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Counting Competitors: Relative Gains
and Cooperation in Metropolitan
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Relative gains and cooperation in Metropolitan America**

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ABSTRACT

This study evaluates the role of cities in fostering metropolitan-wide financial cooperation. I suggest that cities face a relative gains problem when considering cooperating with each other. Cities with comparable characteristics and in close proximity compete with each other, and because they do, relative gains matter. In such circumstances, cooperation is difficult between cities. And without city participation, overall metropolitan cooperation is reduced. A model of regional cooperation based on this coordination problem is proposed. Differing concepts and measures of municipal homogeneity within a metropolitan region are explored. Unlike a previous study at the municipal level (Krueger and McGuire 2005), the findings at the metropolitan level are inconsistent with this theory.

INTRODUCTION

A central tenant of the burgeoning literature on regional cooperation and governance structures is the idea that cooperation is necessarily difficult because local governments compete with one another. In a host of arenas from tax rates to quality-of-life services to development incentive packages, local governments compete for residents, employers and tax bases.

When competition is measured explicitly, it is typically measured as the total number of governments in a geographically bound area. Yet recent work on regional governance structures has identified such a measure as conforming more closely to fragmentation, a measure that is conceptually distinct from competition.

This is not to say that fragmentation does not lead to competition, but rather that fragmentation is a double-edged sword. Fragmentation can generate Tiebout-type competition under some conditions but it also leads to greater opportunities for cooperation due to the greater number of potential partners.

This study attempts to identify a theoretical distinction between fragmentation and cooperation, and suggests an alternative mechanism for the measurement of competition between local governments. Building on a previous study of municipalities (Krueger and McGuire 2005), this study develops a measure of competition based on the Tiebout Hypothesis and tests its ability to explain interlocal financial cooperation in metropolitan areas. The findings are

inconsistent with our previous findings. The anomalous findings and future research directions are discussed.

PROXIMITY: THREAT OR OPPORTUNITY?

Much of the economic literature based on Tiebout's idea, evolving from the work of Oates (1972) and Brennan and Buchanan (1980), has been interested in the study of how competition in the public institutions market can generate production efficiency. The work, primarily by economists (but see Schneider 1986), has utilized competition as an independent variable to explain variances in either expenditures or own-source revenues. Early empirical analyses by Oates (1985) and Nelson (1987) found mixed support for the idea that competition reduces expenditures, but more recent work at the local level – including studies by Zax (1989) on all governments aggregated to the county level, Forbest and Zampelli (1989) on county revenues, Sjoquist (1982) on central city expenditures, and Eberts and Gronbert (1990) on spending in metropolitan areas – find stronger support for the idea.

But the leviathan studies misrepresent the original intent of Tiebout's work. The Tiebout Hypothesis does not treat local governments as automatons that are ready and easy substitutes. It suggests, rather, a sorting process in which residents and business are attracted to communities that have a mix of programs, spending, and taxation that conform to their preferences. This does not imply a "drive to the bottom" in which all cities become the same. To the extent that residents have heterogeneous preferences for policy outputs, local governments should be equally heterogeneous. Thus, using a simple count of the number of local governments cannot capture the variety of types of competition and opportunities for cooperation that occur when many local governments are in close proximity.

Studies in the urban politics and economic development fields have been equally equivocal. Some find that fragmentation leads to greater cooperation, others find that it inhibits cooperation. Post (2002), for example, develops a model of the total number of local governments in a metropolitan area that cooperate financially and finds that the density of local governments is a better measure of fragmentation than a simple count of the number of jurisdictions per capita, and that metro areas with greater density of governments cooperate more than areas with lower densities. Johnson and Neiman (2004) study city economic development policies and measure fragmentation as the number of other cities within a five-mile radius. Utilizing a survey, they then create an additional measure of competition by asking cities to identify other competitive cities. While this approach avoids the problem of a simple count of jurisdictions, it leaves open the question of why some cities perceive others as particularly competitive. They find that both measures of competition lead to greater cooperation in economic development.

Olberding (2002) suggests that fragmentation creates problems for cooperation because it reduces the ability of local governments to regularly interact and create norms of cooperative behavior. She finds that fragmentation leads fewer interlocal cooperative agreements in economic development. Feiock, Tao and Johnson (2004), however, question this and suggest that overall metropolitan cooperation can foster the sorts of norms of cooperation that will increase the probability of reaching interlocal deals on economic development. When they include a measure of total cooperation in a model of regional economic development partnerships, they find that the number of cities in the metro area is irrelevant, the number of counties positively associated with cooperation, but that the number of special districts is negatively associated with cooperation.

In a recent study, Krueger and McGuire (2005) suggest that competition is best measured between cities that are most alike. That study suggests that interlocal cooperation is fostered when cities are dissimilar in characteristics. This approach separates fragmentation – which can both necessitate cooperation and make it challenging – from competition. They find that competition impedes financial cooperation in a large sample of cities across the county.

RELATIVE AND ABSOLUTE GAINS FROM COOPERATION

The work of Tiebout and colleagues (Ostrom, Tiebout, and Warren 1961; Tiebout 1956) suggests that cities compete in a market-like way to provide an optimal mix of goods and services at the lowest overall tax rate. They do this because they are in competition for residents and employers who are – at least at the margins – discriminating consumers of government service packages.

This competition creates countervailing motivations for local governments. On the one hand, they want to reduce production costs as a means to enhance existing programs, provide new services, or reduce tax rates. One of the ways cities can attempt to accomplish this goal is through the generation of slack resources made available by jointly implementing a service. On the other hand, governments generally avoid agreements that disproportionately favor a partner because any relative gain to the partner could be used to generate slack resources that can be utilized to attract residents and businesses from one jurisdiction to another.

Local governments that provide a similar basket of goods at similar tax rates and are in close proximity will be the most competitive. In such cases, the total gains that each might receive through cooperation is less important than the relative gains one achieves more or less than the partner. If one city can achieve more slack resources, it can use those resources to gain

a comparative advantage against its partner in their competition for residents and employers. Competition, then, creates a zero-sum game for cooperators.

On the other hand, when local governments provide a different basket of goods and services and consequently serve different publics, the degree of competition is lower. Lower competition for proximate cities creates incentives to focus on absolute gains. Both cities gain from cooperation, and unequal gains are tolerated because they do not mean a potential loss of residents and employers to their partner. In these situations, the game is transformed from a zero-sum game to a positive-sum game.

Competition, then, is a function of the market of local governments and can be measured by the degree to which market participants (local governments) are homogeneous. The total number of local governments in this framework is less relevant than the degree to which local governments are similar. Under this conceptual approach to competition, heterogeneous markets allow governments to focus on absolute gains and consequently foster cooperation; more homogeneous markets conversely create an interest in relative gains and reduce cooperation.

The idea that homogeneity of actors reduces interest in cooperation contrasts sharply with much of the work on local cooperation, especially with respect to common pool resources. But work at the nation-state level suggests otherwise. At the international level, cooperation is often best achieved among actors who are dissimilar (Keohane and Ostrom 1995, Feiock 2005). Efforts to fully understand the differences in observed outcomes remain incomplete.

This study utilizes a measure of competition suggested by Krueger and McGuire (2005) to evaluate the impact of homogeneity, conceptually linked to competition, on cooperation. A fully specified model of cooperation at the metropolitan level of analysis, including control variables, is described below.

MODEL SPECIFICATION AND VARIABLE DESCRIPTION

Dependent Variable. Cooperation is measured as the total amount of interlocal revenue received by all governments (cities, counties and special districts, but not including school districts) in each MSA for the fiscal year that ended in 2002, as collected by the 2002 Census of Governments. It is divided by the population of the MSA, which is aggregated from all the counties comprising that MSA based on the 2002 Census of the Population. Financial cooperation is one of many forms of cooperation, and a narrow one. It is assumed that the exchange of limited resources represents a form of cooperation that is particularly difficult to achieve. Nevertheless, the average amount of interlocal transfers¹ for a metro area in 2002 was \$47,954,000. For cities, the average was \$17.6 million, for counties the average was \$14.5 million and for special districts the average was \$11.7 million.

Metropolitan areas were chosen as the unit of analysis for this project to evaluate the total amount of cooperation that occurs in a geographically defined area. Metropolitan Statistical Areas (MSAs) are defined by the federal Office of Management and Budget as a large regional center of economic activity. The OMB identifies each of the counties, and by extension the cities and special districts, that are included in each MSA. Each MSA, then, is a small laboratory in which to test theories of cooperation and competition on governments that operate in close proximity to one another.

Homogeneity and Competition. While a number of mechanisms can be explored to measure the concept of market homogeneity, this study follows Krueger and McGuire (2005) and

measures homogeneity as the degree of variance in the market, controlling for the size of the market. For any given metropolitan market X , homogeneity is:

$$\text{Homogeneity}_x = \frac{SD_x}{\sum X}$$

where SD is the standard deviation of a government characteristic. Calculating it this way, large numbers represent higher levels of heterogeneity, and consequently lower levels of competition, while lower levels represent homogeneity and higher levels of competition. Thus, I expect that a positive relationship between this measure and cooperation.

At least three other measures of heterogeneity are potentially available. The coefficient of variation is commonly used and is simply the standard deviation divided by the mean, but is only appropriate in cases where the standard deviation is less than the mean. Such is not the case for any of the data utilized in this study – city characteristics appear to vary substantially. The Herfindahl index is another common measure, but is focused on measuring the degree of market concentration, rather than measuring the average degree of difference between market participants. Finally, the Gini coefficient is another option since it is designed to measure the differences between market participants. But no practical way of measuring the Gini across more than 300 markets is readily available (that this author knows of).

In addition to the choice of calculation methodology, a choice must be made on which of the many characteristics of local government best represents the differences between local governments in a way that captures their competitive nature. The choice is not purely methodological – different measures capture different aspects of the nature of local government, and thus have theoretical implications for understanding the nature of interlocal competition. The literature growing out of the Tiebout tradition is silent on this issue, but Krueger and

¹ The Census of Governments reports interlocal transfers on an expenditure and revenue basis. Revenue data are

McGuire apply the above formula to the population of cities in metro areas because size has long been a central concern of the traditional literature on

	Population Heterogeneity	Expenditures Heterogeneity
Population Heterogeneity		
Expenditure Heterogeneity	.7403*	
Med. Home Value Heterogeneity	.7321*	.6839*

group cooperation (Olson 1965). However, this is certainly not the only way that cities can be differentiated. Another option is to measure the homogeneity of government expenditures from the 2002 Census of Governments. To the extent that community preferences are manifest in different levels of total spending, differences in spending levels can be an indicator of competition. MSAs with many cities with similar spending levels will suffer from higher levels of competition and consequently have lower levels of cooperation. A third option is to choose among any number of measures of the socio-economic status of cities. For this study, I opted to utilize the median home value from the 2000 Population Census in each city in an effort to capture the impact that differences in the tax base have on cooperation.

In each case, the measure was calculated only for cities to evaluate the impact that competition between cities has on overall cooperation. Cities and special districts are the most critical measures of fragmentation in a metropolitan area (Foster 1997), but unlike special districts, cities have non-overlapping geographic boundaries and identifiable population characteristics.

Each of the measures is strongly correlated with the other (see Table 1). Simple cross-correlations of the three show that all are statistically significant at the .05 level of significance and the lowest correlation is .6839 between median home value heterogeneity and expenditure heterogeneity.

utilized for this study due to reporting reliability issues.

To control for the potential effect of fragmentation and its impact on competition, the model includes measures of the count of the number of cities in the MSA and the number of special districts in the MSA (Foster 1997). Both are divided by the MSA population to control for the overall size of the MSA. The number of cities and special districts comes from the 2002 Census of Governments. It is anticipated that cooperation is fostered by the number of available cooperation partners. Thus, increases in the per capita number of cities and special districts should be associated with higher levels of per capita interlocal financial cooperation.

Control Variables. Four control variables are included in this analysis. Based on previous analysis (Krueger and McGuire 2005), the structural attributes of cities plays an important role in the degree of cooperation in an MSA. Thus, three measures of city structure are included. They are the proportion of cities with a city manager form of government, the proportion of cities with in which the candidate's party affiliation is identified on the election ballot and the average proportion of council seats that are elected at-large versus elected by district or ward. All three variables are codes from data available in the 1997 International City/County Management Association (ICMA) survey of its members.

First, much of the literature on local cooperation demonstrates the importance of a professional city manager. City managers have norms of professional conduct and careers less tied to the outcomes of an election. They can thus make commitments to block rent-seeking behavior in such a pluralistic settings as networks of cooperating governments (Feiock, Jeong, and Kim 2003; Feiock and Kim 2000). Mayors acting as chief executives and city council members, who rely on the financial and electoral support of various interests, may be less successful in resisting such rent-seeking behavior. Cities with the city manager form of

government, then, are expected to foster cooperation. As the proportion of city manager-run cities in an MSA increases, the amount of financial cooperation in the MSA is expected to increase. Cities with the city-manager form were coded as a dummy variable and then aggregated as a proportion of all cities for which the form of government is known in the MSA.

Second, single-member districts motivate politicians to focus on narrow interests (Kettle 2002). At-large districts, alternatively, curb this tendency by motivating politicians to focus on majoritarian issues. Cities organized to support the pluralistic policymaking of single-member districts institutionalize mechanisms for negotiation and deal-making. Such institutionalized learning can be applied to cooperative ventures externally as well. Cities that learn to foster cooperation on their councils are expected to improve cooperation in the MSA. This variable is measured as the average proportion of seats that are at large for all cities in an MSA for which this data is available.

Third, although non-partisan elections play a critical role in the institutional structure of city governments, it is anticipated that they do little to motivate cities to foster MSA cooperation. This variable is measured as the proportion of cities with partisan elections as a percent of all cities in the MSA for which this data is available.

Finally, expenditures per capita are included in the model to capture the underlying motivation of political leaders in the MSA to cooperate to reduce costs. Cooperation is often viewed in the regionalism literature as a mechanism for solving economies of scale problems in highly fragmented systems. Larger, consolidated governments can take advantage of the cost savings associated with the increasing returns to scale associated with the production of many government goods and services, while fragmented governments cannot. Short of consolidation, fragmented governments can utilize cooperative forms of production to achieve similar ends.

Thus, it is anticipated that high expenditures per capita will be associated with higher levels of cooperation. The expenditure data is available in the 2002 Census of Governments and represents the total expenditures of all governments in each MSA.

RESULTS AND ANALYSIS

Three ordinary least squares regressions were run for each of the three heterogeneity variables of interest, plus one excluding the three to test the impact of fragmentation measures independent of the heterogeneity measures (see Table 2). The three heterogeneity measures could not be included in a single model because of the collinearity between the measures. The dependent variable, expenditures per capita, and each of the three heterogeneity variables was logged to reduce the impact of skewness in the measures. A total of 301 MSAs were included in the analysis after exclusions due to unavailable data. Diagnostic tests did not reveal any residual heteroskedasticity or multicollinearity.

Control Variables. Unlike previous studies, including the Krueger and McGuire work on which this model was based, the city manager variable was statistically insignificant in all four models. It was anticipated that professional city manager would foster cooperation at the local level and that this impact would be felt across the entire MSA as cities work with each other, counties, and special districts to foster cooperation. While a strong finding in support of this notion was found at the city level of analysis by Krueger and McGuire, this appears to not be the case for MSAs overall.

	1	2	3	4
Proportion of City's with City Manager form of government	0.001917 (.0016303)	0.0016251 (.0015935)	0.0017615 (.001639)	0.0015376 (.0016438)
Proportion of cities in which the party of the candidate is identified in elections	-0.0049262 ** (.0017178)	-0.0047972 ** (.0016822)	-0.004627 ** (.0017622)	-0.0053948 ** (.0017298)
Average city council seats elected at large	0.002089 (.0019631)	0.0017533 (.0019239)	0.0024702 (.0019662)	0.002789 (.0019702)
Expenditures per capita (logged)	0.8500132 ** (.1122326)	0.8527443 ** (.1100618)	0.8498385 ** (.1129702)	0.854447 ** (.1135392)
Heterogeneity of Population (logged)	-0.2294049 ** (.0813905)			
Heterogeneity of Expenditures (logged)		-0.2961771 ** (.0664347)		
Heterogeneity of Home Value (logged)			-0.1461999 ** (.0722925)	
Number of cities in MSA per capita	-1885.355 (1478.177)	-3038.117 ** (1488.333)	-2125.516 (1538.843)	-1181.665 (1474.047)
Number of special districts in MSA per capita	140.3926 (823.5802)	163.2437 (805.5088)	88.82267 (829.7573)	-102.029 (828.6938)
Intercept	-1.935271 ** (.8677304)	-1.970451 ** (.8327317)	-2.445001 ** (.8456112)	-2.571155 ** (.847727)
Cases	301	301	301	301
Adj. R2	.2119	.2420	.2017	.1933

Similarly, the average proportion of at-large city council districts had no statistical impact on MSA total cooperation. It was anticipated that single-member districts fostered cooperative organizations that translated those internal bargaining skills to external relations. While this hypothesis was supported in the analysis of cities by Krueger and McGuire, it is not supported in this analysis at the MSA level.

Interestingly, the proportion of cities with partisan elections is statistically significant and in the negative direction. As the proportion of cities in the MSA with partisan elections increases, cooperation decreases. Although this has long been an important measure of reform for cities, it was anticipated that partisanship in the electoral cycle would have little impact on

levels of cooperation. Indeed, Krueger and McGuire found in their study of cities that it had no statistically significant impact. This study demonstrates, however, that as the proportion of cities with partisan elections rises, the degree of overall MSA cooperation declines. This anomalous finding is curious and there is no ready explanation.

The impact of expenditures per capita was statistically significant and in the anticipated positive direction. MSAs with higher levels of spending cooperate more, presumably under the rationale that cooperation can achieve economies of scale and ultimately limit those higher spending levels. This finding was consistent across all four models.

Homogeneity and Competition. It was anticipated that heterogeneity of the population, expenditures, and median home value of cities in an MSA would lead to greater cooperation, whereas homogeneity in these measures for cities would lead to less cooperation. This is the essence of the relative gains argument in Krueger and McGuire and presented in the theoretical discussion above. However, the impact of heterogeneity in fostering competition at the city level of analysis is not supported by this study at the MSA level of analysis. In fact, just the opposite. At the MSA level, city homogeneity rather than heterogeneity fosters cooperation. In each of the three models for the different operationalizations of homogeneity, cooperation is facilitated by homogeneity of the cities in the MSA, rather than by heterogeneity.

Interestingly, in only one of the models – with heterogeneity of expenditures included – is the variable for city fragmentation statistically significant. Interestingly, municipal fragmentation appears to reduce the level of total MSA cooperation. In no model is the measure of special district fragmentation statistically significant. This finding is consistent with Post's (2002) finding that fragmentation is rarely significant (although the coefficients were in the negative

direction). Her research suggests that a better measure of fragmentation is the density of local governments in an MSA, measured as the number of cities divided by the total square miles in an MSA.

CONCLUSIONS

This study attempts to measure the influence that city structures and behaviors have on overall MSA cooperation patterns. What I find is a mixed story. The proportion of city managers and the average of at-large districts have no effect, despite being strongly correlated with cooperation measures at the city level (based on a previous study by Krueger and McGuire 2005). Interestingly, the proportion of cities with partisan ballots has a statistically significant negative effect on the degree of MSA cooperation. MSA expenditures per capita has a significant positive effect on cooperation, consistent with the notion that metro areas facing high expenditures cooperate in an effort to reduce costs through economies of scale.

The primary focus of this study is to evaluate different measures of competition between cities and their impact on overall MSA cooperation. Krueger and McGuire (2005) find that relative gains considerations – operationalized as municipal market homogeneity – reduce city cooperation, while heterogeneous municipal markets increase cooperation. This study utilized a similar measure – but extended to measure the homogeneity of three characteristics – and found the opposite effect: City homogeneity fosters total MSA cooperation.

This study hypothesized that city heterogeneity, rather than homogeneity, would foster MSA cooperation. Part of the reason this was anticipated is that cities have long been noted to be a central player in metropolitan cooperation (see, for example, Thurmayer and Wood 2002). But in interlocal financial cooperation, cities do not dominate strongly. As Table 3

demonstrates, city financial cooperate in an MSA has a mean value of \$17.7 million, only slightly higher than the county rate of \$14.5 million and only 40

	Total Dollar Value of financial cooperation (mean across all MSAs)	Percentage of Total Dollar Value by Type
Cities	\$17,681,990	40%
Special Districts	\$14,453,310	33%
Counties	\$11,734,480	27%

percent of the total. Cities are key players, but they do not predominate interlocal cooperation.

Fragmentation and the proximity associated with it has long been understood to be a two-edged sword. On the one hand, fragmentation leads to a greater number of opportunities for cooperation. But it also creates competition that sometimes leads to less cooperation than we might suspect. The inconsistent findings in the literature on this subject in recent years suggests that we do not yet fully appreciate the causal mechanisms that create incentives and disincentives to cooperate for proximate local governments.

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