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ m^m$	.211	.202	.245	.286	.250	.365*	.284	.364
	.170	.167	.166	.159	.166	.155	.160	.156
	.216	.229	.144	.077	.137	.021	.080	.022
$ln\ (s_m^m A^m)$	.145**	.144***	.129**	.035	.128**	.014	.038	.017
	.032	.032	.038	.045	.038	.043	.046	.044
	.000	.000	.001	.446	.001	.750	.412	.694
$ln\ s_m^m$	-.242**	-.243**	-.223**	-.168**	-.223**	-.155**	-.174**	-.158
	.055	.055	.059	.050	.059	.049	.051	.050
	.000	.000	.000	.001	.000	.002	.001	.002
$ln\ n^m$	-.102	-.104	-.060	-.270*	-.058	-.315*	-.266*	-.306*
	.106	.106	.108	.123	.108	.122	.123	.121
	.339	.332	.578	.031	.592	.012	.034	.014
$ln\ n^c$				.397**		.518**	.384**	.514**
				.102		.116	.102	.117
				.000		.000	.000	.000
$ln\ s_c^m$				.045		.064	.046	.062
				.034		.033	.034	.033
				.183		.054	.178	.061
$ln\ A^c$				.015		.011	.018	.005
				.029		.028	.031	.030
				.620		.692	.550	.856

(table con'd)

Model:	1	2a	3	4	5a	6a	7	8a
# muni		.018			-.008	-.109*		-.113**
gov'ts.		.041			.043	.042		.042
		.662			.862	.011		.009
$lnTXCON^m$			.056		.058		-.032	.014
			.103		.101		.071	.073
			.587		.566		.656	.847
$lnEXCON^m$			-.054*		-.055*		-.007	-.015
			.021		.024		.019	.020
			.013		.023		.692	.458
$ln(EXP^c/n^c)$				-.017		-.019	-.014	-.014
				.049		.044	.048	.043
				.732		.670	.766	.751
Flypaper:	- -	- -	9.053**	- -	9.062**	- -	2.485	.854
Adj. R^2	.228	.223	.252	.406	.243	.441	.392	.428
F	7.59**	6.12**	6.00**	8.60**	5.08**	8.81**	6.71**	7.07**
d.f.	85	84	83	81	82	80	79	78

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A5.12. County–Regionally Pooled–MSA

Model:	1	2b	3	5b
Constant	.723	.807	.510	.580
	.678	.730	.682	.753
	.288	.271	.455	.443
$ln\ m^c$	.853**	.855**	.871**	.872**
	.205	.207	.205	.206
	.000	.000	.000	.000
$ln\ (s_c^c A^c)$	.076	.066	.093*	.085
	.041	.046	.042	.050
	.066	.155	.029	.091
$ln\ s_c^c$	-.137*	-.130*	-.155*	-.149*
	.060	.063	.062	.067
	.024	.041	.014	.027
$ln\ n^c$	-.063	-.042	-.084	-.068
	.076	.094	.079	.101
	.410	.658	.285	.499
#total		-.034		-.026
gov'ts.		.080		.081
		.675		.753
$lnTXCON^c$			-.043	-.040
			.144	.143
			.764	.781
$lnEXCON^c$			-.191	-.187
			.203	.205
			.350	.364
DV-MW	-.494**	-.499**	-.491**	-.495**
	.090	.091	.090	.091
	.000	.000	.000	.000
DV-S	-.355**	-.393**	-.354**	-.382*
	.117	.150	.115	.152
	.003	.010	.003	.013
Flypaper:	- -	- -	11.559*	10.106*
Adj. R^2	.257	.256	.254	.252
F	10.51**	9.12**	8.02**	7.17**
d.f.	159	158	157	156

Notes: White's errors follow estimates. Probability values follow errors. * p < .05. ** p < .01.

Table A5.13. County--Western--Pooled MSA + nonMSA

Model:	1	2b	3	4	5b	6b	7	8b
Constant	3.303**	3.282**	3.079**	1.444	3.216**	1.574	1.607	1.798*
	.939	.904	.974	.915	.962	.894	.836	.816
	.001	.001	.003	.121	.002	.084	.060	.032
$ln\ m^c$	-.139	-.054	-.040	-.074	.059	-.016	.173	.242
	.300	.292	.317	.317	.300	.314	.351	.346
	.643	.855	.900	.817	.846	.959	.625	.487
$ln\ (s^c_c A^c)$	.264**	.275**	.286**	.246**	.276**	.254**	.264**	.261**
	.055	.056	.060	.066	.056	.063	.068	.065
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ s^c_c$	-.347**	-.376**	-.322**	-.266**	-.334**	-.292**	-.229**	-.244**
	.060	.061	.058	.061	.059	.057	.058	.054
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ n^c$	-.357**	-.310**	-.345**	-.316**	-.281**	-.273**	-.293**	-.231**
	.080	.084	.073	.082	.078	.086	.076	.080
	.000	.001	.000	.000	.001	.003	.000	.006
$ln\ n^m$				-.123		-.144	-.178	-.206
				.099		.103	.101	.105
				.220		.168	.086	.056
$ln\ s^c_m$				-.046		-.034	-.050	-.043
				.048		.047	.053	.055
				.342		.482	.346	.436
$ln\ A^m$				.106		.109	.160	.161
				.084		.082	.086	.082
				.214		.187	.069	.056

(table con'd)

Model:	1	2b	3	4	5b	6b	7	8b
# total gov'ts.		-.181			-.185	-.129		-.147*
		.105			.099	.085		.072
		.091			.068	.136		.046
*lnTXCON^c^*			-.451**		-.423**		-.455**	-.436**
			.161		.149		.154	.147
			.007		.006		.005	.005
*lnEXCON^c^*			.091		.300		.281	.434
			.281		.246		.270	.255
			.748		.227		.304	.095
$ln(EXP^m/n^m)$				.277		.261	.101	.097
				.192		.185	.207	.198
				.155		.166	.629	.629
DV-MSA	-.211	-.280*	-.193	-.105	-.254*	-.160	-.095	-.145
	.127	.123	.115	.127	.109	.120	.120	.112
	.102	.027	.098	.410	.025	.190	.432	.203
Flypaper:	- -	- -	16.028**	- -	15.369**	- -	14.579**	14.366**
Adj. R^2	.382	.399	.436	.452	.452	.445	.513	.507
F	8.41**	7.65**	7.63**	6.51**	7.19**	5.81**	6.75**	6.15**
d.f.	55	54	53	51	52	50	49	48

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A5.14. County–Western–MSA

Model:	1	2	2b	3	4	5	5b	6	6b	7	8	8b
Constant	4.103**	3.171*	4.041**	3.899**	1.896	3.313*	4.150**	1.200	2.029	1.982	1.411	2.296
	1.147	1.284	1.109	1.262	1.077	1.320	1.234	.997	1.089	1.073	1.036	1.141
	.001	.019	.001	.004	.089	.018	.002	.239	.073	.076	.185	.055
$ln\ m^c$	-.425	-.215	-.338	-.344	-.325	-.151	-.198	-.121	-.312	-.166	.019	-.086
	.323	.351	.316	.365	.377	.358	.328	.373	.376	.448	.449	.443
	.197	.545	.293	.354	.396	.676	.550	.748	.413	.714	.967	.848
$ln\ (s_c^c A^c)$	.228**	.174	.254**	.257*	.188*	.157	.227*	.131	.215*	.204*	.114	.207*
	.063	.101	.067	.109	.079	.118	.092	.079	.086	.090	.103	.088
	.001	.095	.001	.026	.023	.192	.020	.110	.018	.032	.279	.027
$ln\ s_c^c$	-.284**	-.253*	-.330**	-.274**	-.202**	-.216	-.274**	-.180*	-.238**	-.182*	-.141	-.196**
	.077	.118	.081	.100	.066	.130	.097	.078	.068	.071	.095	.069
	.001	.039	.000	.010	.005	.106	.009	.028	.002	.016	.149	.009
$ln\ n^c$	-.268**	-.188	-.223*	-.274*	-.213*	-.171	-.181	-.111	-.176*	-.203*	-.092	-.143
	.087	.108	.091	.102	.088	.115	.102	.097	.080	.082	.104	.083
	.004	.092	.019	.012	.022	.147	.085	.262	.037	.019	.384	.096
$ln\ n^m$					-.199			-.249*	-.218	-.235	-.269*	-.259
					.127			.110	.128	.127	.113	.132
					.128			.032	.100	.075	.025	.061
$ln\ s_m^c$					.020			.074	.024	.032	.062	.026
					.067			.080	.063	.079	.089	.078
					.767			.360	.707	.687	.494	.741
$ln\ A^m$					.207			.266*	.194	.244*	.279*	.233*
					.112			.102	.097	.111	.102	.101
					.074			.015	.055	.037	.011	.030

(table con'd)

Model:	1	2	2b	3	4	5	5b	6	6b	7	8	8b
ln DEC		-.409				-.396		-.353			-.359	
		.293				.284		.193			.215	
		.173				.174		.079			.107	
ln FRAG^c		.066				.047		.103			.084	
		.090				.093		.085			.089	
		.465				.619		.234			.355	
# total			-.224				-.243		-.149			-.163
gov'ts.			.131				.130		.119			.122
			.096				.072		.219			.193
lnTXCON^c				-.366		-.169	-.269			-.332	-.134	-.282
				.282		.251	.247			.242	.229	.238
				.203		.507	.285			.181	.564	.246
lnEXCON^c				.032		.232	.444			.114	.282	.368
				.531		.388	.438			.442	.416	.444
				.952		.554	.318			.798	.504	.414
ln(EXP^m*/n*^{m}*)*					.335			.297	.344	.235	.221	.213
					.251			.236	.246	.273	.265	.272
					.193			.219	.173	.397	.411	.440
Flypaper:	- -	- -	- -	17.043*	- -	10.377	15.220*	- -	- -	13.434*	7.424	12.932*
Adj. R^2	.284	.329	.329	.284	.423	.297	.320	.480	.420	.420	.452	.413
F	4.67**	4.02**	4.63**	3.44**	4.39**	2.95**	3.49**	4.42**	3.97**	3.68**	3.55**	3.36**
d.f.	33	31	32	31	29	29	30	27	28	27	25	26

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A5.15. County--Western--nonMSA

Model:	1	2b	3	4	5b	6b	7	8b
Constant	1.391	1.347	.947	-.654	.993	-.396	-.021	.196
	1.565	1.481	1.496	1.629	1.354	1.284	1.499	1.120
	.386	.376	.536	.694	.475	.763	.989	.864
$ln\ m^c$	.629	.690	.751	.824	.780	1.006*	.937	1.119*
	.497	.480	.541	.459	.496	.434	.523	.444
	.222	.168	.184	.094	.129	.038	.099	.029
$ln\ (s_c^c A^c)$	.342**	.334**	.354**	.208	.342**	.120	.279*	.192
	.101	.100	.077	.139	.075	.149	.128	.143
	.003	.004	.000	.156	.003	.436	.049	.204
$ln\ s_c^c$	-.482**	-.487**	-.444**	-.380**	-.446**	-.431**	-.374**	-.434**
	.067	.066	.061	.110	.061	.077	.088	.068
	.000	.000	.000	.004	.000	.000	.001	.000
$ln\ n^c$	-.707**	-.665**	-.646**	-.458*	-.587**	-.287	-.519**	-.368*
	.110	.121	.114	.190	.135	.211	.127	.161
	.000	.000	.000	.030	.001	.198	.002	.043
$ln\ n^m$				-.269		-.365	-.194	-.282
				.199		.205	.150	.169
				.198		.098	.220	.123
$ln\ s_m^c$				.071		.183	.032	.150
				.103		.112	.129	.153
				.501		.126	.809	.346
$ln\ A^m$				-.008		.026	.081	.111
				.078		.076	.094	.084
				.919		.738	.406	.214

(table con'd)

Model:	1	2b	3	4	5b	6b	7	8b
# total gov'ts.		-.095			-.111	-.252		-.239
		.093			.072	.123		.113
		.323			.143	.061		.057
$lnTXCON^c$			-.466*		-.479*		-.435	-.410
			.168		.163		.230	.211
			.013		.010		.084	.078
lnEXCON			-.091		-.022		-.106	-.169
			.359		.354		.485	.412
			.803		.952		.831	.689
$ln(EXP^m/n^m)$				.531		.506*	.148	.129
				.252		.225	.287	.242
				.053		.042	.617	.604
Flypaper:	- -	- -	13.682**	- -	13.492**	- -	10.429*	7.303
Adj. R^2	.536	.514	.614	.516	.597	.556	.532	.543
F	7.34**	5.66**	6.84**	3.93*	5.66**	4.06*	3.50*	3.37*
d.f.	18	17	16	14	15	13	12	11

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A5.16. County–Midwestern–Pooled MSA + nonMSA

Model:	4	7	8b
Constant	.164	.622	.748
	.875	.845	.889
	.852	.463	.402
$ln\ m^c$	.761**	.653**	.659**
	.208	.198	.199
	.000	.001	.001
$ln\ (s_c^c A^c)$	.186**	.158**	.153**
	.048	.048	.051
	.000	.001	.003
$ln\ s_c^c$	-.354**	-.280**	-.289**
	.067	.069	.068
	.000	.000	.000
$ln\ n^c$	-.381**	-.297**	-.289**
	.080	.077	.079
	.000	.000	.000
$ln\ n^m$	.114	.146	.150
	.113	.103	.102
	.316	.161	.146
$ln\ s_m^c$	.293**	.197*	.213*
	.073	.080	.083
	.000	.016	.011
$ln\ A^m$	.045	-.040	-.038
	.056	.062	.062
	.423	.524	.539

(table con'd)

Model:	4	7	8b
# total gov'ts.			-.044
			.074
			.553
lnTXCON^c		.475**	.475**
		.130	.130
		.000	.000
lnEXCON^c		.043	.032
		.241	.240
		.860	.895
ln(EXP^m*/n*^{m}*)*	.404**	.425**	.426**
	.097	.094	.092
	.000	.000	.000
DV-MSA	-.473**	-.505**	-.512**
	.123	.119	.118
	.000	.000	.000
Flypaper:	- -	7.191**	7.026**
Adj. R^2	.511	.561	.558
F	15.07**	15.08**	13.71**
d.f.	112	110	109

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A5.17. County–Midwestern–MSA

Model:	1	2	2b	3	4	5	5b	6	6b	7	8	8b
Constant	-1.772	-1.550	-1.560	-1.373	-2.632	-1.200	-1.114	-2.399	-1.504	-2.103	-1.938	-1.010
	1.169	1.184	1.155	1.394	1.610	1.406	1.405	1.591	1.644	1.618	1.575	1.687
	.136	.197	.183	.329	.109	.398	.432	.138	.365	.200	.225	.552
$ln\ m^c$	1.404**	1.329**	1.528**	1.328**	1.329**	1.267**	1.448**	1.244**	1.380**	1.176**	1.111**	1.229**
	.289	.297	.297	.334	.303	.333	.343	.306	.300	.341	.326	.345
	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.001	.001
$ln\ (s_c^c A^c)$	.138*	.159	.055	.119	.145*	.132	.033	.183*	.058	.132	.166	.051
	.068	.092	.067	.068	.069	.089	.073	.091	.075	.066	.084	.072
	.046	.090	.419	.087	.040	.146	.659	.049	.441	.052	.056	.484
$ln\ s_c^c$	-.307**	-.321*	-.282**	-.266*	-.303**	-.272*	-.237*	-.340**	-.321**	-.265*	-.299*	-.293**
	.110	.123	.104	.117	.108	.132	.115	.122	.111	.106	.119	.107
	.007	.012	.009	.028	.008	.044	.045	.008	.006	.016	.016	.009
$ln\ n^c$	-.310*	-.337*	-.193	-.265*	-.291*	-.282	-.143	-.344*	-.211	-.255*	-.302*	-.186
	.119	.138	.114	.125	.117	.143	.125	.139	.127	.113	.131	.121
	.012	.018	.097	.040	.016	.055	.260	.017	.103	.029	.026	.131
$ln\ n^m$					.111			.125	.118	.213	.221	.211
					.162			.165	.163	.155	.156	.160
					.495			.452	.475	.175	.166	.195
$ln\ s_m^c$					.104			.108	.180	.088	.092	.171
					.121			.119	.111	.115	.114	.106
					.393			.367	.112	.449	.422	.114
$ln\ A^m$					-.013			-.026	-.002	-.124	-.131	-.104
					.101			.103	.103	.110	.112	.117
					.894			.799	.987	.267	.248	.380

(table con'd)

Model:	1	2	2b	3	4	5	5b	6	6b	7	8	8b
ln DEC		.114				.032		.237			.211	
		.439				.443		.428			.414	
		.797				.943		.583			.614	
ln FRAG^c		-.058				-.056		-.049			-.037	
		.095				.093		.094			.089	
		.546				.551		.604			.682	
# total			-.249				-.251*		-.272*			-.268*
gov'ts.			.108				.110		.113			.107
			.025				.027		.020			.016
lnTXCON^c				.197		.189	.205			.368	.356	.345
				.207		.206	.209			.210	.206	.226
				.346		.363	.332			.086	.091	.133
lnEXCON^c				-.103		-.104	-.076			-.135	-.135	-.187
				.291		.289	.283			.315	.307	.308
				.725		.721	.790			.672	.661	.547
ln(EXP^m*/n*^{m}*)*					.317			.333	.248	.422*	.433*	.346*
					.162			.173	.142	.164	.174	.147
					.056			.060	.087	.014	.017	.024
Flypaper:	- -	- -	- -	6.447	- -	7.326	3.261	- -	- -	7.460*	9.692*	4.593
Adj. R^2	.240	.216	.249	.227	.244	.198	.235	.219	.253	.252	.224	.255
F	5.43**	3.57**	4.71**	3.74**	3.25**	2.73*	3.45**	2.57*	3.10**	2.89**	2.35*	2.74**
d.f.	52	50	51	50	48	48	49	46	47	46	44	45

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Model:	1	2b	3	4	5b	6b[1]	7[1]	8b[1]
Constant	3.181**	2.512**	3.481**	1.590	2.982**	.168	2.671	2.499
	.899	.857	.707	.885	.732	1.865	1.666	1.561
	.001	.005	.000	.078	.000	.929	.115	.115
$ln\ m^c$	.568	.562	.489	.581*	.493	.597	.405	.390
	.342	.323	.262	.289	.263	.313	.323	.230
	.102	.087	.067	.049	.066	.061	.214	.096
$ln\ (s_c^c A^c)$	.332**	.312**	.205**	.265**	.182**	.237**	.220**	.209**
	.055	.053	.046	.058	.050	.071	.077	.054
	.000	.000	.000	.000	.001	.001	.006	.000
$ln\ s_c^c$	-.387**	-.363**	-.237**	-.404**	-.210**	-.317*	-.315**	-.261**
	.076	.072	.064	.083	.064	.123	.106	.073
	.000	.000	.001	.000	.002	.013	.004	.001
$ln\ n^c$	-.968**	-1.025**	-.582**	-.827**	-.626**	-.828**	-.613**	-.702**
	.131	.117	.131	.131	.126	.185	.196	.164
	.000	.000	.000	.000	.000	.000	.003	.000
$ln\ n^m$				.197		.166	.223	.190
				.146		.155	.170	.145
				.183		.290	.195	.198
$ln\ s_m^c$				.259**		.164	.145	.054
				.083		.124	.117	.092
				.003		.192	.220	.556
$ln\ A^m$				.050		.032	-.035	-.021
				.056		.059	.076	.060
				.376		.594	.648	.724

(table con'd)

Model:	1	2b	3	4	5b	6b[1]	7[1]	8b[1]
# total		.301*			.245*	.151		.212
gov'ts.		.128			.118	.159		.122
		.022			.043	.347		.087
lnTXCON^c			.653**		.590**		.568**	.554**
			.113		.113		.156	.164
			.000		.000		.001	.001
lnEXCON^c			.363		.468*		.330	.411
			.217		.209		.274	.232
			.099		.029		.235	.082
ln(EXP^m/n^m)				.367**		.559	.233	.146
				.113		.354	.332	.306
				.002		.121	.486	.636
Flypaper:	- -	- -	6.833**	- -	6.120**	- -	7.454**	7.241**
Adj. R^2	.485	.526	.625	.580	.651	- -	- -	- -
F	16.05**	15.18**	18.75**	12.06**	18.08**	- -	- -	- -
d.f.	60	59	58	56	57	- -	- -	- -

Notes: [1]2SLS estimates. White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A5.19. County–Southern–MSA

Model:	1	2	2b	3	4	5	5b	6	6b	7	8	8b
Constant	.129	1.406	.144	-.179	-1.408	1.101	-.154	-.528	-1.395	-1.359	-.650	-1.289
	.939	.889	.985	.917	1.273	.897	.992	1.263	1.282	1.256	1.262	1.296
	.891	.119	.884	.846	.273	.225	.877	.677	.281	.284	.609	.324
$ln\ m^c$	.991**	.649*	.990**	1.018**	.713	.686*	1.017**	.399	.714	.741	.457	.745
	.347	.320	.348	.331	.370	.315	.333	.339	.371	.389	.361	.393
	.006	.047	.006	.003	.059	.033	.003	.245	.059	.062	.211	.063
$ln\ (s_c^c A^c)$	.035	.094	.032	.018	.017	.077	.014	.082	.015	-.038	.047	-.050
	.050	.048	.065	.061	.059	.081	.083	.055	.073	.072	.094	.091
	.487	.055	.625	.764	.769	.346	.865	.139	.834	.598	.619	.582
$ln\ s_c^c$	-.031	-.019	-.029	-.023	-.312*	-.010	-.019	-.194	-.311*	-.298*	-.180	-.290
	.096	.100	.106	.100	.141	.121	.116	.135	.148	.139	.136	.147
	.748	.850	.788	.821	.030	.937	.870	.157	.040	.036	.192	.053
$ln\ n^c$	.112	.068	.117	.112	-.137	.072	.121	-.061	-.133	-.117	-.048	-.095
	.128	.123	.167	.135	.174	.148	.185	.154	.202	.172	.155	.203
	.385	.584	.486	.410	.434	.630	.515	.696	.513	.499	.760	.639
$ln\ n^m$					.166			.103	.165	.169	.097	.164
					.197			.179	.198	.189	.173	.189
					.401			.568	.407	.374	.579	.387
$ln\ s_m^c$					.476**			.310*	.476**	.512**	.324*	.513**
					.153			.142	.153	.151	.151	.152
					.003			.033	.003	.001	.037	.001
$ln\ A^m$					-.001			-.052	.0001	.038	-.025	.043
					.088			.084	.088	.099	.101	.099
					.994			.542	.999	.699	.808	.663

(table con'd)

Model:	1	2	2b	3	4	5	5b	6	6b	7	8	8b
ln DEC		.357				.326		.375			.326	
		.266				.283		.208			.246	
		.185				.254		.077			.191	
ln FRAG^c		-.404**				-.392**		-.304*			-.293*	
		.110				.102		.122			.118	
		.001				.000		.015			.016	
# total			-.007				-.011		-.005			-.026
gov'ts.			.115				.119		.107			.105
			.950				.926		.962			.804
lnTXCON^c				-.451		-.379	-.452			-.466	-.296	-.473
				.305		.340	.307			.307	.360	.311
				.144		.268	.146			.135	.414	.134
lnEXCON^c				-.245		-.211	-.244			.039	-.059	.043
				.302		.334	.304			.241	.290	.244
				.421		.531	.426			.874	.839	.862
ln(EXP^m/n^m)					.829**			.844**	.827**	.767**	.798**	.758**
					.257			.241	.252	.257	.240	.252
					.002			.001	.002	.004	.002	.004
Flypaper:	- -	- -	- -	3.096	- -	16.440	5.609	- -	- -	-9.293	10.072	-8.776
Adj. R^2	.123	.231	.110	.136	.288	.236	.125	.341	.277	.291	.331	.279
F	3.45*	4.50**	2.72*	2.84*	4.55**	3.70**	2.44*	4.63**	3.98**	3.87**	3.89**	3.46**
d.f.	66	64	65	64	62	62	63	60	61	60	58	59

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A5.20. County–Southern–non-MSA

Model:	1	2b	3	4	5b	6b	7	8b
Constant	4.460**	4.054	4.703**	5.658**	4.332	5.153	5.673**	5.280
	1.263	1.287	1.294	1.425	1.387	1.595	1.385	1.588
	.001	.002	.001	.000	.002	.002	.000	.001
$ln\ m^c$	.862	.890	.858	.662	.890	.649	.677	.675
	.465	.469	.462	.428	.472	.426	.456	.455
	.067	.061	.067	.126	.063	.131	.142	.142
$ln\ (s_c^c A^c)$	-.083	-.050	-.159*	-.071	-.131	-.050	-.130	-.112
	.059	.059	.071	.060	.078	.065	.068	.078
	.159	.400	.028	.239	.098	.441	.061	.154
$ln\ s_c^c$	.229*	.190	.300**	.077	.269	.053	.149	.129
	.098	.098	.110	.099	.115	.101	.108	.115
	.022	.055	.008	.438	.022	.597	.171	.267
$ln\ n^c$	-.241	-.346	-.104	-.011	-.191	-.128	.062	-.030
	.207	.213	.209	.251	.226	.277	.247	.284
	.248	.108	.620	.964	.399	.646	.802	.917
$ln\ n^m$				-.181		-.143	-.140	-.109
				.213		.215	.224	.221
				.399		.509	.533	.624
$ln\ s_m^c$				.233**		.236	.211*	.214
				.087		.085	.086	.084
				.009		.007	.017	.013
$ln\ A^m$				.026		.025	.014	.014
				.075		.075	.074	.074
				.728		.744	.848	.851

(table con'd)

Model:	1	2b	3	4	5b	6b	7	8b
# total gov'ts.		.170			.132	.110		.086
		.156			.156	.171		.168
		.280			.400	.521		.609
$lnTXCON^c$			-.090		-.135		-.089	-.106
			.255		.252		.276	.273
			.726		.593		.750	.699
$lnEXCON^c$			.607		.551		.471	.447
			.306		.325		.325	.335
			.051		.094		.151	.186
$ln(EXP^m/n^m)$				-.139		-.052	-.103	-.045
				.249		.260	.255	.263
				.579		.842	.688	.864
Flypaper:	- -	- -	-84.043	- -	-80.472	- -	-68.594	-67.172
Adj. R^2	.094	.086	.115	.123	.106	.112	.127	.116
F	3.30*	2.68*	2.93*	2.56*	2.51*	2.25*	2.29*	2.06*
d.f.	85	84	83	81	82	80	79	78

Notes: White's errors follow estimates. Probability values follow errors. * p < .05. ** p < .01.

APPENDIX VI

SUMMARY STATISTICS AND EMPIRICAL RESULTS FOR CHAPTER VI

Table A6.1. **Municipal Regionally Pooled**
MAYOR COUNCIL
n=180

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	22866	79350	6.30E+9	184	651295	3.470
n^m	105.297	354	125595	10.093	3005.072	3.366
Inc^m	21.207	5.146	26.481	11.296	36.593	.243
Aid^m	19427	82018	6.72E+9	75	736841	4.222
s_m^m	.000478	.000623	3.876E-7	1.82E-6	.006719	1.303
n^c	1127.797	1436	2.06E+6	40.983	7477.421	1.273
Aid^c	116183	203367	4.14E+10	746	2445491	1.750
s_c^m	5.065E-5	2.147E-4	4.608E-8	5.73E-7	.002754	4.238
DEC	.643	.0981	.0096	.3396	.8781	.153
$FRAG^m$	1.5095	.5064	.2565	.1819	2.386	.336
#muni gov'ts	35	31	954	2	121	.890
$TXCON^m$	.5902	.2096	.0439	.2609	1.000	.355
$EXCON^m$	.1009	.0680	.0046	.0051	.4301	.674
EXP^c	54817	71817	5.158E+9	1327	677669	1.310

Table A6.2. **Municipal Regionally Pooled**
CITY MANAGER
n=339

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	14314	26657	7.106E+8	810	224768	1.862
n^m	67.454	114	12897	10.073	904.078	1.684
Inc^m	20.430	5.680	32.258	10.553	48.872	.278
Aid^m	6917	16596	2.754E+8	56	171920	2.399
s_m^m	.000327	.000312	9.748E-8	7.6E-7	.002114	.955
n^c	1076.942	1515	2.296E+6	21.200	7477.421	1.407
Aid^c	177671	413942	1.713E+11	188	2445491	2.330
s_c^m	3.038E-5	6.298E-5	3.966E-9	3.5E-7	.000701	2.073
DEC	.6074	.1444	.0208	.2497	.9796	.238
$FRAG^m$	1.351	.4507	.2031	.1819	2.386	.334
#muni gov'ts	25.351	25	609	1	121	.973
$TXCON^m$	.5568	.1939	.0376	.2845	.9875	.348
$EXCON^m$	.0810	.0534	.0028	.0036	.3903	.659
EXP^c	72852	117797	1.388E+10	752	677669	1.617

Table A6.3. Municipal Regionally Pooled COMMISSION n=11

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	20945	34326	1.178E+9	1722	112080	1.639
n^m	80.935	110	12036	10.814	366.383	1.356
Inc^m	16.524	3.625	13.143	11.548	23.149	.219
Aid^m	11452	18739	3.511E+8	523	61949	1.636
s^m_m	.000358	.000292	8.497E-8	5.98E-6	.000793	.815
n^c	861.539	1485	2206478	37.021	5253.628	1.724
Aid^c	40810	59214	3.506E+9	2257	210693	1.451
s^m_c	4.445E-5	6.483E-5	4.202E-9	1.53E-6	.000214	1.458
DEC	.6721	.1001	.01001	.5495	.8781	.149
$FRAG^m$	1.3245	.4058	.1646	.7742	1.9775	.306
#muni gov'ts	30	39	1513	3	121	1.300
$TXCON^m$	.4825	.1129	.0127	.3353	.6659	.234
$EXCON^m$	.0712	.0977	.0095	.0063	.3536	1.372
EXP^c	42690	49024	2.403E+9	1964	170702	1.148

Table A6.4. Municipal WEST MAYOR COUNCIL n=14

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	64456	168546	2.841E+10	1453	632495	2.615
n^m	275.206	785	616798	10.146	2968.579	2.854
Inc^m	18.487	3.560	12.675	14.095	26.335	.193
Aid^m	36813	98172	9.638E+9	439	360849	2.667
s^m_m	.000298	.000476	2.269E-7	3.57E-6	.001419	1.597
n^c	1113.12	1893	3586602	55.332	7477.421	1.701
Aid^c	233654	641795	4.119E+11	4220	2445491	2.747
s^m_c	2.135E-5	3.772E-5	1.423E-9	5.730E-7	.000142	1.767
DEC	.6204	.0596	.0035	.5205	.6683	.096
$FRAG^m$	1.106	.4063	.1650	.8121	1.978	.367
#muni gov'ts	23	18	338	10	82	.802
$TXCON^m$	.4468	.1433	.0205	.3342	.7801	.321
$EXCON^m$	.1080	.1003	.0101	.0055	.3367	.929
EXP^c	94364	172767	2.985E+10	3307	677669	1.831

Table A6.5. **Municipal WEST CITY MANAGER n=108**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	21892	31629	1.000E+ 9	1671	188895	1.445
n^m	94.001	134	17989	11.064	875.538	1.427
Inc^m	20.198	4.164	17.337	13.506	36.525	.206
Aid^m	10522	23348	5.451E+8	379	179120	2.219
s^m_m	.000361	.000371	1.377E-7	1.42E-5	.00211	1.027
n^c	1519.049	2006	4024311	63.116	7477.421	1.321
Aid^c	398764	672355	4.521E+11	4708	2445491	1.686
s^m_c	2.211E-5	3.616E-5	1.307E-9	3.5E-7	.00022	1.636
DEC	.5442	.0924	.0085	.2497	.6936	.170
$FRAG^m$	1.1827	.244	.0595	.1882	1.9775	.206
#muni gov'ts	21	21	422	2	82	.970
$TXCON^m$	.4360	.1002	.0100	.3334	.7888	.230
$EXCON^m$	.0861	.0478	.0023	.0080	.2904	.555
EXP^c	125381	181366	3.289E+10	4312	677669	1.447

Table A6.6. **Municipal WEST COMMISSION n=4**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	43971	50530	2.553E+9	4605	112080	1.149
n^m	145.654	161	25791	25.750	366.383	1.103
Inc^m	15.523	2.172	4.718	13.211	18.391	.140
Aid^m	23653.5	26545	7.046E+8	992	61949	1.122
s^m_m	.000156	.000209	4.376E-8	5.98E-6	.000465	1.345
n^c	481.259	239	57350	124.264	619.066	.498
Aid^c	31720.75	15513	2.406E+8	9992	46813	.489
s^m_c	2.007E-5	1.217E-5	1.482E-10	3.87E-6	3.11E-5	.607
DEC	.5974	.0584	.0034	.5495	.6683	.098
$FRAG^m$	1.4807	.5906	.3488	.8121	1.9775	.399
#muni gov'ts	9	3	10	6	12	.346
$TXCON^m$	.4581	.1387	.0192	.3353	.5797	.303
$EXCON^m$	.1184	.1581	.0250	.0118	.3536	1.336
EXP^c	38639	19522	3.811E-8	10174	51367	.505

Table A6.7. **Municipal MIDWEST MAYOR COUNCIL n=135**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	17093	66621	4.438E+9	184	651295	3.898
n^m	79.713	288	82785	10.093	3005.072	3.610
Inc^m	22.136	4.661	21.726	11.511	35.129	.211
Aid^m	18127	87541	7.663E+9	249	736841	4.829
s_m^m	.00045	.000377	1.419E-7	3.9E-6	.00192	.836
n^c	1234.330	1503	2260480	77.240	5253.628	1.218
Aid^c	118626	107769	1.161E+10	1521	278792	.909
s_c^m	2.996E-5	3.973E-5	1.579E-9	6.0E-7	.000275	1.326
DEC	.6475	.08799	.0077	.516	.7745	.136
$FRAG^m$	1.67	.4247	.1804	.6836	2.3864	.254
#muni gov'ts	39	33	1088	5	121	.839
$TXCON^m$	.6214	.2195	.0482	.2789	1.000	.353
$EXCON^m$	.1017	.0604	.0036	.0113	.3984	.593
EXP^c	50935	54855	3.009E+9	1713	170702	1.077

Table A6.8. **Municipal MIDWEST CITY MANAGER n=115**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	8334	15535	2.413E+8	1227	116292	1.864
n^m	43.932	58	3383	11.022	448.033	1.324
Inc^m	22.710	6.380	40.699	11.649	48.872	.281
Aid^m	4782	11195	1.253E+8	319	89519	2.341
s_m^m	.000383	.000278	7.721E-8	1.69E-5	.00138	.725
n^c	1118.192	1495	2234001	53.840	5253.628	1.337
Aid^c	97864	87147	7.595E+9	1521	278792	.891
s_c^m	2.953E-5	5.718E-5	3.27E-9	1.9E-6	.000566	1.937
DEC	.6526	.0885	.0078	.516	.7745	.136
$FRAG^m$	1.6392	.497	.247	1.0239	2.3864	.303
#muni gov'ts	36	33	1093	6	121	.909
$TXCON^m$	.6672	.2087	.0435	.2845	.9875	.313
$EXCON^m$	.0793	.0376	.0014	.0063	.2155	.474
EXP^c	51508	51513	2.654E+9	2657	170702	1.000

Table A6.9. **Municipal MIDWEST COMMISSION n=4**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	10853	15240	2.323E+8	2388	33664	1.404
n^m	55.981	70	4944	15.177	161.148	1.256
Inc^m	18.607	3.308	10.943	15.21	23.149	.178
Aid^m	6703	11748	1.38E+8	523	24322	1.753
s_m^m	.000433	.000245	6.005E-8	7.46E-5	.000621	.566
n^c	1661.951	2422	5864115	172.335	5253.628	1.457
Aid^c	66768	97851	9.575E+9	3944	210693	1.466
s_c^m	4.122E-5	5.315E-5	2.825E-9	1.53E-6	.000119	1.289
DEC	.7128	.0628	.00395	.6586	.7745	.088
$FRAG^m$	1.4197	.1257	.0158	1.2557	1.5622	.089
#muni gov'ts	60	55	2989	3	121	.915
$TXCON^m$	.5246	.1087	.0118	.4301	.6659	.207
$EXCON^m$	.0649	.0269	.0007	.0307	.0897	.416
EXP^c	65644	77663	6.032E+9	4221	170702	1.183

Table A6.10. **Municipal SOUTH MAYOR COUNCIL n=31**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	29227	66595	4.435E+9	1054	331852	2.279
n^m	139.979	308	94672	10.284	1595.138	2.198
Inc^m	18.388	6.318	39.921	11.296	36.593	.344
Aid^m	17238	39724	1.578E+9	75	180224	2.304
s_m^m	.000678	.001233	1.521E-6	1.82E-6	.00672	1.818
n^c	670.452	617	380201	40.983	2409.547	.920
Aid^c	52495	75803	5.746E+9	746	382578	1.444
s_c^m	.000154	.000504	2.539E-7	9.08E-6	.00275	3.273
DEC	.6333	.1445	.0209	.3397	.8781	.228
$FRAG^m$	.9924	.4302	.1851	.1819	1.9998	.434
#muni gov'ts	20	17	303	2	89	.870
$TXCON^m$	.5192	.1375	.0189	.2609	.8303	.265
$EXCON^m$	.0940	.0828	.0069	.0051	.4301	.881
EXP^c	53862	60010	3.601E+9	1327	214029	1.114

Table A6.11. **Municipal SOUTH CITY MANAGER n=116**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	13188	28767	8.275E+8	810	224768	2.181
n^m	66.057	129	16598	10.073	904.078	1.950
Inc^m	18.385	5.373	28.865	10.553	32.373	.292
Aid^m	5679	12640	1.598E+8	56	87842	2.226
s_m^m	.000239	.000264	6.978E-8	7.6E-7	.00151	1.105
n^c	624.432	630	396806	21.2	2409.547	1.009
Aid^c	50944	83650	6.997E+9	188	382578	1.642
s_c^m	3.894E-5	8.402E-5	7.06E-9	9.08E-7	.000701	2.158
DEC	.6216	.199	.0396	.328	.9796	.320
$FRAG^m$	1.2209	.4123	.1700	.1819	2.0802	.338
#muni gov'ts	18	11	125	1	37	.610
$TXCON^m$	.5596	.1794	.0322	.3531	.9800	.321
$EXCON^m$	.0779	.0693	.0048	.0036	.3903	.890
EXP^c	45107	61032	3.725E+9	752	214029	1.353

Table A6.12. **Municipal SOUTH COMMISSION n=3**

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
Exp^m	3702	1722	2.964E+6	1722	4849	.465
n^m	27.915	16	242	10.814	41.201	.557
Inc^m	15.083	5.332	28.43	11.548	21.216	.354
Aid^m	1517	867	751881	658	2392	.572
s_m^m	.000526	.000365	1.335E-7	.00011	.000793	.694
n^c	301.361	330	108952	37.021	671.324	1.095
Aid^c	18322	23163	5.365E+8	2257	44874	1.264
s_c^m	8.128E-5	.000115	1.331E-8	5.95E-6	.000214	1.419
DEC	.7176	.1464	.0214	.5913	.8781	.204
$FRAG^m$	.9894	.2023	.0409	.7742	1.1758	.205
#muni gov'ts	18	14	206	7	34	.813
$TXCON^m$	.4589	.1074	.0115	.3354	.5305	.234
$EXCON^m$	.0169	.014	.0002	.0063	.0328	.826
EXP^c	17488	18929	3.583E+8	1964	38575	1.082

Table A6.13. **County Regionally Pooled**
COUNCIL ADMINISTRATOR
n=82

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	39866	80568	6.491E+9	752	677669	2.021
n^c	522.805	888	788235	21.2	7477.421	1.698
Inc^c	18.418	3.255	10.596	13.404	30.011	.177
Aid^c	112419	281612	7.931E+10	1701	2445491	2.505
s_c^c	7.486E-5	3.015E-4	9.089E-8	5.21E-7	.00261	4.027
n^m	61.163	91	8266	10.073	629.531	1.487
Aid^m	7101	11508	1.3244E+8	249	66431	1.621
s_m^c	.000403	.000738	5.441E-7	8.03E-6	.00637	1.832
DEC	.5284	.1345	.0181	.2497	.9796	.255
$FRAG^c$	.4136	.279	.0778	.0435	1.0691	.675
#total gov't	55	50	2451	2	276	.908
$TXCON^c$	.7319	.1526	.0233	.4519	.9898	.208
$EXCON^c$	.6686	.1470	.0216	.2797	.9487	.220
EXP^m	12387	20311	4.126E+8	855	131909	1.640

Table A6.14. **County Regionally Pooled**
COUNCIL EXECUTIVE
n=15

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	64396	44836	2.01E+9	2138	170702	.696
n^c	925.427	1247	1.554E+6	49.499	5253.628	1.347
Inc^c	20.118	4.233	17.918	11.687	28.987	.210
Aid^c	96845	78873	6.221E+9	2946	239264	.814
s_c^c	6.177E-5	.000171	2.914E-8	1.79E-6	.000675	2.763
n^m	28.839	18	321	11.022	85.725	.622
Aid^m	3396	6747	4.552E+7	489	27278	1.987
s_m^c	.000511	.000452	2.046E-7	6.77E-5	.001680	.885
DEC	.6652	.0962	.0093	.5380	.7864	.145
$FRAG^c$	.3177	.1376	.0189	.1638	.6368	.433
#total gov't	83	128	16413	6	516	1.547
$TXCON^c$	.6094	.222	.0493	.4042	.9924	.364
$EXCON^c$	.6658	.1096	.012	.4429	.84	.165
EXP^m	5661	6606	4.364E+7	1457	28325	1.167

Table A6.15. **County Regionally Pooled**
COUNCIL COMMISSION
n=69

Variable (\$1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	15804	32299	1.043E+9	860	214029	2.044
n^c	294.594	445	198105	36.446	2409.547	1.511
Inc^c	18.956	3.234	10.459	11.698	25.827	.171
Aid^c	15444	28803	8.296E+8	188	220210	1.865
s_c^c	8.507E-5	.000103	1.064E-8	6.82E-7	.000623	1.212
n^m	53.011	111	12243	10.394	786	2.087
Aid^m	4678	12763	1.629E+8	75	87842	2.728
s_m^c	.00406	.000344	1.183E-7	1.09E-5	.001417	.848
DEC	.7071	.1204	.0145	.4572	.9302	.170
$FRAG^c$	.4878	.2359	.0557	.1638	.9406	.487
#total gov't	57	54	2960	7	402	.949
$TXCON^c$	.7401	.1943	.0377	.3555	.9917	.263
$EXCON^c$	.6065	.1472	.0217	.2381	.9018	.243
EXP^m	9100	18785	3.529E+8	810	111725	2.064

Table A6.16. **County WEST**
COUNCIL ADMINISTRATOR
n=25

Variable (\$1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	80825	129775	1.684E+10	9536	677669	1.606
n^c	913.05	1467	2150711	63.116	7477.421	1.606
Inc^c	19.162	2.914	8.489	15.339	24.554	.152
Aid^c	246593	478463	2.289E+11	9992	2445491	1.940
s_c^c	1.818E-5	2.307E-5	5.322E-10	5.21E-7	8.66E-5	1.269
n^m	108.137	135	18351	11.064	629.531	1.253
Aid^m	12049	16825	2.831E+8	485	66431	1.397
s_m^c	.000365	.000384	1.47E-7	9.83E-6	.001649	1.049
DEC	.5088	.1232	.0152	.2497	.6936	.242
$FRAG^c$	.2284	.1499	.0225	.0435	.5393	.656
#total gov't	91	60	3564	19	276	.656
$TXCON^c$	.7167	.1368	.0187	.5042	.9648	.191
$EXCON^c$	.6829	.082	.0067	.5267	.8144	.120
EXP^m	23629	30622	9.377E+8	2444	131909	1.296

Table A6.17. **County WEST**
COUCIL EXECUTIVE
n=2

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	71465	42170	1.778E+9	41646	101284	.590
n^c	916.195	500	250002	563	1270	.546
Inc^c	18.398	3	11	16.078	20.717	.178
Aid^c	67731	29582	8.751E+8	46813	88648	.437
s^c_c	2.92E-6	1.598E-6	2.554E-12	1.79E-6	4.05E-6	.547
n^m	25.892	10	101	18.779	33.005	.389
Aid^m	1601	550	302642	1212	1990	.344
s^c_m	.000131	8.906E-5	7.931E-8	6.77E-5	.000194	.682
DEC	.6453	.0325	.0011	.6224	.6683	.054
$FRAG^c$	.413	.1787	.0319	.2866	.5393	.433
#total gov't	103	66	4418	56	150	.645
$TXCON^c$	.5578	.1323	.0175	.4642	.6514	.237
$EXCON^c$	.664	.1105	.0122	.5859	.7421	.166
EXP^m	4078	325	105341	3848	4307	.080

Table A6.18. **County WEST**
COUNCIL COMMISSION
n=11

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	16736	13894	1.931E+8	3307	51367	.830
n^c	257.251	168	28354	55.332	619.066	.655
Inc^c	19.174	2.368	5.606	15.805	23.861	.124
Aid^c	19581	13153	1.73E+8	4220	46941	.672
s^c_c	6.53E-5	6.348E-5	4.03E-9	6.71E-6	.000196	.972
n^m	28.495	13.155	173.059	10.394	53.006	.462
Aid^m	1699	1495	2234167	439	4834	.880
s^c_m	.000448	.000369	1.36E-7	6.25E-5	.001356	.823
DEC	.5959	.0463	.0021	.5495	.6683	.078
$FRAG^c$	.4070	.1007	.0101	.2866	.5393	.247
#total gov't	65	30	906	27	112	.466
$TXCON^c$	.7107	.196	.0384	.4385	.9275	.276
$EXCON^c$	.595	.0925	.0086	.4838	.8187	.156
EXP^m	5315	3097	9591850	1453	11346	.583

Table A6.19. **County MIDWEST**
COUNCIL ADMINISTRATOR
n=26

Variable ($1000)	Mean	Std. Dev.	Variance	Min	Max	Coeff. Variation
EXP^c	18325	16023	2.567E+8	3090	61147	.874
n^c	390.292	348	121405	74.624	1498.4	.893
Inc^c	19.825	2.897	8.392	16.119	27.509	.146
Aid^c	49863	66619	4.438E+9	3203	278792	1.336
s_c^c	3.699E-5	2.89E-5	8.351E-10	5.7E-6	.000113	.781
n^m	34.480	33	1119	10.108	161.134	.970
Aid^m	3645	5544	3.074E+7	249	24103	1.521
s_m^c	.000357	.000217	4.709E-8	3.29E-5	.000833	.608
DEC	.6207	.0737	.0054	.5160	.7745	.119
$FRAG^c$	.3416	.1401	.0196	.1638	.6648	.410
#total gov't	63	34	1155	32	163	.540
$TXCON^c$	.7871	.1739	.0302	.5067	.9896	.221
$EXCON^c$	.6522	.1122	.0126	.3522	.8464	.172
EXP^m	5662	5714	3.266E+7	855	27678	1.009

Table A6.20. **County MIDWEST**
COUNCIL EXECUTIVE
n=6

Variable ($1000)	Mean	Std. Dev.	Variance	Min	Max	Coeff. Variation
EXP^c	75248	56389	3.18E+9	13734	170702	.749
n^c	1501.165	1866	3481908	173.132	5253.628	1.24
Inc^c	20.432	3	9	16.887	25.323	.149
Aid^c	107745	90805	8.245E+9	21796	229994	.843
s_c^c	1.32E-5	1.124E-5	1.262E-10	1.86E-6	2.74E-5	.851
n^m	34.359	26	682	11.022	85.725	.760
Aid^m	5729	10616	1.127E+8	731	27278	1.853
s_m^c	.000418	.000197	3.879E-8	8.62E-5	.00642	.471
DEC	.6610	.1041	.0108	.538	.7745	.158
$FRAG^c$	.2885	.117	.0137	.1638	.4883	.405
#total gov't	147	186	34527	38	516	1.261
$TXCON^c$	.7203	.2737	.0749	.4042	.9924	.380
$EXCON^c$	.6285	.1319	.0174	.4429	.8400	.210
EXP^m	8568	10037	1.007E+8	1545	28325	1.172

Table A6.21. **County MIDWEST**
COUNCIL COMMISSION
n=25

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	13660	29267	8.565E+8	1713	151339	2.143
n^c	272.797	451	203269	53.84	2337.891	1.653
Inc^c	20.217	3.315	10.986	11.698	25.827	.164
Aid^c	21401	43959	1.932E+9	1521	220210	2.054
s_c^c	9.449E-5	.000122	1.484E-8	6.82E-7	.000623	1.289
n^m	45.164	64	4149	11.563	313.939	1.426
Aid^m	4663	9858	9.718E+7	338	46025	2.114
s_m^c	.000402	.000268	7.199E-8	2.24E-5	.000896	.667
DEC	.6890	.0920	.0085	.5160	.7745	.134
$FRAG^c$	.4518	.2305	.0531	.1638	.8572	.510
#total gov't	65	40	1618	18	182	.618
$TXCON^c$	.7426	.2109	.0445	.4482	.9905	.284
$EXCON^c$	.6179	.1437	.0207	.3645	.9018	.233
EXP^m	8133	14116	1.993E+8	1076	67870	1.736

Table A6.22. **County SOUTH**
COUNCIL ADMINISTRATOR
n=31

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	24902	42515	1.808E+9	752	205524	1.707
n^c	319.232	349	121544	21.2	1625.724	1.092
Inc^c	16.638	3	9	13.404	30.011	.184
Aid^c	56680	75367	5.68E+9	1701	382578	1.330
s_c^c	.000152	.000484	2.342E-7	1.3E-6	.00261	3.176
n^m	45.661	63	4002	10.073	315.473	1.385
Aid^m	6011	8575	7.352E+7	306	31570	1.427
s_m^c	.000471	.001142	1.304E-6	8.03E-6	.00637	2.425
DEC	.4667	.1433	.0205	.3279	.9796	.307
$FRAG^c$	.6233	.3119	.0973	.0756	1.0691	.500
#total gov't	18	16	263	2	81	.899
$TXCON^c$	.6979	.1366	.0186	.4519	.9898	.196
$EXCON^c$	.6708	.205	.042	.2797	.9487	.306
EXP^m	8962	13412	1.799E+8	1054	56213	1.496

Table A6.23. **County SOUTH**
COUNCIL EXECUTIVE
n=7

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	53076	38216	1.46E+9	2138	98927	.720
n^c	434.576	267	71234	49.499	777.113	.614
Inc^c	20.34	6	31	11.687	28.987	.274
Aid^c	95822	84237	7.096E+9	2946	239264	.879
s_c^c	.000120	.000246	6.038E-8	1.17E-5	.000675	2.044
n^m	24.95	10	113	11.533	43.811	.427
Aid^m	1909	1777	3157031	489	5643	.931
s_m^c	.0007	.000588	3.451E-7	.000145	.00168	.839
DEC	6744	.1102	.0121	.5504	.7864	.163
$FRAG^c$	.3155	.1536	.0236	.1846	.6368	.487
#total gov't	22	12	133	6	35	.531
$TXCON^c$	.5291	.1702	.029	.4053	.9037	.322
$EXCON^c$	.6983	.0942	.0089	.551	.8126	.135
EXP^m	3622	1925	3707174	1457	6290	.532

Table A6.24. **County SOUTH**
COUNCIL COMMISSION
n=33

Variable ($1000)	*Mean*	*Std. Dev.*	*Variance*	*Min*	*Max*	*Coeff. Variation*
EXP^c	17118	38839	1.508E+9	860	214029	2.269
n^c	323.555	508	257946	36.446	2409.547	1.570
Inc^c	17.928	3.144	9.885	12.489	25.591	.175
Aid^c	9553	13791	1.902E+8	188	55952	1.444
s_c^c	8.452E-5	.0001	1.001E-8	1.15E-6	.000358	1.184
n^m	67.128	150	22389	10.814	786.023	2.229
Aid^m	5683	16384	2.684E+8	75	87842	2.883
s_m^c	.000394	.000393	1.541E-7	1.09E-5	.00142	.996
DEC	.7579	.129	.0166	.4572	.9302	.170
$FRAG^c$	.5421	.2627	.0690	.2581	.9406	.485
#total gov't	49	68	4659	7	402	1.390
$TXCON^c$	.7479	.1857	.0345	.3555	.9917	.248
$EXCON^c$	.6017	.1665	.0277	.2381	.18824	.277
EXP^m	11094	24212	5.877E+8	810	111725	2.185

Table A6.25. Municipal Pooled Regressions—Dummy Variables for MC and CM

Sample:	*Regionally Pooled*	*Regionally Pooled*	*Regionally Pooled*	*Midwest*	*Midwest*	*South*	*South*	*South*
Model:	1	2	3	1	3	1	2	3
Constant	3.417**	3.401**	3.292**	2.511**	2.163**	3.480**	3.532**	3.236**
	.278	.280	.345	.427	.586	.443	.440	.512
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ m^m$	.208**	.213**	.213**	.291**	.322**	.139	.137	.177
	.066	.066	.069	.089	.092	.113	.113	.115
	.002	.001	.002	.001	.001	.220	.227	.127
$ln\ (s_m^m A^m)$	.154**	.149**	.174**	.220**	.292**	.097**	.082*	.101*
	.024	.025	.028	.043	.051	.035	.035	.040
	.000	.000	.000	.000	.000	.006	.022	.013
$ln\ s_m^m$	-.239**	-.233**	-.262**	-.378**	-.468**	-.162**	-.140**	-.166**
	.032	.033	.038	.055	.077	.049	.051	.055
	.000	.000	.000	.000	.000	.001	.007	.003
$ln\ n^m$	-.153**	-.146**	-.182**	-.332**	-.445**	-.041	-.016	-.046
	.038	.039	.045	.063	.088	.060	.062	.067
	.000	.000	.000	.000	.000	.498	.794	.496

(table con'd)

Sample:	Regionally Pooled	Regionally Pooled	Regionally Pooled	Midwest	Midwest	South	South	South
Model:	1	2	3	1	3	1	2	3
lnDEC		-.052					-.118	
		.062					.078	
		.402					.132	
lnFRAG[m]		-.008					-.007	
		.041					.060	
		.849					.914	
lnTXCON[m]			-.099		-.201*			-.015
			.061		.088			.096
			.100		.024			.876
lnEXCON[m]			.019		.060			-.029
			.022		.038			.028
			.389		.114			.299
MW	-.292**	-.280**	-.259**					
	.041	.045	.045					
	.000	.000	.000					
S	-.251**	-.247**	-.219**					
	.048	.048	.050					
	.000	.000	.000					
MC	-.075	-.081	-.082	-.221*	-.251	.005	-.012	.046
	.074	.075	.079	.102	.131	.152	.156	.152
	.314	.276	.302	.031	.056	.973	.941	.764
CM	-.056	-.064	-.052	-.192	-.192	.023	.004	.061
	.070	.070	.076	.098	.129	.149	.153	.150
	.423	.361	.492	.051	.136	.876	.979	.686
Flypaper:	- -	- -	37.411**	- -	13.269**	- -	- -	64.458**
Adj. R^2	.282	.280	.285	.180	.204	.265	.265	.260
F	27.01**	21.60**	22.116	10.271**	9.125	9.965**	7.731**	7.538**
d.f.	521	519	519	247	245	143	141	141

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.26. **County Pooled Regressions—Dummy for CA and CC**

Sample:	*West*	*Midwest*
Model:	4	1
Constant	2.729*	-1.065
	1.048	1.150
	.015	.359
$ln\ m^c$	-.495	1.384**
	.335	.277
	.151	.000
$ln\ (s^c_c A^c)$	.128	.133
	.094	.067
	.081	.051
$ln\ s^c_c$	-.122	-.309**
	.079	.100
	.133	.003
$ln\ n^c$	-.165	-.370**
	.095	.112
	.093	.002
$ln\ n^m$	-.159	
	.130	
	.232	
$ln\ s^c_m$	.011	
	.071	
	.874	
$ln\ A^m$	.146	
	.118	
	.224	
$ln(EXP^m/n^m)$	.462	
	.235	
	.059	
CA	-.088	-.362**
	.168	.134
	.604	.009
CC	-.322*	-.399*
	.121	.153
	.013	.012
Adj. R^2	.446	.278
F	3.976**	4.597**
d.f.	27	50

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.25. Municipal–REGIONALLY POOLED–Dummy Variable for Council-Manager Governments

Model:	1	2	3	4	5	6	8
Constant	3.269**	3.251**	3.128**	3.079**	3.058**	3.077**	2.852**
	.292	.294	.355	.309	.373	.311	.410
	.000	.000	.000	.000	.000	.000	.000
$ln\ m^m$	.223**	.227**	.227**	.156*	.238**	.160*	.182*
	.067	.067	.069	.071	.071	.071	.076
	.001	.001	.001	.030	.001	.024	.017
$ln\ (s_m^m A^m)$	.160**	.155**	.184**	.147**	.179**	.148**	.166**
	.025	.026	.029	.026	.028	.026	.027
	.000	.000	.000	.000	.000	.000	.000
$ln\ s_m^m$	-.247**	-.241**	-.275**	-.241**	-.269**	-.243**	-.267**
	.034	.035	.040	.040	.039	.040	.045
	.000	.000	.000	.000	.000	.000	.000
$ln\ n^m$	-.163**	-.156**	-.198**	-.161**	-.192**	-.162*	-.190**
	.040	.041	.047	.046	.046	.046	.051
	.000	.000	.000	.001	.000	.000	.000
$ln\ n^c$				.044		.052	.036
				.031		.034	.035
				.156		.121	.311
$ln\ s_c^m$				.019		.020	.024
				.023		.022	.023
				.405		.370	.300
$ln\ A^c$				-.013		-.020	-.007
				.017		.022	.023
				.439		.358	.752

(table con'd)

Model:	1	2	3	4	5	6	8
lnDEC		-.049			-.074	-.040	-.044
		.063			.071	.076	.079
		.433			.293	.600	.579
lnFRAG^m		-.013			-.022	.007	-.002
		.042			.043	.042	.044
		.745			.618	.869	.965
lnTXCON^m			-.109		-.123		-.123
			.061		.066		.070
			.075		.063		.078
lnEXCON^m			.024		.021		.015
			.023		.024		.024
			.297		.386		.546
ln(EXP^c/n^c)				.117**		.116**	.116**
				.030		.031	.032
				.000		.000	.000
MW	-.297**	-.284**	-.262**	-.247**	-.238**	-.248**	-.201**
	.042	.047	.046	.047	.056	.050	.060
	.000	.000	.000	.000	.000	.000	.001
S	-.249**	-.246**	-.213**	-.218**	-.205**	-.221**	-.177**
	.049	.049	.052	.053	.052	.054	.059
	.000	.000	.000	.000	.000	.000	.003
CM	.017	.017	.030	.018	.029	.017	.028
	.034	.034	.035	.034	.035	.033	.034
	.607	.623	.390	.596	.401	.617	.415
Flypaper:	- -	- -	40.167**	- -	39.181**	- -	36.317**
Adj. R^2	.280	.277	.284	.293	.283	.290	.294
F	29.71**	23.10**	23.81**	20.51**	19.55**	17.31**	15.40**
d.f.	511	509	509	507	507	505	503

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.26.   Municipal–WEST–Dummy Variable for Council-Manager Governments

Model:	1	3	4	5	6	7	8
Constant	3.275**	3.436**	3.229**	3.616**	3.221**	3.563**	3.581**
	.679	.845	.819	.888	.799	.938	.919
	.000	.000	.000	.000	.000	.000	.000
$ln\ m^m$	.216	.159	.121	.115	.089	.061	.022
	.157	.174	.148	.187	.152	.173	.180
	.171	.364	.413	.539	.562	.723	.902
$ln\ (s_m^m A^m)$	.264**	.263**	.213**	.275**	.214*	.216*	.216*
	.077	.078	.081	.078	.083	.088	.088
	.001	.001	.010	.001	.011	.015	.016
$ln\ s_m^m$	-.303**	-.310**	-.254**	-.319**	-.247**	-.268**	-.261**
	.075	.074	.085	.073	.085	.083	.083
	.000	.000	.003	.000	.005	.002	.002
$ln\ n^m$	-.258**	-.266**	-.228*	-.273**	-.218*	-.237*	-.226*
	.094	.098	.106	.096	.106	.108	.108
	.007	.008	.034	.005	.042	.030	.039
$ln\ n^c$			.072		.059	.075	.060
			.076		.081	.076	.082
			.347		.467	.329	.464
$ln\ s_c^m$			.002		-.002	.006	.002
			.024		.024	.026	.026
			.929		.945	.808	.933
$ln\ A^c$			-.014		-.008	-.014	-.007
			.062		.066	.064	.069
			.825		.901	.823	.920

(table con'd)

Model:	1	3	4	5	6	7	8
lnDEC				.159	.183		.187
				.138	.174		.169
				.251	.297		.272
lnFRAG^m				.044	.037		.043
				.095	.101		.097
				.643	.714		.657
lnTXCON^m		-.148		-.147		-.079	-.063
		.191		.192		.220	.221
		.440		.446		.720	.775
lnEXCON^m		.062		.067		.063	.065
		.062		.063		.061	.060
		.323		.288		.304	.283
ln(EXP^c*/n*^{c}*)*			.076		.122	.049	.093
			.144		.152	.132	.139
			.596		.424	.709	.505
CM	-.046	-.035	-.065	-.016	-.053	-.049	-.037
	.122	.115	.120	.115	.118	.119	.116
	.707	.764	.589	.893	.657	.684	.753
Flypaper:	--	9.311**	--	9.789**	--	7.718**	7.756**
Adj. R^2	.161	.165	.155	.158	.148	.155	.148
F	5.63**	4.43**	3.47**	3.52**	2.91**	3.02**	2.61**
d.f.	116	114	112	112	110	110	108

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.27. Municipal--MIDWEST--Dummy Variable for Council-Manager Governments

Model:	1	2	3	4	5	6	7	8
Constant	2.287**	2.264**	1.888**	2.398**	1.664*	2.417**	1.572	1.517
	.446	.481	.602	.595	.699	.644	.919	.914
	.000	.000	.002	.000	.018	.000	.089	.098
$ln\ m^m$	.289**	.309**	.320**	.203	.378**	.225*	.241*	.272*
	.089	.091	.093	.110	.103	.111	.117	.118
	.001	.001	.001	.066	.000	.043	.040	.023
$ln\ (s^m_m A^m)$	.223**	.222**	.302**	.209**	.316**	.223**	.281**	.308**
	.043	.046	.053	.058	.057	.057	.054	.058
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ s^m_m$	-.382**	-.365**	-.481**	-.423**	-.463**	-.415**	-.531**	-.524**
	.056	.057	.078	.067	.074	.066	.075	.074
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ n^m$	-.338**	-.320**	-.461**	-.372**	-.448**	-.363**	-.504**	-.505**
	.063	.066	.090	.079	.087	.079	.086	.088
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ n^c$				.140		.218**	.099	.161
				.085		.081	.097	.087
				.101		.008	.307	.065
$ln\ s^m_c$				.095		.112	.103	.128
				.076		.076	.074	.071
				.212		.141	.166	.071
$ln\ A^c$				-.051		-.098	-.011	-.036
				.032		.051	.037	.049
				.114		.057	.761	.466

(table con'd)

Model:	1	2	3	4	5	6	7	8
lnDEC		-.152			-.346	-.426		-.444
		.202			.264	.274		.294
		.453			.192	.121		.131
lnFRAG^m		-.066			-.140	-.062		-.163
		.088			.096	.103		.101
		.452			.146	.545		.107
lnTXCON^m			-.213*		-.263*		-.301**	-.338**
			.090		.108		.115	.116
			.018		.016		.009	.004
lnEXCON^m			.065		.051		.065	.051
			.038		.041		.040	.041
			.089		.213		.105	.209
ln(EXP^c/n^c)				.170*		.172*	.230**	.234**
				.072		.073	.084	.084
				.019		.020	.007	.006
CM	.029	.028	.061	.004	.059	.006	.031	.030
	.043	.044	.044	.042	.043	.042	.041	.042
	.499	.523	.165	.926	.178	.881	.462	.475
Flypaper:	- -	- -	13.751**	- -	14.376**	- -	12.876**	14.071**
Adj. R^2	.183	.179	.211	.200	.212	.201	.243	.247
F	12.18**	8.73**	10.50**	7.90**	8.46**	6.68**	8.28**	7.30**
d.f.	244	242	242	240	240	238	238	236

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.28. Municipal–SOUTH–Dummy Variable for Council-Manager Governments

Model:	1	2	3	4	5	6	7	8
Constant	3.394**	3.434**	3.213**	3.196**	3.073**	3.168**	2.892**	2.876**
	.464	.458	.512	.504	.508	.517	.559	.561
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ m^m$	.161	.157	.194	.099	.214	.112	.144	.158
	.115	.115	.117	.133	.116	.133	.135	.133
	.165	.174	.098	.457	.068	.398	.288	.236
$ln\ (s^m_m A^m)$	.100**	.083*	.103*	.068	.094*	.068	.071	.072
	.035	.036	.040	.038	.039	.038	.039	.038
	.005	.021	.011	.076	.016	.072	.069	.063
$ln\ s^m_m$	-.167**	-.143**	-.170**	-.117	-.153**	-.115	-.118	-.118
	.050	.052	.056	.065	.054	.065	.063	.063
	.001	.007	.003	.076	.005	.081	.063	.062
$ln\ n^m$	-.043	-.016	-.048	.016	-.031	.020	.010	.011
	.061	.063	.068	.077	.066	.077	.076	.076
	.485	.797	.486	.836	.638	.798	.894	.882
$ln\ n^c$				-.029		-.033	-.031	-.027
				.066		.069	.071	.075
				.660		.636	.668	.721
$ln\ s^m_c$				-.003		-.003	-.003	-.001
				.042		.042	.040	.040
				.947		.944	.946	.989
$ln\ A^c$				.025		.024	.030	.024
				.024		.031	.034	.039
				.305		.453	.379	.542

(table con'd)

Model:	1	2	3	4	5	6	7	8
lnDEC		-.121			-.162	-.028		-.050
		.079			.083	.093		.091
		.126			.053	.764		.583
lnFRAG^m		-.012			-.029	.037		.024
		.060			.061	.064		.065
		.841			.641	.562		.706
lnTXCON^m			-.014		-.099		-.036	-.039
			.097		.106		.142	.142
			.887		.353		.801	.786
lnEXCON^m			-.026		-.034		-.041	-.041
			.028		.028		.027	.028
			.350		.218		.142	.141
ln(EXP^c*/n*^{c}*)*				.106*		.112*	.110*	.113*
				.044		.048	.044	.049
				.016		.021	.014	.023
CM	.018	.017	.015	.073	.022	.066	.073	.066
	.057	.058	.058	.060	.060	.060	.061	.061
	.757	.777	.798	.229	.715	.276	.233	.277
Flypaper:	- -	- -	68.192**	- -	62.438**	- -	46.863*	47.811*
Adj. R^2	.277	.278	.271	.304	.277	.296	.304	.295
F	12.18**	9.02**	8.74**	8.08**	7.23**	6.57**	6.79**	5.70**
d.f.	141	139	139	137	137	135	135	133

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.29. Municipal--REGIONALLY POOLED--Mayor Council

Model:	1	2	3	4	5	6	7	8
Constant	2.351**	2.257**	2.284**	1.896**	2.012*	1.912**	1.165	1.206
	.469	.485	.689	.494	.815	.501	.865	.894
	.000	.000	.001	.000	.015	.000	.180	.179
$ln\ m^m$	.310**	.330**	.281*	.210	.326*	.216	.274	.259
	.119	.117	.122	.131	.131	.129	.141	.146
	.010	.005	.023	.110	.014	.096	.055	.079
$ln\ (s_m^m A^m)$	.223**	.222**	.283**	.167**	.290**	.172**	.245**	.239**
	.044	.044	.054	.044	.057	.044	.049	.051
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ s_m^m$	-.416**	-.397**	-.481**	-.404**	-.474**	-.406**	-.514**	-.511**
	.057	.056	.077	.064	.075	.064	.074	.074
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ n^m$	-.372**	-.356**	-.450**	-.346**	-.452**	-.349**	-.462**	-.458**
	.069	.068	.092	.076	.092	.077	.086	.087
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ n^c$				.054		.064	-.004	-.028
				.074		.073	.081	.076
				.465		.385	.957	.714
$ln\ s_c^m$				.079		.080	.095	.092
				.055		.054	.054	.052
				.154		.137	.082	.079
$ln\ A^c$				.015		.008	.059	.077
				.034		.038	.038	.041
				.655		.828	.121	.063

(table con'd)

Model:	1	2	3	4	5	6	7	8
lnDEC		-.315			-.291	-.076		.126
		.167			.230	.181		.224
		.061			.208	.674		.575
lnFRAG^m		-.104			-.115	-.018		-.024
		.067			.079	.070		.074
		.124			.147	.795		.749
lnTXCON^m			-.188		-.222		-.352**	-.360**
			.116		.128		.130	.130
			.109		.086		.008	.006
lnEXCON^m			.093*		.071		.088	.096
			.045		.053		.046	.053
			.039		.182		.059	.071
ln(EXP^c/n^c)				.265**		.257**	.286**	.288**
				.071		.074	.080	.079
				.000		.001	.000	.000
MW	-.291*	-.249*	-.244*	-.185	-.188	-.183	-.081	-.067
	.112	.116	.119	.113	.138	.114	.139	.142
	.010	.034	.042	.104	.176	.109	.562	.641
S	-.185	-.212	-.124	-.227	-.144	-.235*	-.115	-.108
	.116	.117	.126	.116	.126	.116	.131	.125
	.115	.072	.325	.051	.252	.044	.382	.388
Flypaper:	- -	- -	20.842**	- -	21.349**	- -	18.010**	17.579**
Adj. R^2	.260	.263	.285	.301	.286	.293	.351	.345
F	11.48**	9.00**	9.92**	8.69**	8.19**	7.17**	9.08*	7.75**
d.f.	173	171	171	169	169	167	167	165

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.30. **Municipal–REGIONALLY POOLED–City Manager**

Model:	1	2	3	4	5	6	7	8
Constant	3.564**	3.556**	3.333**	3.443**	3.292**	3.440**	3.246**	3.242**
	.340	.341	.379	.366	.389	.364	.421	.419
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ m^m$	.184*	.183*	.206*	.112	.211*	.116	.132	.138
	.081	.082	.082	.088	.084	.088	.090	.091
	.024	.025	.013	.206	.013	.190	.145	.129
$ln\ (s^m_m A^m)$	.143**	.142**	.161**	.148**	.158**	.150**	.154**	.156**
	.030	.031	.033	.031	.033	.031	.032	.032
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ s^m_m$	-.197**	-.196**	-.215**	-.197**	-.211**	-.198**	-.204**	-.205**
	.037	.038	.041	.040	.041	.040	.043	.043
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ n^m$	-.099*	-.098*	-.127*	-.112*	-.122*	-.114*	-.123*	-.125*
	.044	.046	.050	.048	.050	.048	.052	.052
	.025	.033	.012	.019	.015	.018	.018	.016
$ln\ n^c$				.057		.065	.049	.059
				.034		.039	.035	.039
				.093		.091	.165	.136
$ln\ s^m_c$				.002		.002	.004	.005
				.021		.021	.021	.021
				.930		.907	.846	.806
$ln\ A^c$				-.024		-.031	-.017	-.025
				.019		.025	.022	.026
				.216		.205	.446	.335

(table con'd)

Model:	1	2	3	4	5	6	7	8
lnDEC		-.015			-.050	-.041		-.053
		.068			.071	.084		.084
		.824			.480	.624		.531
lnFRAG^m		.017			.007	.022		.014
		.051			.051	.050		.051
		.730			.887	.661		.778
lnTXCON^m			-.096		-.108		-.063	-.065
			.061		.065		.069	.070
			.117		.097		.368	.351
lnEXCON^m			-.014		-.015		-.020	-.019
			.024		.024		.024	.024
			.564		.547		.414	.419
ln(EXP^c/n^c)				.072*		.070*	.074*	.072*
				.035		.035	.034	.034
				.040		.047	.031	.039
MW	-.261**	-.264**	-.232**	-.234**	-.220**	-.239**	-.211**	-.212**
	.044	.050	.046	.050	.054	.052	.054	.057
	.000	.000	.000	.000	.000	.000	.000	.000
S	-.213**	-.212**	-.188**	-.184**	-.182**	-.189**	-.163*	-.168*
	.056	.056	.058	.062	.058	.063	.067	.067
	.000	.000	.001	.003	.002	.003	.015	.013
Flypaper:	- -	- -	47.695**	- -	46.608**	- -	45.661**	46.139**
Adj. R^2	.299	.295	.300	.309	.296	.306	.308	.305
F	25.00**	18.67**	19.08**	16.133*	15.24**	13.42**	13.54**	11.58**
d.f.	332	330	330	328	328	326	326	324

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.31. Municipal–REGIONALLY POOLED–Commission

Model:	1	2	3
Constant	6.561**	8.184*	-13.885
	.643	1.194	10.452
	.001	.021	.315
$\ln m^m$	-.617	-.481	2.015
	.259	.217	1.397
	.076	.157	.286
$\ln (s^m_m A^m)$	-.015	-.107	.857
	.059	.100	.473
	.815	.397	.211
$\ln s^m_m$	-.050	.225	-1.311
	.056	.173	.636
	.423	.324	.176
$\ln n^m$	.041	.362	-1.017
	.081	.195	.535
	.640	.204	.197
lnDEC		1.321	
		.488	
		.114	
$lnFRAG^m$		-.291	
		.347	
		.490	
$lnTXCON^m$			-3.050
			1.495
			.178
$lnEXCON^m$			-1.244
			.629
			.187
MW	-.205	-.649	1.111
	.130	.243	.647
	.190	.116	.228
S	-.509**	-.974	-.858*
	.079	.291	.147
	.003	.079	.028
Flypaper:	--	--	27.439
Adj. R^2	.627	.576	.473
F	3.80	2.70	2.12
d.f.	4	2	2

Notes: White's errors follow estimates. Probability values follow errors. * p < .05. ** p < .01.

Table A6.32. Municipal–WEST Region–Mayor Council

Model:	1	2	3	4	5	6	7	8
Constant	-1.771	-26.56**	-2.859	-8.090	-23.21**	-17.822*	-5.269	19.247*
	1.605	5.594	2.839	4.630	4.967	4.629	4.490	1.124
	.299	.002	.348	.141	.006	.031	.325	.037
$ln\ m^m$	1.529**	4.653**	2.108*	2.465*	3.578**	4.013*	1.009	1.212
	.460	.778	.847	.840	.639	.775	.769	.142
	.009	.001	.042	.033	.003	.014	.281	.074
$ln\ (s^m_m A^m)$	.612	1.096**	1.026**	.784*	.633*	1.093*	.079	1.945*
	.412	.234	.272	.230	.180	.249	.543	.075
	.172	.002	.007	.019	.017	.022	.894	.025
$ln\ s^m_m$	-.629*	-2.333**	-.802**	-.566	-2.140**	-2.059**	-.654	-3.120*
	.213	.394	.131	.433	.337	.251	.360	.095
	.016	.001	.001	.248	.001	.004	.167	.020
$ln\ n^m$	-.629	-2.480**	-.813**	-.483	-2.152**	-2.161**	-.431	-4.052*
	.308	.418	.194	.493	.350	.269	.430	.116
	.071	.001	.004	.373	.002	.004	.390	.018
$ln\ n^c$				-.020		10.783**	-.034	39.653*
				.241		1.530	.223	.758
				.936		.006	.890	.012
$ln\ s^m_c$				.037		.064	.511	2.908*
				.501		.416	.541	.082
				.944		.887	.415	.018
$ln\ A^c$				-.224		-11.59**	.290	-38.65*
				.655		1.573	.564	.722
				.747		.005	.643	.012

(table con'd)

Model:	1	2	3	4	5	6	7	8
lnDEC		-15.71**			-15.66**	-136.3**		-449.58*
		3.519			3.174	17.107		8.331
		.003			.004	.004		.012
lnFRAG^m		.260			.319	-30.69**		-114.98*
		.464			.418	4.418		2.228
		.593			.480	.006		.012
lnTXCON^m			.938		-.419		-.495	5.554*
			.482		.290		.889	.154
			.093		.209		.616	.018
lnEXCON^m			.098		.188*		.236	-.214*
			.116		.048		.106	.013
			.424		.011		.113	.038
ln(EXP/n^c)				1.586		-1.037	1.614	-7.869*
				.657		.329	.917	.163
				.061		.051	.177	.013
Flypaper:	--	--	70.262**	--	41.088**	--	4.545	135.964*
Adj. R^2	.272	.703	.429	.295	.703	.675	.076	.979
F	2.22	6.12*	2.63	1.68	4.85*	3.70	1.11	51.60
d.f.	9	7	7	5	5	3	3	1

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.33. Municipal–WEST Region–City Manager

Model:	1	2	3	4	5	6	7	8
Constant	4.072**	4.233**	3.774**	4.191**	3.978**	4.251**	4.079**	4.172**
	.704	.755	.903	.814	.960	.812	1.016	1.009
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ m^m$	.048	-.011	.077	-.038	.016	-.089	-.006	-.059
	.160	.174	.188	.147	.206	.158	.181	.194
	.763	.950	.684	.797	.938	.574	.976	.763
$ln\ (s_m^m A^m)$	.215**	.236**	.240**	.192*	.257**	.204*	.221**	.231**
	.078	.081	.077	.081	.079	.084	.082	.084
	.007	.004	.002	.019	.002	.017	.009	.007
$ln\ s_m^m$	-.222**	-.241**	-.242**	-.209*	-.256**	-.215*	-.232*	-.237*
	.080	.081	.080	.092	.079	.094	.091	.091
	.007	.004	.003	.026	.002	.024	.012	.011
$ln\ n^m$	-.178	-.194	-.218*	-.184	-.230*	-.185	-.219	-.220
	.101	.102	.104	.111	.103	.113	.112	.113
	.081	.059	.037	.101	.027	.104	.052	.054
$ln\ n^c$				.017		.022	.043	.048
				.079		.087	.084	.095
				.829		.802	.610	.612
$ln\ s_c^m$				.007		.003	.010	.006
				.023		.024	.023	.024
				.748		.901	.663	.802
$ln\ A^c$				.034		.026	.005	-.003
				.059		.066	.065	.074
				.560		.697	.941	.971

(table con'd)

Model:	1	2	3	4	5	6	7	8
lnDEC		.145			.145	.142		.116
		.143			.139	.167		.169
		.311			.300	.396		.491
lnFRAG^m		.133			.110	.121		.121
		.101			.108	.114		.120
		.190			.312	.294		.314
lnTXCON^m			-.255		-.241		-.204	-.188
			.151		.153		.174	.178
			.094		.117		.242	.296
lnEXCON^m			-.001		.005		.007	.010
			.060		.060		.061	.060
			.989		.938		.904	.870
ln(EXP^c/n^c)				-.037		-.004	-.032	-.008
				.135		.147	.138	.149
				.782		.977	.819	.959
Flypaper:	- -	- -	7.495**	- -	8.089**	- -	6.976**	7.358**
Adj. R^2	.131	.130	.139	.125	.135	.121	.119	.112
F	5.05**	3.66**	3.88**	2.91**	3.08**	2.47*	2.45*	2.13*
d.f.	103	101	101	99	99	97	97	95

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.34. Municipal–MIDWEST Region–Mayor Council

Model:	1	2	3	4	5	6	7	8
Constant	2.063**	2.065**	1.885	1.566	1.553	1.834	.902	1.062
	.754	.772	1.031	1.016	1.125	1.025	1.431	1.341
	.007	.008	.070	.126	.170	.076	.530	.430
$ln\ m^m$	.251	.280	.249	.144	.325	.134	.196	.194
	.149	.148	.154	.172	.168	.168	.187	.182
	.096	.061	.107	.405	.055	.425	.297	.287
$ln\ (s^m_m A^m)$	.232**	.207**	.293**	.141	.306**	.157*	.228**	.257**
	.062	.065	.078	.074	.082	.069	.071	.072
	.000	.002	.000	.059	.000	.024	.002	.001
$ln\ s^m_m$	-.469**	-.394**	-.557**	-.405**	-.502**	-.388**	-.547**	-.526**
	.097	.096	.131	.089	.118	.088	.107	.105
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ n^m$	-.445**	-.356**	-.544**	-.366**	-.493**	-.346**	-.510**	-.502**
	.107	.111	.148	.110	.139	.110	.126	.127
	.000	.002	.000	.001	.001	.002	.000	.000
$ln\ n^c$				.021		.172	-.001	.092
				.110		.111	.123	.113
				.849		.126	.994	.416
$ln\ s^m_c$				.026		.064	.077	.117
				.097		.100	.096	.093
				.785		.525	.425	.210
$ln\ A^c$				.006		-.083	.048	.014
				.043		.069	.047	.070
				.888		.232	.307	.836

(table con'd)

Model:	1	2	3	4	5	6	7	8
lnDEC		-.600*			-.750	-.742*		-.617
		.294			.398	.367		.419
		.043			.062	.045		.144
lnFRAG^m		-.131			-.224	-.065		-.218
		.124			.145	.148		.143
		.294			.125	.658		.130
lnTXCON^m			-.240		-.328*		-.401**	-.443**
			.134		.158		.145	.151
			.075		.040		.007	.004
lnEXCON^m			.125*		.079		.111	.081
			.061		.073		.064	.071
			.042		.280		.085	.257
ln(EXP^c/n^c)				.299**		.290**	.346**	.334**
				.098		.096	.109	.104
				.003		.003	.002	.002
Flypaper:	- -	- -	13.570**	- -	14.089**	- -	10.572**	11.932**
Adj. R^2	.179	.187	.222	.214	.236	.221	.290	.292
F	8.29**	6.13**	7.37**	5.56**	6.16**	4.79**	6.47**	5.60**
d.f.	130	128	128	126	126	124	124	122

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.35. Municipal–MIDWEST Region–City Manager

Model:	1	2	3	4	5	6	7	8
Constant	2.487**	2.803**	2.147**	3.422**	2.488**	3.533**	3.718**	3.754**
	.470	.480	.534	.500	.579	.504	.704	.673
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ m^m$	.318**	.272*	.344**	.273*	.314*	.274*	.267*	.269
	.109	.112	.109	.128	.122	.133	.129	.137
	.004	.017	.002	.035	.012	.043	.041	.053
$ln\ (s_m^m A^m)$	.241**	.272**	.293**	.366**	.314**	.382**	.377**	.393**
	.058	.065	.077	.076	.088	.091	.088	.109
	.000	.000	.000	.000	.001	.000	.000	.001
$ln\ s_m^m$	-.313**	-.334**	-.379**	-.509**	-.376**	-.511**	-.513**	.517**
	.057	.058	.078	.103	.076	.101	.110	.109
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ n^m$	-.247**	-.290**	-.335**	-.473**	-.347**	-.485**	-.474**	-.490**
	.073	.070	.101	.118	.100	.118	.131	.133
	.001	.000	.001	.000	.001	.000	.001	.000
$ln\ n^c$				.280**		.267*	.307**	.288*
				.104		.110	.115	.121
				.008		.017	.009	.019
$ln\ s_c^m$				.180*		.196*	.193*	.205*
				.088		.086	.091	.089
				.044		.025	.036	.024
$ln\ A^c$				-.120**		-.095	-.134*	-.106
				.046		.063	.055	.069
				.010		.132	.017	.126

(table con'd)

Model:	1	2	3	4	5	6	7	8
lnDEC		.357			.240	.052		.054
		.238			.285	.352		.377
		.137			.402	.884		.886
lnFRAG^m		-.058			-.091	-.103		-.097
		.125			.135	.140		.144
		.646			.500	.466		.506
lnTXCON^m			-.145		-.108		.059	.041
			.090		.105		.116	.116
			.112		.308		.615	.724
lnEXCON^m			.009		.013		.032	.031
			.040		.041		.042	.045
			.829		.758		.441	.484
ln(EXP^c/n^c)				-.010		-.018	-.027	-.030
				.085		.086	.086	.083
				.909		.837	.753	.723
Flypaper:	- -	- -	13.118**	- -	14.150**	- -	17.081**	17.813**
Adj. R^2	.199	.213	.199	.257	.205	.249	.247	.238
F	8.06**	6.13**	5.73**	5.92**	4.68**	4.79**	4.73**	3.97**
d.f.	110	108	108	106	106	104	104	102

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.36. Municipal–SOUTH Region–Mayor Council

Model:	1	2	3	4	5	6	7	8
Constant	2.731**	2.825**	2.963**	2.249**	2.526**	2.209*	1.690*	1.717
	.741	.730	.773	.803	.590	.812	.791	.822
	.001	.001	.001	.010	.000	.013	.045	.051
$ln\ m^m$	.296	.250	.286	.366	.343*	.336	.447*	.434*
	.166	.171	.155	.182	.144	.184	.169	.178
	.086	.156	.077	.057	.027	.083	.015	.026
$ln\ (s_m^m A^m)$	.165*	.165*	.061	.074	.061	.064	.055	.056
	.076	.076	.090	.088	.082	.086	.081	.082
	.038	.041	.503	.408	.462	.465	.507	.503
$ln\ s_m^m$	-.265*	-.280**	-.150	-.219	-.161	-.206	-.178	-.181
	.103	.097	.121	.139	.105	.137	.138	.140
	.017	.008	.225	.130	.140	.149	.214	.213
$ln\ n^m$	-.179	-.206	-.036	-.071	-.064	-.055	-.033	-.038
	.132	.124	.155	.170	.133	.173	.168	.172
	.187	.108	.818	.681	.637	.754	.844	.828
$ln\ n^c$				-.186		-.180	-.202	-.203
				.114		.113	.142	.143
				.117		.127	.170	.171
$ln\ s_c^m$				.029		.033	.009	.009
				.063		.061	.071	.069
				.648		.598	.896	.900
$ln\ A^c$				.137*		.140*	.144	.146
				.058		.056	.077	.078
				.027		.021	.076	.079

(table con'd)

Model:	1	2	3	4	5	6	7	8
lnDEC		.006			-.219	.144		.036
		.145			.147	.158		.185
		.967			.152	.375		.849
lnFRAG^m		-.119			-.142**	.034		-.007
		.064			.047	.081		.079
		.074			.007	.676		.933
lnTXCON^m			.180		.126		-.105	-.114
			.208		.193		.203	.205
			.394		.522		.610	.586
lnEXCON^m			-.102		-.147		-.064	-.059
			.060		.071		.060	.074
			.103		.051		.296	.433
ln(EXP^c/n^c)				.060		.110	.081	.082
				.079		.109	.095	.107
				.457		.326	.403	.452
Flypaper:	- -	- -	11.670	- -	11.719	- -	10.344	10.596
Adj. R^2	.369	.351	.382	.483	.395	.442	.470	.411
F	5.39**	3.70**	4.10**	4.50**	3.45**	3.38**	3.66**	2.75*
d.f.	26	24	24	22	22	20	20	18

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.37. Municipal–SOUTH Region–City Manager

Model:	1	2	3	4	5	6	7	8
Constant	3.480**	3.538**	3.347**	3.331**	3.233**	3.327**	3.193**	3.181**
	.523	.514	.560	.550	.545	.554	.602	.600
	.000	.000	.000	.000	.000	.000	.000	.000
$ln\ m^m$	.132	.127	.150	.040	.160	.069	.061	.090
	.132	.132	.133	.153	.129	.150	.155	.151
	.319	.337	.261	.796	.217	.648	.694	.552
$ln\ (s^m_m A^m)$	.090*	.066	.100*	.073	.085*	.075	.077	.079
	.038	.040	.043	.040	.041	.040	.041	.040
	.020	.099	.023	.074	.041	.060	.065	.052
$ln\ s^m_m$	-.158**	-.126*	-.168**	-.115	-.141*	-.117	-.118	-.120
	.055	.058	.060	.063	.057	.062	.062	.063
	.005	.031	.006	.070	.015	.064	.061	.058
$ln\ n^m$	-.022	.013	-.035	.017	-.009	.016	.011	.009
	.066	.071	.072	.078	.071	.077	.079	.078
	.742	.852	.630	.827	.904	.835	.892	.904
$ln\ n^c$				-.012		.009	-.006	.011
				.070		.077	.073	.080
				.860		.904	.930	.894
$ln\ s^m_c$				-.024		-.017	-.022	-.014
				.047		.046	.046	.047
				.603		.711	.631	.766
$ln\ A^c$				.009		-.013	.008	-.010
				.026		.035	.041	.045
				.728		.705	.849	.830

(table con'd)

Model:	1	2	3	4	5	6	7	8
lnDEC		-.163			-.232*	-.135		-.135
		.090			.099	.114		.114
		.073			.021	.241		.236
lnFRAG^m		.017			-.005	.039		.035
		.077			.081	.081		.084
		.822			.946	.629		.676
lnTXCON^m			-.054		-.188		.003	-.025
			.108		.128		.187	.192
			.622		.145		.987	.895
lnEXCON^m			-.008		-.009		-.024	-.021
			.032		.031		.031	.031
			.792		.777		.434	.483
ln(EXP^c/n^c)				.091		.092	.095	.093
				.050		.052	.051	.054
				.074		.081	.069	.089
Flypaper:	- -	- -	79.324*	- -	67.307*	- -	60.793*	62.680*
Adj. R^2	.248	.255	.236	.273	.254	.270	.262	.258
F	10.48**	7.54**	6.92**	6.40**	5.90**	5.24**	5.09**	4.33*
d.f.	111	109	109	107	107	105	105	103

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.28. County–WEST–Dummy Variable for Council-Administrator Governments

Model:	1	2	3	4	5	6	7	8
Constant	5.286**	4.443**	5.075**	2.428*	4.565**	1.664	2.431*	1.836
	1.123	1.589	1.237	1.127	1.240	1.173	1.162	1.195
	.001	.001	.000	.041	.001	.169	.047	.139
$ln\ m^c$	-.606*	-.472	-.511	-.497	-.410	-.281	-.377	-.158
	.289	.325	.341	.334	.345	.364	.416	.456
	.045	.157	.145	.149	.246	.448	.374	.732
$ln\ (s_c^c A^c)$	.102	.083	.121	.129	.077	.081	.140	.070
	.081	.098	.118	.094	.118	.088	.118	.112
	.216	.402	.314	.182	.521	.365	.246	.539
$ln\ s_c^c$	-.145	-.152	-.120	-.123	-.114	-.110	-.100	-.072
	.092	.108	.117	.079	.131	.079	.105	.104
	.125	.172	.314	.132	.390	.175	.350	.498
$ln\ n^c$	-.159	-.098	-.151	-.166	-.088	-.076	-.145	-.055
	.103	.111	.121	.096	.119	.105	.113	.118
	.134	.383	.225	.096	.469	.477	.210	.645
$ln\ n^m$				-.159		-.212	-.195	-.236
				.130		.118	.131	.122
				.233		.085	.148	.065
$ln\ s_m^c$				.010		.058	.032	.056
				.075		.085	.087	.091
				.896		.504	.716	.549
$ln\ A^m$				.146		.206	.108	.224
				.118		.115	.117	.115
				.227		.086	.137	.065

(table con'd)

Model:	1	2	3	4	5	6	7	8
lnDEC		-.270			-.223	-.330		-.309
		.284			.255	.216		.207
		.349			.390	.140		.151
lnFRAG^c		.106			.080	.082		.062
		.100			.108	.090		.093
		.299			.467	.372		.508
lnTXCON^c			-.425		-.257		-.364	-.208
			.252		.226		.219	.209
			.102		.266		.109	.330
lnEXCON^c			.018		.157		.022	.221
			.596		.492		.516	.466
			.976		.753		.966	.641
ln(EXP^m*/n*^{m}*)*				.458		.415	.399	.358
				.251		.240	.264	.260
				.080		.097	.143	.182
CA	.330*	.315*	.361*	.235	.335**	.192	.254	.202
	.133	.118	.137	.142	.118	.143	.152	.143
	.019	.013	.014	.109	.009	.194	.107	.173
Flypaper:	--	--	8.11	--	5.240	--	9.170	4.549
Adj. R^2	.356	.388	.371	.455	.362	.489	.457	.460
F	4.88**	4.17**	3.95**	4.25**	3.20**	4.04**	3.67**	3.30**
d.f.	30	28	28	26	26	24	24	22

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.39. County–MIDWEST–Dummy Variable for Council-Administrator Governments

Model:	1	2	3	4	5	6	7	8
Constant	-1.630	-1.353	-1.113	-2.289	-.937	-1.970	-1.788	-1.555
	1.309	1.301	1.439	1.762	1.451	1.731	1.737	1.658
	.220	.304	.443	.201	.522	.262	.310	.354
$ln\ m^c$	1.438**	1.350**	1.351**	1.416**	1.285**	1.305**	1.250**	1.168**
	.317	.326	.346	.348	.351	.354	.376	.362
	.000	.000	.000	.000	.001	.001	.002	.003
$ln\ (s^c_c A^c)$	.108	.148	.084	.115	.113	.166	.108	.150
	.069	.092	.068	.072	.089	.093	.070	.087
	.127	.116	.225	.119	.214	.083	.133	.092
$ln\ s^c_c$	-.289*	-.322*	-.245*	-.271*	-.269*	-.322*	-.230	-.275*
	.115	.124	.114	.113	.129	.123	.115	.125
	.016	.013	.038	.021	.044	.012	.053	.034
$ln\ n^c$	-.334*	-.381*	-.292*	-.305*	-.325*	-.369*	-.280*	-.334*
	.136	.145	.135	.132	.147	.145	.129	.140
	.018	.012	.036	.026	.033	.015	.036	.022
$ln\ n^m$				.029		.048	.150	.161
				.184		.191	.173	.177
				.877		.803	.390	.368
$ln\ s^c_m$				.012		.014	-.035	-.030
				.134		.132	.130	.130
				.930		.915	.791	.816
$ln\ A^m$				-.002		-.028	-.142	-.159
				.115		.120	.122	.126
				.989		.818	.252	.217

(table con'd)

Model:	1	2	3	4	5	6	7	8
lnDEC		.322			.177	.392		.337
		.474			.478	.496		.484
		.500			.714	.434		.490
lnFRAG[c]		-.043			-.047	-.033		-.020
		.109			.109	.104		.103
		.695			.669	.750		.846
lnTXCON[c]			.283		.261		.460*	.443*
			.205		.205		.211	.204
			.175		.211		.035	.036
lnEXCON[c]			-.070		-.065		-.021	-.031
			.298		.292		.328	.315
			.816		.826		.948	.923
ln(EXP[m]*/n*[m]*)*				.153		.182	.289	.309
				.171		.185	.178	.187
				.376		.331	.113	.107
CA	.043	.049	.041	.033	.038	.042	.015	.026
	.104	.118	.105	.104	.120	.115	.102	.115
	.680	.678	.698	.755	.751	.717	.884	.820
Flypaper:	- -	- -	4.453	- -	6.465	- -	6.163	9.144
Adj. R^2	.208	.185	.207	.147	.176	.120	.174	.141
F	3.63**	2.63*	2.87*	1.96	2.19*	1.62	1.96	1.63
d.f.	45	43	43	41	41	39	39	37

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.40. County–SOUTH–Dummy Variable for Council-Administrator Governments

Model:	4	7
Constant	-.533	-.640
	1.065	1.147
	.619	.579
$ln\ m^c$	.092	.161
	.323	.375
	.777	.669
$ln\ (s^c_c A^c)$	-.098	-.121
	.068	.091
	.154	.188
$ln\ s^c_c$	-.217	-.199
	.139	.139
	.123	.157
$ln\ n^c$	-.053	-.032
	.165	.165
	.749	.847
$ln\ n^m$	.068	.066
	.183	.183
	.710	.721
$ln\ s^c_m$	.447**	.451**
	.148	.151
	.004	.004
$ln\ A^m$	.048	.060
	.087	.095
	.584	.533
$lnTXCON^c$		-.185
		.360
		.609
$lnEXCON^c$		-.007
		.245
		.976
$ln(EXP^m/n^m)$	1.012**	.979**
	.249	.259
	.000	.000
CA	.081	.118
	.151	.180
	.594	.515
Flypaper:	- -	-30.133
Adj. R^2	.274	.250
F	3.64**	2.91**
d.f.	54	52

Notes: White's errors follow estimates. Probability values follow errors. * p < .05. ** p < .01.

Table A6.41. County–REGIONALLY POOLED–Council Executive

Model:	1	2	3	4	5	6	7
Constant	.994	.346	.651	.008	-.612	.476	-2.327
	.807	.372	1.043	1.598	.558	1.047	1.752
	.253	.389	.555	.996	.335	.694	.315
$ln\ m^c$	1.504*	1.355**	1.768**	1.792*	1.585**	2.001*	2.129*
	.461	.259	.471	0.453	.196	.249	.377
	.012	.002	.009	.017	.001	.015	.030
$ln\ (s_c^c A^c)$	.442*	.143	.473*	.281	.215*	.005	.445
	.190	.115	.176	.155	.074	.116	.164
	.049	.258	.036	.145	.044	.972	.113
$ln\ s_c^c$	-.006	.006	.081	-.261	-.054	-.609	.079
	.189	.080	.219	.337	.069	.376	.308
	.977	.944	.725	.481	.478	.247	.820
$ln\ n^c$	-.048	.005	.090	-.387	-.036	-.692	.077
	.183	.063	.246	.440	.070	.471	.422
	.802	.939	.727	.430	.632	.280	.873
$ln\ n^m$				.583		.768	.158
				.417		.546	.427
				.234		.295	.747
$ln\ s_m^c$				.438		.644	.167
				.274		.315	.258
				.185		.177	.585
$ln\ A^m$				-.155		-.160	-.047
				.197		.194	.198
				.476		.495	.833

(table con'd)

Model:	1	2	3	4	5	6	7
lnDEC		-1.508**			-1.323**	-.807	
		.385			.251	.480	
		.008			.006	.235	
lnFRAG^{c}		.330*			.456**	.731	
		.110			.092	.209	
		.024			.008	.073	
lnTXCON^{c}			.388		.154		.507
			.297		.116		.204
			.239		.255		.131
lnEXCON^{c}			-.110		-.524		-.589
			.505		.231		.354
			.835		.086		.238
ln(EXP^{m}*/n*^{m}*)*				.415		-.040	.624
				.221		.123	.140
				.134		.776	.047
MW	-.963*	-.418*	-1.229*	-1.053	-.487*	-.175	-1.577
	.294	.118	.365	.459	.121	.306	.430
	.011	.012	.015	.084	.016	.626	.067
S	-.926	-.032	-1.075*	-.789	-.038	.328	-1.148
	.424	.195	.427	.461	.155	.345	.397
	.060	.876	.045	.162	.817	.442	.102
Flypaper:	- -	- -	14.117*	- -	5.649*	- -	12.828
Adj. R^2	.614	.858	.548	.493	.849	.831	.288
F	4.72*	11.54**	3.12	2.36	8.87*	6.72	1.47
d.f.	8	6	6	4	4	2	2

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.42. County–REGIONALLY POOLED–Council Commission

Model:	1	2	3	4	5	6	7	8
Constant	.287	.200	.477	-1.620	.475	-1.558	-1.373	-1.236
	.956	.953	1.069	1.146	1.096	1.125	1.249	1.233
	.765	.834	.657	.163	.667	.172	.277	.321
$ln\ m^c$	.830**	.817**	.841**	.364	.804*	.399	.319	.366
	.270	.278	.293	.278	.313	.269	.313	.314
	.003	.005	.006	.197	.013	.144	.313	.249
$ln\ (s_c^c A^c)$	.156**	.112*	.132*	.150**	.081	.120*	.154**	.117*
	.046	.051	.055	.044	.055	.046	.047	.048
	.001	.032	.019	.001	.146	.011	.002	.018
$ln\ s_c^c$	-.284**	-.239**	-.261**	-.169	-.206*	-.156	-.160	-.136
	.087	.087	.089	.088	.087	.084	.090	.086
	.002	.008	.005	.061	.021	.069	.082	.120
$ln\ n^c$	-.276*	-.220	-.249*	-.106	-.185	-.081	-.108	-.081
	.110	.111	.111	.103	.109	.105	.101	.101
	.014	.052	.029	.308	.095	.441	.289	.426
$ln\ n^m$				-.140		-.127	-.139	-.131*
				.089		.091	.081	.082
				.121		.168	.093	.116
$ln\ s_m^c$				-.073		-.057	-.090	-.077
				.087		.085	.090	.085
				.406		.501	.319	.371
$ln\ A^m$				-.080		-.076	-.088	-.072
				.067		.075	.064	.070
				.238		.314	.176	.302

(table con'd)

Model:	1	2	3	4	5	6	7	8
lnDEC		-.692**			-.789**	-.394		-.465*
		.233			.227	.223		.231
		.004			.001	.084		.049
lnFRAG[c]		.108			.095	.098		.068
		.115			.118	.110		.104
		.352			.423	.378		.516
lnTXCON[c]			-.105		-.119		.158	.119
			.169		.162		.155	.157
			.538		.464		.313	.451
lnEXCON[c]			.348		.401*		.206	.251
			.206		.174		.158	.152
			.096		.025		.199	.105
$ln(EXP^m/n^m)$				.772**		.725**	.786**	.708**
				.142		.144	.157	.157
				.000		.000	.000	.000
MW	-.314*	-.226	-.324**	-.126	-.225	-.086	-.133	-.097
	.119	.121	.118	.108	.122	.108	.109	.109
	.011	.066	.008	.248	.069	.427	.226	.378
S	-.171	-.089	-.186	.001	-.086	.028	-.003	.033
	.143	.157	.143	.117	.145	.135	.119	.130
	.237	.574	.198	.992	.552	.838	.978	.801
Flypaper:	- -	- -	33.143*	- -	19.978	- -	39.412**	29.769**
Adj. R^2	.184	.224	.207	.375	.264	.379	.384	.391
F	3.56**	3.46**	3.21**	5.07**	3.43**	4.46**	4.53**	4.12**
d.f.	62	60	60	58	58	56	56	54

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.43. County--WEST Region--Council Administrator

Model:	1	2	3	4	5	6	7	8
Constant	6.371**	5.136**	6.395**	4.483*	5.739**	3.193	4.601**	3.596*
	1.084	1.103	1.205	1.640	1.121	1.681	1.417	1.475
	.000	.000	.000	.015	.000	.078	.006	.031
$ln\ m^c$	-.621	-.172	-.495	-.314	.065	.094	-.168	.582
	.267	.313	.357	.380	.366	.360	.459	.451
	.031	.589	.183	.421	.861	.798	.719	.221
$ln\ (s_c^c A^c)$	.081	-.044	.026	.128	-.179	.011	.004	-.154
	.068	.088	.109	.100	.116	.095	.118	.100
	.248	.627	.814	.217	.142	.909	.973	.147
$ln\ s_c^c$	-.071	.046	.024	-.109	.234	-.005	.050	.198
	.081	.091	.104	.087	.119	.093	.105	.094
	.392	.615	.816	.229	.067	.957	.642	.057
$ln\ n^c$	-.135	-.020	-.033	-.190	.122	-.055	-.002	.104
	.092	.104	.114	.109	.123	.113	.125	.101
	.157	.848	.774	.099	.339	.637	.988	.327
$ln\ n^m$				-.104		-.145	-.156	-.188
				.140		.123	.138	.111
				.468		.258	.276	.114
$ln\ s_m^c$				.020		.038	.081	.046
				.080		.086	.087	.078
				.809		.669	.369	.567
$ln\ A^m$				.140		.163	.189	.220
				.139		.134	.126	.117
				.328		.242	.158	.083

(table con'd)

Model:	1	2	3	4	5	6	7	8
lnDEC		-.593*			-.626*	-.556*		-.685*
		.277			.249	.221		.226
		.046			.023	.025		.011
*lnFRAG^c^*		-.075			-.151	-.037		-.094
		.079			.086	.103		.101
		.349			.098	.727		.373
*lnTXCON^c^*			-.563		-.473		-.611	-.276
			.348		.261		.353	.285
			.123		.089		.105	.352
*lnEXCON^c^*			.312		.837		.586	1.199*
			.807		.530		.708	.478
			.704		.134		.422	.028
ln(EXP^m^/n^m^)				.053		.074	.140	-.026
				.279		.256	.269	.280
				.851		.777	.610	.927
Flypaper:	- -	- -	2.267	- -	-12.197	- -	.448	-11.052
Adj. R^2	.062	.187	.088	-.047	.212	.078	-.025	.134
F	1.39	1.92	1.39	.87	1.81	1.20	.94	1.31
d.f.	20	18	18	16	16	14	14	12

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.44. County–WEST Region–Council Commission

Model:	1	2	3	4	5
Constant	2.407	4.112	2.374	3.148	-.199
	2.431	5.795	4.012	2.055	2.982
	.361	.517	.586	.265	.953
$ln\ m^c$	-.435	-1.289	-.353	-1.217	-.014
	.784	.892	1.234	.687	.549
	.599	.222	.789	.219	.982
$ln\ (s_c^c A^c)$	.309	.156	.290	.013	.765
	.203	.181	.490	.170	.190
	.180	.438	.585	.947	.056
$ln\ s_c^c$	-.452*	-.343	-.433	.090	-.720
	.179	.377	.334	.315	.200
	.045	.415	.265	.802	.069
$ln\ n^c$	-.280	.098	-.271	.106	-.602
	.269	.444	.557	.363	.257
	.338	.836	.652	.797	.144
$ln\ n^m$				-.278	
				.422	
				.578	
$ln\ s_m^c$				-.130	
				.156	
				.492	
$ln\ A^m$				.252	
				.319	
				.513	

(table con'd)

Model:	1	2	3	4	5
lnDEC		-1.418			-2.221
		3.241			1.521
		.684			.282
lnFRAG^c		.995			1.382*
		.526			.231
		.132			.027
lnTXCON^c			-.045		-1.379*
			.546		.285
			.938		.040
lnEXCON^c			.176		-.394
			.984		.379
			.866		.408
ln(EXP^m*/n*^{m}*)*				.566	
				.528	
				.396	
Flypaper:	- -	- -	15.099	- -	38.832*
Adj. R^2	.180	.499	-.220	-.022	.697
F	1.55	2.66	.70	.97	3.87
d.f.	6	4	4	2	2

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.45. County–MIDWEST Region–Council Administrator

Model:	1	2	3	4	5	6	7	8
Constant	-4.909*	-.917	-3.109	-4.224	-2.364	-.683	-3.060	-2.831
	1.964	2.251	2.100	2.525	2.524	2.600	2.151	2.498
	.021	.688	.155	.113	.362	.796	.175	.278
$ln\ m^c$	1.945**	1.312**	1.453**	1.826**	1.468**	1.243*	1.366*	1.540*
	.460	.402	.430	.597	.487	.487	.491	.546
	.000	.004	.003	.007	.008	.022	.014	.014
$ln\ (s^c_c A^c)$	.276*	.416**	.169	.236	.191	.418**	.101	.083
	.128	.134	.099	.138	.116	.136	.118	.151
	.043	.006	.104	.105	.118	.008	.403	.594
$ln\ s^c_c$	-.716*	-.568*	-.789**	-.687*	-.853**	-.551	-.551	-.652
	.260	.247	.230	.321	.280	.308	.277	.320
	.012	.033	.003	.047	.007	.094	.065	.063
$ln\ n^c$	-.801*	-.705*	-.885**	-.695	-.983**	-.627	-.591	-.769*
	.286	.257	.249	.361	.293	.331	.305	.354
	.011	.013	.002	.071	.004	.077	.072	.049
$ln\ n^m$				-.434		-.371	-.323	-.218
				.341		.302	.277	.300
				.219		.238	.262	.481
$ln\ s^c_m$				.097		.073	-.049	-.152
				.167		.174	.139	.130
				.569		.681	.729	.266
$ln\ A^m$				.332		.260	.212	.092
				.215		.216	.179	.213
				.140		.249	.256	.671

(table con'd)

Model:	1	2	3	4	5	6	7	8
lnDEC		2.052*			1.265	1.600		1.170
		.762			.917	.850		.918
		.014			.186	.079		.225
lnFRAG^c		.052			.298	-.129		.414
		.266			.303	.295		.353
		.846			.339	.667		.262
lnTXCON^c			.684*		.431		.740*	.569
			.254		.287		.321	.313
			.015		.152		.036	.093
lnEXCON^c			1.097**		1.134**		1.137**	1.362**
			.316		.333		.370	.424
			.003		.003		.008	.007
$ln(EXP^m/n^m)$				-.183		-.169	.027	.025
				.268		.251	.211	.184
				.504		.510	.900	.894
Flypaper:	- -	- -	4.455	- -	5.188	- -	2.174	1.341
Adj. R^2	.345	.452	.580	.274	.577	.359	.513	.489
F	4.30*	4.43**	6.75**	2.18	5.27**	2.40	3.64*	2.99*
d.f.	21	19	19	17	17	15	15	13

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$, ** $p < .01$.

Table A6.46. County–MIDWEST Region–Council Commission

Model:	1	2	3	4	5	6	7	8
Constant	-.0002	.228	-.476	.104	-.207	.440	1.515	2.309
	1.632	1.926	1.679	2.998	1.889	2.844	2.491	2.025
	.999	.907	.780	.973	.914	.879	.553	.276
$ln\ m^c$	1.032*	.964	1.144*	.066	1.072*	-.213	-.170	-.707
	.412	.493	.409	.728	.448	.681	.690	.523
	.021	.066	.012	.928	.029	.759	.809	.201
$ln\ (s^c_c A^c)$	.012	-.057	.008	.131	-.071	.188	.139	.244*
	.084	.090	.086	.081	.093	.091	.077	.085
	.885	.533	.928	.123	.455	.057	.093	.014
$ln\ s^c_c$	-.130	-.034	-.150	-.115	-.043	-.157	-.162	-.240*
	.123	.142	.131	.091	.153	.097	.091	.101
	.303	.814	.264	.223	.782	.128	.095	.035
$ln\ n^c$	-.123	-.017	-.174	-.033	-.062	-.001	-.110	-.070
	.159	.193	.173	.119	.203	.159	.121	.152
	.450	.933	.328	.782	.764	.994	.379	.653
$ln\ n^m$				.025		.067	.174	.281
				.224		.234	.205	.174
				.913		.779	.411	.131
$ln\ s^c_m$				-.091		-.039	-.029	.054
				.204		.204	.163	.149
				.662		.851	.859	.723
$ln\ A^m$				-.249		-.328*	-.392**	-.569**
				.119		.133	.125	.114
				.052		.027	.007	.000

(table con'd)

Model:	1	2	3	4	5	6	7	8
lnDEC		-.773			-.848*	.233		.444
		.464			.396	.606		.497
		.113			.048	.706		.389
lnFRAG^c		-.034			-.044	.154		.257
		.140			.118	.163		.128
		.814			.715	.361		.068
lnTXCON^c			.150		.191		.479*	.597**
			.238		.222		.215	.178
			.537		.402		.043	.006
lnEXCON			-.493		-.529*		-.529*	-.578
			.262		.240		.234	.197
			.076		.043		.040	.013
ln(EXP^m*/n*^{m}*)*				.723**		.939**	.763**	1.163**
				.196		.271	.222	.272
				.002		.004	.004	.001
Flypaper:	- -	- -	-.326	- -	-8.508	- -	14.648*	26.099**
Adj. R^2	.035	.024	.049	.108	.061	.025	.211	.213
F	1.22	1.10	1.21	1.36	1.19	1.06	1.64	1.54
d.f.	20	18	18	16	16	14	14	12

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.47. County–SOUTH Region–Council Administrator

Model:	1	2	3	4	5	6	7	8
Constant	.184	2.437*	-.740	-.565	2.329*	2.140	-.905	1.734
	1.473	1.042	1.543	1.497	.976	1.323	1.282	1.424
	.902	.028	.636	.710	.026	.122	.488	.239
$ln\ m^c$	1.553*	.971*	1.485*	1.116	.818*	.866	1.119*	.844*
	.612	.406	.558	.551	.293	.464	.445	.334
	.018	.025	.014	.055	.011	.076	.021	.021
$ln\ (s_c^c A^c)$	-.588**	-.418**	-.258	-.475	-.271*	-.398*	-.289	-.302
	.129	.105	.165	.240	.104	.165	.281	.152
	.000	.001	.132	.061	.016	.026	.315	.063
$ln\ s_c^c$	.272**	.257**	-.014	-.164	.166	.262	-.358	.159
	.096	.083	.181	.445	.103	.237	.479	.222
	.009	.005	.939	.716	.121	.283	.464	.483
$ln\ n^c$	.361*	.300**	-.055	-.087	.125	.282	-.380	.054
	.134	.104	.222	.497	.159	.247	.551	.257
	.012	.008	.808	.862	.439	.268	.498	.835
$ln\ n^m$				.182		.095	.250	.139
				.482		.298	.477	.248
				.710		.753	.605	.582
$ln\ s_m^c$				.551		.008	.595	.055
				.399		.209	.418	.209
				.182		.970	.170	.796
$ln\ A^m$				.192		-.076	.212	-.009
				.136		.124	.156	.131
				.174		.548	.190	.947

(table con'd)

Model:	1	2	3	4	5	6	7	8
lnDEC		.891**			.871**	.877*		.750*
		.246			.215	.328		.319
		.001			.001	.015		.030
lnFRAG[c]		-.473**			-.516**	-.507**		-.566**
		.117			.101	.135		.111
		.001			.000	.001		.000
lnTXCON[c]			.282		-.551		-.291	-.586
			.573		.370		.563	.350
			.627		.150		.611	.111
lnEXCON[c]			-1.110*		-.657*		-.750	-.706*
			.453		.248		.416	.297
			.022		.015		.086	.029
ln(EXP^m/n^m)				.473		.206	.360	.140
				.361		.296	.320	.283
				.203		.494	.274	.627
Flypaper:	- -	- -	-11.320	- -	-11.127	- -	-12.135	-12.338
Adj. R^2	.423	.714	.458	.457	.774	.668	.475	.738
F	6.50**	13.51**	5.22**	4.15**	13.85**	7.02**	3.72**	8.03**
d.f.	26	24	24	22	22	20	20	18

Notes: White's errors follow estimates. Probability values follow errors. * $p < .05$. ** $p < .01$.

Table A6.48. County--SOUTH Region--Council Commission

Model:	1	2	3	4	5	6	7	8
Constant	-.390	-.977	.417	-3.093	.931	-3.072*	-2.053	-.999
	1.268	1.468	1.421	1.544	1.296	1.375	1.727	1.517
	.761	.511	.772	.057	.479	.036	.247	.518
$ln\ m^c$	.912*	.975*	.792	.618	.599	.604	.447	.382
	.424	.424	.465	.365	.413	.331	.422	.355
	.040	.030	.100	.103	.160	.082	.301	.295
$ln\ (s_c^c A^c)$	.198**	.113	.191*	.143*	.109	.082	.173*	.096
	.063	.059	.085	.069	.071	.072	.076	.085
	.004	.067	.033	.050	.139	.266	.033	.269
$ln\ s_c^c$	-.359*	-.383*	-.364*	-.243	-.323**	-.402*	-.303*	-.347*
	.160	.141	.140	.155	.102	.146	.134	.132
	.033	.012	.015	.129	.004	.011	.033	.016
$ln\ n^c$	-.356	-.347*	-.384*	-.158	-.341*	-.270	-.262	-.307*
	.185	.153	.175	.166	.134	.132	.148	.123
	.065	.032	.038	.351	.018	.053	.090	.021
$ln\ n^m$				-.191		-.044	-.153	-.031
				.114		.128	.112	.122
				.107		.734	.185	.803
$ln\ s_m^c$				-.008		.141	.017	.109
				.162		.163	.158	.167
				.961		.397	.917	.520
$ln\ A^m$				-.024		-.043	-.016	-.012
				.073		.079	.060	.061
				.740		.593	.790	.847

(table con'd)

Model:	1	2	3	4	5	6	7	8
lnDEC		-1.000**			-1.345**	-.550		-.964*
		.329			.327	.310		.342
		.005			.000	.090		.011
lnFRAG^c		.501			.306	.473		.279
		.278			.195	.274		.273
		.083			.129	.098		.318
lnTXCON^c			.156		.256		.382	.322
			.341		.263		.289	.284
			.652		.340		.200	.270
lnEXCON^c			.621*		.744**		.433*	.589**
			.229		.151		.193	.161
			.012		.000		.035	.002
$ln(EXP^m/n^m)$				.886**		.863**	.848**	.659**
				.250		.256	.235	.228
				.002		.003	.002	.009
Flypaper:	- -	- -	83.746*	- -	47.634	- -	76.001*	42.255
Adj. R^2	.098	.237	.224	.308	.444	.347	.385	.469
F	1.87	2.66*	2.54*	2.78*	4.20**	2.70*	3.00*	3.36
d.f.	28	26	26	24	24	22	22	20

Notes: White's errors follow estimates. Probability values follow errors. * p < .05. ** p < .01.

VITA

Rebecca J. Campbell was born in Flint, Michigan. She and her younger sister, Wendy, were raised by their mother in Southern California. Rebecca was very active in high school, participated on both the cross-county and swimming teams, and worked at Disneyland as a waitress on Main Street. As an outstanding high school junior, she was chosen to participate in the Youth Citizenship Seminar of Southern California run by the Chancellor of Pepperdine University, Charles Runnels. Rebecca began work at Pepperdine University as a political science major in August 1988. She switched to economics because it provided a more structured approach to thinking. She received her Bachelor of Arts Degree in Economics from Pepperdine University in Malibu, California, in December 1991. At the age of twenty-one she began work on a Doctor of Philosophy Degree in Economics in August 1992 in Baton Rouge, Louisiana, at Louisiana State University. Rebecca received her Master of Science Degree in Economics in May 1994. She married a fellow L.S.U. economist, Randall C. Campbell, on July 11, 1994. After completing her Doctor of Philosophy Degree in Economics in May 1998, she intends to continue her research on local governments. Rebecca has always been interested in government and hopes that her work will contribute to smaller, more efficient government provision of public services. In addition to teaching, she enjoys spending time with her husband, reading, good conversation, good food, and watching good films.

DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: REBECCA J. CAMPBELL

Major Field: ECONOMICS

Title of Dissertation: THE EFFECTS OF FISCAL STRUCTURE, LEVIATHAN, AND INTERDEPENDENT DEMANDS ON LOCAL PUBLIC SPENDING BEHAVIOR

Approved:

G. R. Turnbull

Major Professor and Chairman

John M. Larkin

Dean of the Graduate School

EXAMINING COMMITTEE:

W. J. Moore

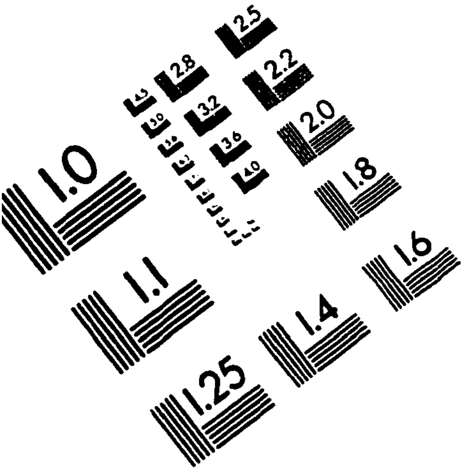
R. Carter Hill

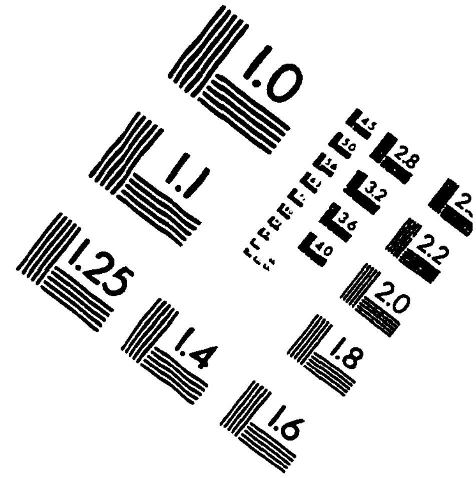
Joe F. Hair Jr.

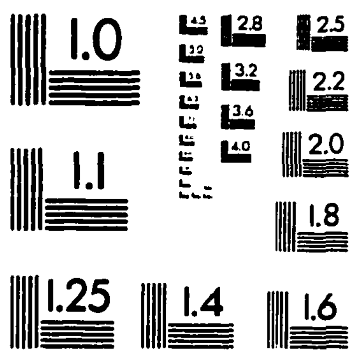
Date of Examination:

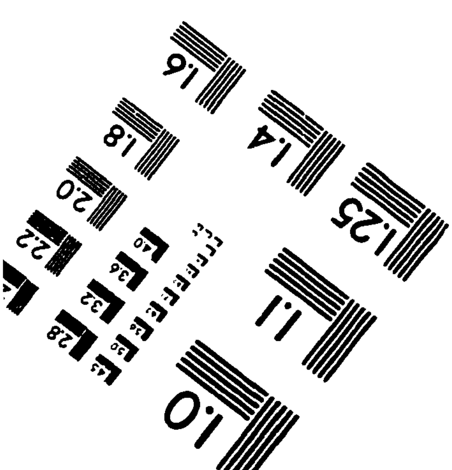
March 13, 1998

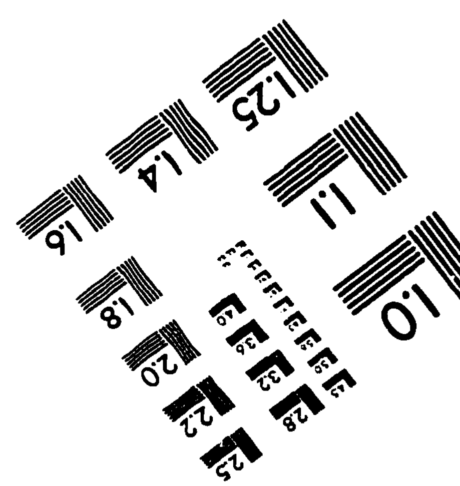
IMAGE EVALUATION TEST TARGET (QA-3)











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