

# **THE DISTRIBUTION OF COLLECTIVE ACTION IN METROPOLITAN REGIONS IN THE US**

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## **ABSTRACT**

This research investigates the extent to which collective action in different forms is likely to exist in the 51 largest metropolitan regions in the US with populations greater than one million. The research bases its predictions on indicators of five conditions that are considered to promote or hinder voluntary collective action to resolve collective action dilemmas. These conditions are fragmentation, fiscal dispersion, population sorting, state-local decentralization, and competitive pressures related to sales taxes. The primary issue here is that these conditions vary by state and metropolitan region and, therefore, are likely to have a profound effect on the level of voluntary collective action that is likely to exist or that could exist in these regions and the form this action will take.

Almost 25 years ago Elinor Ostrom's seminal book on *Governing the Commons* (1990)—which was the basis for her Nobel Prize in Economics in 2009-- made very compelling arguments about why and how local governments will voluntarily engage in collective action to manage common pool resources such as forests, grazing lands, and ground water basins. Since that time, her theory and arguments have been applied to the provision and production of local services in many different countries. In particular, Feiock and his colleagues have produced a large body of research focusing on the topic of self-organizing collaborative mechanisms to mitigate institutional collective action (ICA) dilemmas, including the management of common pool resources (Feiock and Scholz, 2010; Feiock, 2004). More generally, ICA dilemmas are shared policy and service problems that can be solved efficiently through cooperation and intergovernmental agreements or contracts. Such conditions are likely to exist in metropolitan regions where the density of local governments, intergovernmental interactions, and service populations are high compared to rural regions (Post, 2004). Such conditions are also more likely to exist in the US with its strong record and tradition of fragmented and decentralized government than in other countries (Elazar, 1984; Aranoff and McGuire, 2004).

For example, local governments that are near each other or have overlapping boundaries can enter into a joint contract with a company to develop a dispatch or payroll system that is shared by all governments. This system would be cheaper to develop and less expensive to operate compared to each government contracting for their own system. Local governments also can create cooperatives to provide internal services (e.g. IT and purchasing) more efficiently, and they can collaborate on economic development ventures with each other to lower the costs of construction and jointly affect the project. They may even be willing to share or limit the long-term payoffs of these ventures if the collective agreement decreases indirect costs such as those associated with competition (e.g. bidding wars with other governments and higher subsidies tax subsidies to developers).

Small governments can always contract with larger governments to provide core services such as police, and neighboring governments might even consolidate service units such as police departments. On a broader scale, multiple governments sometimes consolidate services such as fire departments into a single governing district to take advantage of economies of scale, and there are numerous examples of city-county consolidation throughout the US that are driven by

expectations of lower costs and better quality local services to citizens within the county jurisdiction (Leland and Thurmaier, 2004, 2010).

There has also been a great deal of research on conditions that promote or hinder voluntary collective action between local governments since Ostrom published her book, but particularly in the last ten years (McGuire, 2006- PAR). This research has produced a comprehensive list of conditions that promote and hinder collective action by governments to resolve ICA dilemmas, especially those involving government operations and the delivery of local services. One of these conditions is fiscal stress (Morgan and Hirlinger, 1991; Collins, 2006; LeRoux and Carr, 2007; Carr et al, 2009). Current economic conditions has given rise to much speculation among practitioners and urban scholars that voluntary collective action between local governments will increase greatly in the future due to the fiscal pressures of the new century (MacManus and Caruson, 2008; Kwon and Feiock, 2010). The steep decline in public revenues that has occurred since the 2001 recession and the dramatic increase in government outlays that is expected from the wave of public retirees that will occur in the next 20 years are predicted to increase the benefits of collective action between governments (and networking with the public and private sectors) relative to costs. These trends and others are expected to reinvent public governance at all levels through collaboration among different sectors of the economy and society with government (Vigoda, 2002; Goldsmith and Eggers, 2004; Osborne, 2010).

Irrespective of whether local governance will change globally and dramatically in the future due to collaboration and collective action, there is the question of where such changes are more likely to occur. The extensive list of conditions that promote or hinder collective action suggest that different forms of collective action are more likely to occur for certain types of local goods and services and in some states and metropolitan regions than others. Thus, such conditions provide a basis for predicting the prevalence and form of collective action (and the possible reinvention of local governance) in different areas of the US and for different types of services.

The research presented here identifies key factors affecting whether local governments in US metropolitan regions are likely to enter into and maintain voluntary collective action with other local governments. It relies on US Census of Governments (2007) data and other available sources of information to measure these for 51 metropolitan regions in the US with populations greater than 1 million as of 2007. The factors assessed here focus on macro-level governing,

institutional, and economic environments that are likely to alter the willingness of local governments to cooperate with each other and the payoffs of collaboration. These macro-level conditions reflect particular structures of interlocal interactions and state-local relations that affect all governments similarly within the same geographical area, such as the sorting or segregation of populations and fragmentation of local governments.<sup>1</sup> Such structures can result in more divergent and diverse preferences among governments that reduce their willingness to collaborate voluntarily and increase competition and conflict with each other. Increased fragmentation and competition raises the costs of collective action for all governments within a region and may even limit or promote types of cooperative agreements that are likely to exist and be successful in reducing the costs that competition and fragmentation place on individual governments.

The next section of this paper explains what collective action is, identifies its primary features, and reviews the different types of collective action that exist in order to be clear about what is being examined here. The third section reviews factors that promote or hinder collective action among local governments in metropolitan regions, especially those affecting the discrepancy among payoffs and competition between them. The fourth section describes how these conditions are measured and presents these statistics for different states and the targeted metropolitan regions in order to assess where different types of collective action are most likely and least likely to occur. The last section of the paper presents our assessment of the likelihood and forms that collective action between local governments is likely to take in different metropolitan regions in the US.

### **Types of Collective Action in a Metropolitan Context**

The term collective action refers to the agreements that individual entities enter into or the cooperation they engage in to achieve common goals or acquire benefits and avoid costs they would not acquire or avoid if they acted alone (Olson, 1965). If the entities are local governments, it is assumed that they will make decisions and pursue actions that are in their self-interest or those of the voter, and that those actions may include collective action with other local governments. Collective action by governments can take many forms in which a few or many governments agree to solve a collective action dilemma by limiting their behavior, distributing

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<sup>1</sup> Micro-level factors affect the governments and agreements within metropolitan regions differently and target characteristics of the transaction or agreement (e.g. economies of scale and transaction costs).

shared resources, pursuing a common project, coordinating action, contracting for goods and services, resolving a conflict, creating new entities, or even merging.

Collective action to alleviate an ICA dilemma is voluntary to the extent that governments enter the agreement voluntarily and are not coerced by other parties to do so. The problem with voluntary collective action is that it requires all parties affected by the dilemma to agree to and abide by the terms of the arrangement, which often increases the costs of resolving the dilemma and narrows the range of mutually acceptable arrangements. All of this creates powerful incentives against initiating, forging, and maintaining such agreements.

For instance, it is costly to establish rules about how the agreement will function, if it can be changed, or how it will be enforced. It is also costly to monitor enforcement and eliminate the opportunistic behavior of others who want to shirk their obligations that are part of the agreement. These costs also increase the more governments that are involved in the agreement, and involving more governments also reduces the likelihood that any set of arrangements will be mutually beneficial and of satisfaction to all (Post, 2004). Some governments may even have conflicting interests in the collective action dilemma and its solution, which is a common scenario in metropolitan regions where the actions of one government can have negative effects on many other governments.

Services with high spillover of costs (or benefits), such as development in one jurisdiction that increases traffic or flooding in neighboring jurisdictions, often exist in areas with high concentrations of population and many jurisdictions. In this case, there is no incentive for governments that benefit from the development to cooperate with and act in the interests of governments that are being hurt by the development, especially if these actions increase costs to the government that is benefiting from the development (Atkins, 1997, Steinacker, 2010). Collective action problems also occur when local governments must contribute to the provision of a regional good, such as mass transportation or water reclamation, in order for it to be provided, but have little incentive to do so voluntarily if they receive the good and benefit from it irrespective of their level of contribution (Ostrom, 2002).

Despite the costs, evidence shows that local governments have been engaging in voluntary collective action for a long time, especially service contracting and other types of service delivery agreements (Zimmerman, 1973; ACIR, 1985). Research in the field of local management suggests that collective action with other governments and sectors is common and

widespread (McKinney and Johnson, 2009; Agranoff and McGuire, 2003; McGuire, 2006-PAR; Berman and Korosec, 2005). There is also evidence of increases in collective action in particular service areas in the 1990s (Lubell et al., 2002; Post, 2002, Olberding, 2002). There is, however, no evidence that voluntary collective action is a predominant method of financing or delivering local services overall or even that it is predominant for some types of local services or in some types of governments. Rather, the evidence shows that collective action is simply more likely to exist for some services than others (Brown and Potoski, 2003; Wood, 2006; Shrestha, 2010), and that local governments may not be doing a lot of collective action relative to all the activities they engage in.<sup>2</sup> There is even some surprise that local governments are not doing more interlocal collaboration given the supposed benefits (Collins, 2006).

A national survey of municipal governments conducted by International City/County Management Association (ICMA) in 2003 found that 45 percent of respondents reported that they had considered sharing services with other governments, but only half of those had actually implemented such agreements (Kearney, 2005). Similarly, LeRoux and Carr (2007) found that most municipalities in Michigan do not cooperate with other local governments on public works projects, despite the substantial economies of scale with these types of services. Consistent with this finding, Carr, LeRoux, and Shrestha (2009) found that the majority of most services provided by cities that responded to a statewide survey in Michigan were delivered entirely and directly by the city government rather than in conjunction with or by other governments or nongovernmental providers.

The lack of reliance on collective action as a primary mode of operations suggests that its perceived costs are greater than its perceived benefits in most instances. However, extant research does indicate that the payoffs for some types of collective action are higher than others. For instance, Agranoff and McGuire (2003) found that collaboration by local governments involving information seeking is much more common compared to collaboration on policy making or collaboration that involves the exchange of resources (Agranoff and MacGuire, 2003). More generally, several notable scholars have recognized that collaborative approaches to government service delivery can be ranked according to whether they are hard or easy to initiate

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<sup>2</sup> The median percent of local government spending that goes to other local governments in all the metropolitan regions in the US as of 2007 is only .84. In other words, local governments in metropolitan regions in the US spend only .84 percent of their operating budget “to other local governments for performance of specific functions” such as for grants or contracts.

and sustain. In this case, one can also infer that some types of collective action have features that make them more costly than others and, therefore, more or less likely to occur.

Table 1 shows a method of ranking collaborative approaches to service delivery as adapted from Walker (1987), Stephen and Wikstrom (2000, 123-124), and Feiock and Scholz (2010b).<sup>3</sup> According to Feiock and Scholz, the easiest forms of collaboration preserve the autonomy and authority of all parties in the agreement and the hardest impose obligations and reduce or eliminate the authority of the parties. Ease of exit from an agreement is higher in the easiest forms of collaboration, and impossible in the hardest forms of collaboration. One could also say that the easiest forms of collective action, which are less costly to individual governments, are most likely to occur voluntarily and the hardest forms are not likely to be voluntary. In other words, the hardest forms of collective action are most likely to require intervention by higher levels of government to reduce costs or compel collaboration in order for such arrangements to arise and be sustained.

[TABLE 1 ABOUT HERE]

Informal cooperation, such as monthly lunch meetings of municipal economic development directors in a county, is very easy to initiate and sustain. Unfortunately, this arrangement is not likely to resolve the most expensive collective action problems, which also tend to be the most difficult to resolve due to the entrenched interests of individual governments (e.g. urban sprawl and competition spillovers). More difficult forms of collective action, such as consolidation of local governments or even consolidation within some service areas, is very costly to the individual governments in terms of what they have to invest to create this new structure and what they lose in terms of autonomy over their actions and resources. However, such arrangements can resolve expensive and difficult collective action dilemmas at the regional level better than easier forms of collective action.<sup>4</sup>

In an earlier study, Feiock (2009) adds another dimension for classifying (and explaining) collective action among local government that designates whether the interaction or exchange is bilateral or multilateral. This new dimension distinguishes collective action that is based on a network structure that represents interlocal agreements between two or maybe a few

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<sup>3</sup> See also Atkins (1997) for a comprehensive list of different ways of organizing local policies and services, including forms of collective action involving private and non-profit entities.

<sup>4</sup> Thurmaier and Wood (2004) identify the following phases or levels of collective action that are similar to the ranking in Table 1: communication, coordination, collaboration, and consolidation.

governments from collective action that requires agreement among many participants to create one organizational structure.<sup>5</sup> In this case, bilateral forms of collective action are easier to initiate and sustain than multilateral forms (Olsen, 1965; Jones, 2010).

It should also be mentioned that the research presented here views collective action as only one type of strategic interaction between governments. In addition to collaboration or cooperation, governments can display overt conflict towards each other and they can interact with each other competitively. Conflict in the form of lawsuits or other direct threats between local governments over issues related to economic development, annexation, and land use are not uncommon because the costs and benefits to parties from outcomes are often high and in opposition to each other. In many cases, a high benefit to one party creates a high cost to another party, but the conflict and uncertainty of these outcomes also increases costs for all parties individually, which makes collective action more likely. Collective action in such instances would focus on reducing or resolving conflict rather than improving services or reducing their costs (Jones, 2010). Interlocal boundary agreements and agreements to share TIF revenue from the increment with overlapping governments are examples of collective action to reduce the uncertainty and costs associated with conflict over annexation and interjurisdictional competition (Taylor and Bassett, 2007).

As a less extreme form of conflict, competition is sometimes viewed as a type of spillover effect (Brueckner, 2003) in which the policy choices of one government directly affect the policy choices of other governments. For instance, spillover effects occur when elected officials compare tax and service levels in their government with their neighbors and base their decisions on these comparisons (sometimes called “yardstick competition”). More traditional competition between governments, such as that proposed by Tiebout (1956), is viewed as an effect of the flow of resources between governments as they work to attract residents and businesses to their jurisdiction and away from other jurisdictions. Here, the payoffs to governments are more zero-sum and their interaction is more indirect (Wilson, 1999). Similar to conflict, direct and indirect forms of competition between local governments is especially common around events related to economic development and residential growth.

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<sup>5</sup> Nunn and Rosentraub (1997) also present several methods of classifying intergovernmental collaboration and cooperation with features similar to those presented here.

In conjunction with Table 1, the wealth of evidence about what promotes or hinders different types of intergovernmental collective action strongly suggests that collective action also is likely to vary by the level of conflict or competition between governments. As explained in the next section, some conditions that are conducive to conflict and competition also make collective action more difficult or occur in conjunction with conditions that make collective action more costly. Interaction between governments and their relationship to each other based on economic, demographic, and governing patterns at the macro level can also promote or hinder collective action by increasing conflict and reducing the area of potential mutual agreement between governments. Competition between governments is also likely to vary according to these patterns, all of which can vary by metropolitan region.

State-local relations and state government rules affecting intergovernmental agreements also can have a significant effect on local government collaboration. For instance, state governments can mandate that local governments contribute their fair share to a regional good (e.g. metropolitan tax base sharing), not engage in behavior that contributes to a regional problem (e.g. restricting low-density development), or provide services within their boundaries that generate a regional benefit (e.g. building storm water retention ponds and affordable housing within their boundaries) (Altshuler et al., 1999, chapter 4). States also require collaboration between local governments to receive grants and often view grant requests more favorably if they involve partnerships among multiple governments (Bickers and Stein, 2004). More generally, states have many ways of increasing the benefits and reducing the costs collective action between local governments (Krueger and Bernick, 2010).<sup>6</sup> Thus, predicting where collective action is likely to occur at the local level will require some knowledge of state-local relations in addition to knowledge of how patterns of interaction between local governments are likely to vary by metropolitan region in the US. The next section summarizes the conditions that promote or hinder collective action and explains those that are most likely to vary by metropolitan region and state in the US.

### **Conditions that Promote or Hinder Local Collective Action**

The wealth of existing empirical and theoretical research on the subject of what promotes and hinders collective action by governments indicates that many factors must be aligned for

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<sup>6</sup> Almost all states allow their local governments to engage in a wide range of collaborative arrangements, but there are different levels of restrictions, which raise or lower the costs of collaboration for local governments (Krane et al., 2001).

different types of voluntary collective action to arise and be sustained. Table 2 presents a summary of these factors from a review of empirical and theoretical research that was conducted in another study by this author (Hendrick and Jimenez, 2010) with the bolded factors showing the ones that are assessed here for metropolitan regions in the US with populations greater than one million. The factors are subsumed under three primary dimensions that represent different types of conditions affecting the following: 1) the individual and collective level of payoffs for resolving the shared problem (including the resolution of conflict); 2) the divergence of participants' payoffs; and 3) the collective action process or rules of operation. Also, these factors and dimensions are not mutually exclusive and often are related. For instance, research argues that fragmentation of local governments in a region and population sorting makes payoffs for collective action less compatible among individual governments, which decreases the area over which collective agreement can occur (Steinacker, 2004). But fragmentation and population sorting also increase the transaction costs of forging and sustaining collective action among numerous governments (Kwon and Feiock, 2010; Lowery, 2000).

[TABLE 2 ABOUT HERE]

A complete explanation of all aspects of this table is beyond the scope of this paper, but it is important to describe some of its important features, especially those in the second dimension that are the focus of this study. The first dimension represents the overall payoffs of collective action. Put simply, the gains of resolving the problem must be greater than the costs of the problem for all individual governments and collectively. For instance, governments are more likely to enter agreements to resolve serious problems that impose great hardship on individual governments (Lubell et al., 2002; Feiock, 2007). The level of payoffs also can be affected by transaction costs, which are a type of agency cost that represent the costs generated from forging and maintaining an agreement (Coase, 1988; Parks and Oakerson, 1989; Feiock et al., 2009). Specific factors affecting transaction costs and payoffs of collective action include the scale economies of goods and services linked to the agreement, the specificity of the assets used or generated by the agreement (the assets have limited use), the degree to which all parties can measure whether the obligations of the agreement has been fulfilled, the ability to reduce opportunistic behavior, and the level of trust between parties (Shrestha, 2010; Carr et al., 2009; Brown and Potoski, 2003; Steinacker, 2004, 2010; Thurmaier and Wood, 2002; Williamson, 1981, 1991; Ostrom, 2002; Feiock et al., 2010).

The third dimension in Table 2 targets the institutional features that are created by the collective agreement and conditions affecting how these institutions are created. These institutions establish the rules of operation of the collective agreement that exist at different governing levels (Hawkins and Feiock, 2011). Ostrom (1990, 50-55), for instance, proposes three levels of institutional arrangements that must exist for collective action to occur. These levels represent contractual arrangements that establish the rules for constitutional, policy making, and administrative decisions (Thomson and Perry, 2006). Such rules can have profound effects on whether collective action occurs and is sustained over time. For example, agreements that do not allow parties to exit at any time, impose strong obligations on them, and reduce their autonomy are less likely to form voluntarily compared to those on the opposite end of the spectrum (Feiock and Scholz, 2010). Similarly, collective arrangements that require unanimity in order to make decisions are less likely to resolve costly and difficult collective action dilemmas (Buchanan and Tullock, 1962).

The third dimension also represents factors that affect the interaction between parties and how agreements are forged through bargaining and compromise (Hawkins and Feiock, 2011). Bargaining and compromise between parties involves numerous negotiations and iterations of negotiations that can be affected by institutional rules, but these processes and their outcomes are also affected by the strength and equality of parties' bargaining positions (Agranoff and McGuire, 2004; Heckthorne and Maser, 1987; Maser, 1998). The skills of leaders and champions in mobilizing the parties involved and facilitating compromise during negotiations is another important factor in this dimension (McGuire, 2006; Zeemering, 2009).

The second dimension of conditions in Table 2 that promote or hinder collective action by governments, which are the focus of the analysis in this research, contain factors that affect the extent to which payoffs to individual governments and their preference about collective action diverge from each other or are asymmetrical. The more that payoffs or preferences conflict among participants, the less likely they are to find common ground on which to forge and sustain a voluntary agreement (Heckthorne and Maser, 1987). For instance, a collective action problem that resembles a zero-sum game among participants is not likely to generate collective action because the benefits to one or more participants will equal the costs to other participants (Steinacker, 2004). On the other hand, economic and demographic homogeneity across governments in a metropolitan region will result in more common interests and services

preferences (goal convergence) that expand the range of acceptable outcomes among them and make cooperative agreements more likely (Lubell et al. 2002; Amirkhanyan, 2009). Such conditions will also reduce the costs associated with forging and sustaining cooperative arrangements, especially with respect to the division of the joint payoffs (Maser, 1998; Fieock et al., 2010).

As explained subsequently, the link between fragmentation and divergence of preferences is due to the sorting of populations into homogenous jurisdictions that are relatively diverse within the region. Based on the seminal work by Charles Tiebout (1956), competition is an important factor in the fragmentation and sorting of populations in a metropolitan region that can be viewed as market place where residents and businesses shop for local governments that best satisfy their preferences for public goods and services and their ability to pay (Oates, 1972; Oates and Schwab, 1991; Wilson, 1999). Assuming citizens and businesses within a region have very different preferences for goods and services, the presence of numerous differentiated governments, such as exist in a fragmented system of local government, give citizens many different governments to choose from compared to a consolidated system that offers fewer options to customers (Stein, 1990b). Also assuming that businesses and residents are mobile or that the resources generated by them are mobile, and that they have knowledge of the revenue and spending packages provided by the governments, then there will be competition (Stein, 1987; Dowding and Biggs, 1995). Such competition compels governments to produce and allocate goods and services more efficiently and insures that citizens preferences are satisfied (Kenyon, 1997).

There are others who argue, however, that having a large number of differentiated and specialized local governments does not by itself insure there will be allocative and productive efficiency (Brennan and Buchanan, 1980). Governments also must have authority and autonomy over matters affecting their decisions about the provision and production of goods and services. With respect to local governments, decision making over these matters should be decentralized from state governments to local governments with the latter having much discretion over their structure, functioning, and finances, and also more responsibility for delivering and financing services within the state. On the other end of the continuum, states-local relations that are centralized limit local discretion and assume greater responsibility for delivering local services.

In many cases centralized state-local systems are also more paternalistic and intrusive towards local government.

As describe here, fragmentation and decentralization of governing structures promote competition between governments, but so does the mobility of economic resources that are available to them. For instance, sales taxes that are generated by enterprises located within a jurisdiction can easily transfer to other jurisdictions if the enterprise moves, which may also lower the property taxes received from the parcel of land on which the enterprise was located (Schneider, 1989). Shoppers can also easily move their transactions to a different location to avoid higher costs and better satisfy their preferences. Thus, it is not surprising that competition between local governments is often greatest in the area of economic development (Feiock, 2002; Johnson and Neiman, 2004) and where local governments can levy sales taxes or receive sales taxes from state government based on transactions within their boundaries (Propheter, 2011; Collins, 2006).

Sales taxes are also very desirable because they allow governments to rely less on property taxes that are not popular among voters (Sjoquist et al., 2005; Hendrick, 2011), and new development can increase property taxes and development fees to a local government greatly. Thus, competitive interactions between local governments involving sales tax enterprises and new development can often be intense. Furthermore, development often produces negative spillovers to surrounding governments in the form of higher traffic, more flooding, and loss of public space that can increase conflict between governments that benefit from development and those who are negatively affected by it (Boyne, 1992b; Feiock, 2010; Howell-Moroney, 2008).

With respect to different types of collective action, conditions such as competition, autonomy, and fragmentation are expected to make voluntary forms of collaboration between local governments more difficult<sup>7</sup> (Olberding, 2002b; Peterson, 1981) by promoting self interest (Basolo, 2003), lessening the trust between them (Collins, 2006), and increasing the likelihood of defection and opportunism (Feoick et al., 2010). However, others would argue that competition should increase some types of collective action. If competition drives local governments to deliver public goods more cheaply and collective action improves efficiency, then competition should lead to more collective action between governments, especially for goods that have

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<sup>7</sup> Hence, these conditions will decrease the likelihood of more difficult agreements from Table 1 forming

appropriate scale economies (Krueger and Bernick, 2010; Shrestha and Feiock, 2011) and as fiscal stress increases.

Research on other sectors also reveals that organizations enter into cooperative relations with competitors to reduce environmental uncertainty or to exercise control over another organization and its resources (Feiock, 2002). When applied to the public sector, this logic suggests that local governments will be motivated to enter inter agreements that reduce the costs of competition, uncertainty, and negative spillovers in circumstances where competition is greater. Indeed, research has found that cooperation between governments occurs often in the provision and production of economic development (Goetz and Kayser, 1993; Gordon, 2009). Some even argue that contracting, collaborating, and networking between local governments are much more likely to occur in large fragmented regions because there are more opportunities to do so (Thurmaier and Wood, 2002; Post, 2004).

There is, however, another important factor linked to competition and fragmentation that is likely to create divergent preferences between government populations and decrease collective action between governments. Based on Tiebout's (1956) arguments, others have claimed that metropolitan regions with these characteristics will have populations that are highly sorted by jurisdiction on socio-economic characteristics that are important to location decisions. Over time, competition among fragmented governments will result in residents and businesses sorting themselves into jurisdictions within the region that have characteristics similar to their own as they move to their preferred local government (Stein, 1987; Dowding et al., 1994; Howell-Moroney, 2008; Weiher, 1991). Thus, populations in regions that are more fragmented and competitive will become more concentrated or homogenous within local governments and segregated or heterogeneous across local governments compared to regions that are less fragmented and competitive.

The problems associated with forging and sustaining collective action among local governments of disparate wealth and high autonomy are well known (Ostrom, 1990; Ostrom and Whitacker, 1978). Some governments in a metropolitan region can afford to spend lavishly for services such as police, while others may struggle to provide even basic services. Such unequal fiscal capacity often creates strong opposing preferences between governments and, especially in circumstances where government autonomy is high, suppresses the formation of voluntary solutions to collective action dilemmas. For instance, wealthy citizens derive less benefit from

mass transit if they can easily drive to destinations in nice automobiles, and they may not appreciate the access that mass transit gives nonresidents to their communities. On the other hand, poor people and businesses in poor jurisdictions are likely to depend on mass transit for employment and commerce.

The problem for collective action in this situation is that wealthy governments are not likely to contribute to regional mass transit voluntarily because it will require redistributing resources from their citizens to poor governments (Peterson, 1981; Oakerson, 1999, 94-100). In fact, much of the force behind arguments that advocate centralized solutions to regional problems is based on claims that voluntary collective action is not possible when populations and governments have greatly unequal fiscal or growth capacities (Downs, 1994; Rusk, 1995). Others note that governments that are less wealthy or smaller also have less incentive to partner with those that are more wealthy or larger due to a perceived lack of leverage and fear of being overwhelmed by the process and not receiving a fair share of gains from the agreement (Feiock et al., 2010; Collins, 2006) .

This section has explained how macro level conditions from Table 2 can affect collective action between local governments in metropolitan regions and identifies several factors that could be examined to predict the likelihood and distribution of different forms of collective action in the US. These factors are fragmentation of local government in a metropolitan region, population sorting within a metropolitan region, decentralization of state-local relations, and dependence on competitive revenue streams. The next section describes how these macro-level factors are operationalized and assessed for different states and metropolitan regions in the US and presents the results.

### **Conditions Affecting Collective Action in Metropolitan Areas and States in the US**

This section describes in detail how fragmentation and population sorting are measured for the 51 largest metropolitan regions in the US. It also describes how decentralization in state-local relations and dependence on competitive revenue streams are assessed for local governments in the 50 US states. Applying these measures to the metropolitan regions in the analysis provides a basis for predicting where collective action is most likely and least likely to occur because of competition, conflict, and divergent interests between governments. The data used to generate these measures come from the following sources: US Census Bureau 2010 decennial census (population); US Census Bureau 2000 decennial census (square miles of

county); US Census of Governments 2007 (number of local governments and spending and revenue of state and local governments).

### *The Structure of Inter-Local Systems of Government*

The measures of fragmentation used here follow the work of Boyne (1992a). His scheme distinguishes between *fragmentation versus consolidation* (FC) of local government structure and *dispersion versus concentration* (DC) of the provision and production of goods and services. Also similar to Boyne, the measures used here distinguish between vertical and horizontal dimensions within each of these continuums.<sup>8</sup> Table 3 shows the different measures of these two continuums that are examined here, and Appendix A shows the basic calculations for some of these measures and others employed in this section.<sup>9</sup>

[TABLE 3 ABOUT HERE]

On the horizontal dimension, FC refers to the number of governments in a system or region, the number of governments standardized by population or other factors, and the number or percent of specific governments. In the last case, the size of central city or major cities in a metropolitan region compared to other local governments can be used to assess how consolidated local government is into a few governments. On the vertical dimension, FC refers to the extent to which local governments overlap with each other and the number of tiers of government. For instance, Illinois has the highest number of local governments (6994 as of 2007) compared to other states. Therefore, one can claim that it has the most totally fragmented system of local government in the US. However, when standardized as per capita, North Dakota is the most fragmented with 42.3 local governments per 10,000 population compared to Illinois, which is 15<sup>th</sup> from the top, with only 5.5 local governments per 10,000 population. Illinois also contains all the types of local governments generally recognized in the US (counties, townships, municipalities, and special districts of many kinds) and has a relatively high number of special purpose governments compared to other states with no townships and few special districts.<sup>10</sup> Thus, local government in Illinois also could be described as vertically fragmented.

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<sup>8</sup> These definitions are more general than what is specified by Boyne. See Hamilton, et al. (2004) also.

<sup>9</sup> See Hendrick et al., 2011 for a more complete explanation of the measures in Table 3, the continuums, and the dimensions.

<sup>10</sup> General purpose governments are counties, municipalities, and townships that provide multiple services. Special purpose governments are special districts and school districts that provide only one service.

The DC continuum as applied to the financing and production of services by local governments or between the state and local governments refers to the extent to which fiscal authority (provision) and service delivery responsibility (production) are dispersed or concentrated. Vertical DC is the same as decentralization versus centralization discussed in the next section, and denotes the extent to which fiscal authority and/or service delivery responsibility is concentrated at the state (top) or local level (bottom). Within states or regions, however, general purpose local governments, especially counties that are larger, can be viewed as in a higher tier compared to special purpose local governments that are in a lower tier.

Horizontal DC denotes whether service delivery or spending is concentrated within a few governments, or dispersed over many governments at the same level. For instance, a metropolitan region in which the central city dominates the land area, service responsibilities, and revenues collected compared to all other municipalities is more concentrated than one in which service delivery and revenue collection are dispersed among many municipalities.

Appendix C shows the calculations for all six measures of the fragmentation–consolidation continuum from Table 3 for metropolitan regions in the US with populations greater than 1 million people.<sup>11</sup> Table 4 shows these six measures summarized according to two methods—the sum of the rankings and the sum of the Z scores of individual measures in Appendix C.

Table 4 shows that, for the most part, fragmented regions tend to be older, industrial regions in the Midwest and eastern portions of the US. Examining each column of numbers in the table shows the following five metropolitan regions as being the most fragmented according to both scales: Pittsburgh, St. Louis, Chicago, Philadelphia, and Cincinnati. Of those regions, Chicago is the largest. Other metropolitan regions in the top ten of both scales in Table 6 are Boston, Rochester (NY), San Francisco, and Cleveland. The regions in the bottom five of both scales include Charlotte, Greensboro, Raleigh, and Washington, DC. Other regions that are in the bottom ten of the fragmentation scales include Memphis, Norfolk, Nashville, and Las Vegas.

[TABLE 4 ABOUT HERE]

Appendix D show measures 7 to 12 from Table 3 for the same metropolitan regions, which assesses fiscal dispersion–concentration of governments at the local level only. Table 5 shows the sum of the rankings and the sum of the Z scores of individual measures in Appendix D and

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<sup>11</sup> The counties that are included in these regions are designated somewhat differently than the US Census Bureau. Appendix B explains how metropolitan regions are defined and which counties are included or excluded from the Census definitions.

reveals there are four regions that are in the top five of both summary scales in Tables 5-- St. Louis, Chicago, Salt Lake City, and Pittsburgh. Of these four regions, St. Louis, Chicago, and Pittsburgh are in the top five in both Tables 4 and 5. Dallas and Seattle are in the top ten of regions that are most fiscally dispersed according to both scales in Table 5, but neither of these regions is very fragmented according to Table 4. Thus, Chicago is noteworthy here because it is very large in terms of population, its local governments are very structurally fragmented, and it is fiscally diverse. Consistent with Table 4, the following regions are the least fiscally dispersed in Table 5: Greensboro, Richmond, Baltimore, Memphis, Nashville, Washington DC, Norfolk, and Raleigh.

[TABLE 5 ABOUT HERE]

### *The Structure of State-Local Government Relations*

One way of summarizing the nature of state-local relations described here is on a continuum of state control versus local autonomy (Stephens, 1974). More generally, state-local relations can be described as *centralized*, in which the state limits local discretion in different revenue and spending and assumes greater responsibility for local government. On the other end of the continuum, state-local relations can be *decentralized* in which the state gives local government greater discretion over their structure, functioning, finances, and other matters, but also gives local government more responsibility for delivering and financing local services and resolving their own problems. On one end, state governments are paternalistic and intrusive towards local government, on the other end they have a hands-off approach and allow local government many privileges. In between, state-local relations take a variety of forms that mix centralized and decentralized features to achieve a balance of power that meets their needs and reflects political and socio-economic historical trends within the state.

There are many ways of measuring state-local relations on a centralized-decentralized continuum (Stephens, 1974; Stephens and Wikstrom, 2000; Zimmerman, 1995), but these approaches have some common features. They all include an assessment of whether the source of revenue and responsibility for expenditures is state or local government. Table 6 shows the three measures of state-local decentralization that are in Table 3 (13 to 15) for all 50 states in the US with the rankings of the three measures summed for each state in the right-hand column and

sorted by level of decentralization.<sup>12</sup> The table shows that the states with the top 5 levels of decentralization of state-local fiscal relations are Colorado, Florida, Nebraska, Tennessee, and Texas with Illinois being the 7<sup>th</sup> most decentralized state. Vermont, Delaware, West Virginia, New Mexico, and Arkansas have the most centralized state-local relations with Virginia, Maryland, and North Carolina (states that contain consolidated and concentrated metropolitan regions) are in the middle of the rankings in Table 6.

[ TABLE 6 ABOUT HERE]

*Population Sorting: Divergence of Preferences and Interests*

Appendix E shows five measures of population sorting according to education, race (percent white), Hispanic population, income, and poverty in 2000. Two of the features—education and income—are measured using an index of homogeneity or concentration that is usually applied at the block or neighborhood level of metropolitan regions (Pack and Pack, 1977; Stein, 1987).<sup>13</sup> For this research the index is applied at the place level that measures demographic and economic features of populations within municipalities and census designated places (CDP). Municipalities and CDPs to a lesser degree are often the most competitive local governments outside of counties, especially with respect to economic development, and municipalities reflect important boundaries within which populations are most likely to segregate (Lewis, 1996).<sup>14</sup>

Three of the indicators in Appendix E use the coefficient of variation to measure population sorting instead of the index and also calculate the coefficient for all CDPs within the metropolitan region. As in previous tables, Table 7 shows the combined indicator of the five measures of population sorting in Appendix E scaled according to the sum of rankings and Z-scores separately. The table shows that Chicago, New York, St. Louis, Washington, DC, Louisville, and Memphis have the most sorted populations across municipalities. Norfolk, Las Vegas, and Portland are among the least sorted metropolitan regions. Buffalo, Greensboro,

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<sup>12</sup> *Source:* Calculations based on downloadable data available from the US Census Bureau, *2007 Census of Governments, State by Type of Government—Public Use Format* ([http://www.census.gov/govs/estimate/historical\\_data\\_2007.html#state\\_local](http://www.census.gov/govs/estimate/historical_data_2007.html#state_local)).

<sup>13</sup> See Appendix A for explanation of the basic equation used to calculate this index.

<sup>14</sup> Populations are also likely to segregate according to school district boundaries, but municipal and school district boundaries are often coterminous.

Jacksonville, and Sacramento are other regions with relatively homogenous population characteristics across municipal boundaries.

[TABLE 7 ABOUT HERE]

*Mobility of Resources: Sales Tax Competition*

The mobility of governments' financial resources, such as sales taxes, cannot be measured directly but must be inferred from conditions that are likely to increase tax competition. With respect to sales taxes levied by local governments, one can look at the number or percentage of local governments with sales taxes and the extent to which they rely on them. The more local governments within a metropolitan region that levy a sales tax and the more that these governments rely on this source of revenue, the greater the competition between them to attract sales tax generating enterprises. To assess this feature, one must consider whether state government allows local governments, especially municipalities, to levy a sales tax and also whether states distribute some portion of their sales taxes to local government based on point of sale. If the state distributes sales taxes to local government based on point of sale, then the competitive effects are similar to having the privilege of levying a local sales tax. States can also distribute sales taxes by population or need, but this allocation method dampens competitive incentives.<sup>15</sup>

Table 8 shows how competitive pressures related to general sales taxes are likely to be distributed among municipalities within the 51 largest metropolitan regions in the US based on several criteria. The first column shows the total number of municipalities in each region (by state). The second column shows the percent of municipalities in the region that either levy a sales tax according to the Census of Governments or receive sales taxes from state government according to a point of sale study done by the Committee on Finance and Tax for the Florida Senate (2006).<sup>16</sup> The last column in the table shows information on whether the states in which the region is located share (or do not share) sales taxes with municipalities, whether the distribution is based on point of sale or other criteria, and other information about state and local sales taxes. The third column in the Table 8 shows the extent to which municipalities in the region rely on sales taxes measured as the median percent general sales taxes of own-source

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<sup>15</sup> Lewis and Barbour (1999) document the competitive effects of point of sale distribution of sales taxes to California cities.

<sup>16</sup> Data from the Census and information from the Florida study were adjusted and supplemented with information from government websites about local sales taxes and state distribution of sales taxes to local governments.

revenues among governments that have a sales tax. The fourth column shows the average local sales tax rate for all local governments in the states in which the region is located as determined by The Tax Foundation (Padgitt, 2010) and adjusted to include the rate of sales taxes distributed by states to municipalities that are based on point of sale.<sup>17</sup> Finally, regions in the table are sorted first by the percent of municipalities with sales taxes and second by the median reliance on sales taxes by municipalities in the region.

[TABLE 8 ABOUT HERE]

Table 8 shows the extent to which competition among municipalities for sales tax resources is most prevalent in regions in the western states, especially Phoenix, Oklahoma City, and Denver where all municipalities rely on sales taxes to a great degree relative to other regions. Additionally, the vast majority of municipalities in Chicago, New Orleans, Birmingham, and Kansas City also levy a sales tax and rely on them to a great degree. By comparison, all the municipalities in the metropolitan regions in California and Texas also receive sales taxes, but they do not rely on them as greatly. The bottom of the table shows metropolitan regions in which municipalities receive no general sales taxes.

### **Discussion and Conclusion**

What can we conclude from all this evidence about the prevalence of collective action between local governments in large metropolitan regions and the form this action is likely to take? Can we also make inferences about competitive and non-cooperative forms of interaction between local governments, especially municipalities that are likely to exist in these regions? Although there seem to be similar trends in regions at the top and the bottom of Tables 4, 5, and 7, the ranking of states in Table 6 is not very consistent with the patterns in the other tables. In fact, correlations of the rankings in Tables 4 -7 show that fragmentation is correlated at .55 with dispersion and at .30 with population sorting (rankings in table 6 are distributed to the region based on its predominate state). However, none of these three variables is associated with decentralization. Thus, if we sum the rank orders of the metropolitan regions in the four tables (from the Z scores) and consider the region's competitiveness from Table 8, it produces a distribution that is different from the individual rankings and provides some interesting results.

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<sup>17</sup> Illinois distributes a 1 percent rate to all municipalities but allows home rule governments to levy their own local option sales tax. Also, the average local rate in this column includes counties and other local governments.

First, the St. Louis and Chicago regions are predominant in their high levels of fragmentation, dispersion, population sorting, and state-local decentralization combined compared to the other 49 regions, and these two regions are relatively competitive with respect to sales taxes. Denver ranks lower on most of these four variables than St. Louis and Chicago, but it too is highly competitive according to Table 8. San Francisco, Atlanta, Cleveland, Houston, Miami, and Salt Lake City also rank high in the four tables and, of these, San Francisco and Houston are also fairly competitive. Regions that rank the lowest on Tables 4-7 combined are Greensboro, Norfolk, Raleigh, New Orleans, Charlotte, Oklahoma City, Richmond, Baltimore, Jacksonville, and Nashville. However, of these, Oklahoma City is quite competitive with respect to sales taxes, and Norfolk and Baltimore are relatively competitive.

Table 2 in this study indicates that many factors affect collective action among governments and not just those examined here, and Table 1 demonstrates the numerous forms that collective action can take. Thus, it would be somewhat naïve to predict different forms that collective action might take in these regions without having knowledge of all factors in the regions that could affect such action. However, it does seem reasonable to expect that voluntary collective action in the form of multilateral agreements that are in the middling or hardest sections of Table 1 are least likely to occur in St. Louis, Chicago, Denver, San Francisco and the other regions in this group, all other factors in Table 2 being equal. One might also expect more difficult forms of collective action between local governments, such as service contracting or even consolidation, to be bilateral in these regions, and the multilateral agreements that do exist to be primarily informal. By comparison, there should be a greater prevalence of more difficult forms of voluntary collective action among multiple local governments in the group of metropolitan regions that are less competitive and at the bottom of the rankings in Tables 4 -7.

Although Denver, San Francisco, and Miami have consolidated forms of government, these structures were put in place many years ago and don't really reflect current conditions in the region. With respect to Chicago, the region and state have a reputation for lack of intergovernmental cooperation (Gove and Nowlan, 1996, 150-153; Wandling, 2001) and a study of cooperation among local governments in central Illinois in the area of economic development documents significant obstacles to cooperation that curtail such efforts by these government even though officials express a willingness to cooperate and an understanding of its benefits (Gordon, 2007). Other studies have documented the role of the region's councils of governments in

facilitating cooperation among local governments in the Chicago region (Lindstrom 1997, 2010), but the collaboration here is primarily informal. These councils exist primarily to develop informational networks among member governments, lobby state government, and provide selected internal services to member governments. None of these councils have been given authority to deliver core services or make policy decisions over common dilemmas such as planning and economic development as has happened in other states and regions.

Of the ten regions that are least fragmented, dispersed, sorted, and centralized (minus Oklahoma City), three have central city-county consolidation structures and two have attempted to pass multiple referendums to consolidate the central city and county within the last 40 years (NACO, 2011). While the desire to consolidate local governments is not a valid indicator of the level and degree of voluntary collective action in these regions, it is suggestive that there may be more multilateral collaboration or more middling forms of collaboration among local governments in these regions than in regions with no record of such efforts. One might also expect to find more voluntary collaboration between local governments in these ten regions in core service areas and not just support services as exists in the Chicago region.

Collaboration among local governments is being promoted heavily by professional associations such as National League of Cities, Government Finance Officers Association, and the International City/County Managers Association as a way of increasing efficiency and addressing collective regional problems due to sprawl and local disparities. This study has also demonstrated the tremendous amount of research and interest that this topic has generated in the academy. Understanding where local governments are more likely and least likely to engage in collective action is very useful in debates over how to promote collective action in the US, and it is also useful to future research on collective action. Most studies of collective action in the US are limited by the fact that there is no central repository of comprehensive data about collective agreements between local governments, although a few states collect such information about their own local governments. Rather, research on this subject is restricted to what can be obtained from surveys and cases studies that either limits the number of events that can be observed or the number of cases that can be examined (Andrew, 2009). To the extent that research on collective action looks across metropolitan regions and different states, however, the systematic differences in conditions that promote or hinder such action at these level must be recognized to fully explain what is observed at a national level.

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**TABLE 1**

**COLLABORATIVE APPROACHES TO SERVICE DELIVERY**

<b>EASIEST- preserve autonomy and maintain existing governments</b>
Informal cooperation and policy networks- with no fiscal contributions, most common Regional councils of government- associations created by governments to facilitate cooperation, promote common goals, and sometimes provide support services to member governments Joint power agreements and adaptive agreements- for the provision (financing) and production of services within jurisdictions Interlocal service contracts- formal agreements, used more in metropolitan areas than rural areas Franchising of services
<b>MIDLING- creation of new governments or changing the boundaries and authority of existing governments</b>
Transfer of services- to a new special district or an existing government Annexation of governments Consolidation of two or more governments of the same type (e.g. school districts) or dissolving of a government (e.g. unincorporation of a municipality) Regional special districts or authorities Regional multipurpose districts Reformed urban county- counties that provide regional services
<b>HARDEST- impose obligations and creation of consolidated governments</b>
Consolidation of a major city and county Tiered restructuring of local functions in a region

Adapted from Walker (1987) and Feiock, Richard C. and John T. Scholz (2010, ). Also, see Stephens and Wikstrom (2000, 123-124).

## TABLE 2

### Conditions That Promote or Hinder Voluntary Collective Action

- 1) Payoffs: Benefits – costs of resolving a collective dilemma
  - Individual and joint payoffs for all parties combined
    - Economies of scale
    - Production function (shape, step-level)
    - Severity of the problem
    - Environmental risk
  - Transaction and agency costs
    - Trust and risk of opportunism
    - Sanctions
    - Outcome measurability
    - Asset specificity
    - Transition and compatibility costs: financial, operational, organizational, and cultural
  
- 2) Divergence of participants' interests, preferences, and payoffs
  - **Macro-level structure**
    - **Fragmented governance (horizontal)**
    - **Decentralized/ centralized governance (vertical)**
    - **Population sorting (heterogeneity)**
    - Number of participants and dispersion / concentration
  - Interaction among participants
    - Negative and positive spillovers
    - **Flow and mobility of economic resources**
  
- 3) Process and rules of operation
  - Governing institutions and rules
    - Ease of exit
    - Autonomy of parties
    - Obligations imposed
    - Collective decision rules, e.g. majority rule or unanimity
  - Interaction among participants
    - Strength / equality of bargaining position
    - Existence and skills of leaders and champions

**TABLE 3**

**Measures of Fragmentation-Consolidation and Fiscal Dispersion-Concentration of Local Government<sup>1</sup>**

<b>FRAGMENTATION – CONSOLIDATION</b>		
<b>Horizontal</b>	1	1) Total number of local governments 2) Total local governments per capita (political fragmentation) 3) Total local governments per square mile (spatial fragmentation) 4) <i>HH indices</i> of percent of different types of local government 5) Percent central city (a) population or (b) per square miles in a region
<b>Vertical</b>	2	6) Ratio or percent of special /general purpose to general / special purpose governments
<b>FISCAL DISPERSION – CONCENTRATION</b>		
<b>Horizontal</b>	3	7) <i>HH indices</i> of percent spending or revenues by each local government of total local government spending or revenues: 2 8) <i>HH indices</i> of percent spending or revenues across types of local government 9) <i>HH indices</i> of percent spending or revenues by each local government of one type of total local government spending or revenues of that type: 2
<b>Vertical: Local only</b>	4	10) Percent special / general purpose spending or revenues of total local spending or revenues (special / general purpose share of responsibility for total local services) 11) Percent county spending or revenues of total local spending or revenues (county government share of responsibility for total local services in a region) 12) Percent spending or revenues of central city of total local spending or revenues ( central city share of responsibility for total local services in a region)
<b>Vertical: State - Local</b>	5	13) Percent local operational spending of state plus local spending (local share of responsibility for production of state and local services within a state) 14) Percent local revenue of state plus local revenue minus state aid (local share of responsibility for provision of state and local services within a state) 15) Percent of local revenues coming from state government- state aid (how much the state assists local government with funding local services)

1: See Appendix A for explanation of HH indices

2: These events could also be measured using standard deviations or coefficients of variation of these amounts calculated as per capita, per square miles, or per \$ personal income.

**TABLE 4**  
**Combined Indicators of Fragmentation**  
**Metropolitan Regions > 1 Million Population, 2007<sup>1</sup>**

Sum of Rankings of Measures in Appendix C, 2		Sum of Z-scores of Measures in Appendix C, 3	
St. Louis	60	Pittsburgh	5.86
Pittsburgh	62	St. Louis	5.28
Cincinnati	69	Chicago	5.02
Chicago	73	Philadelphia	3.16
Philadelphia	85	Cincinnati	2.75
Boston	87	New York	2.52
Rochester	88	Rochester	2.38
San Francisco,	88	Cleveland	2.27
Cleveland	91	San Francisco	2.18
Denver	91	Boston	2.12
Hartford	91	Hartford	2.03
Milwaukee	91	Grand Rapids	1.90
Kansas City	96	Denver	1.88
Buffalo	100	Milwaukee	1.84
Grand Rapids	100	Indianapolis	1.74
Indianapolis	100	Kansas City	1.68
Detroit	102	Greenville	1.46
Greenville	103	Buffalo	1.26
Sacramento	109	Detroit	1.17
Houston	116	Sacramento	0.89
Seattle	116	Seattle	0.81
New York	117	Minneapolis	0.64
Minneapolis	120	Louisville	0.48
Tampa	122	Salt Lake City	0.24
Atlanta	123	Atlanta	0.19
Portland	125	Portland	0.18
Columbus, OH	127	Houston	-0.06
Louisville	127	Los Angeles	-0.12
Salt Lake City	131	Birmingham	-0.18
Miami	133	Tampa	-0.30
Birmingham	135	Columbus, OH	-0.37
Oklahoma City	136	Orlando	-0.46
Orlando	138	Miami	-0.50
Dallas	140	Oklahoma City	-0.77
Los Angeles	143	Phoenix	-0.82
Austin	147	Dallas	-0.86
Phoenix	156	Austin	-1.09
San Diego	156	San Diego	-1.23
San Antonio	158	Richmond	-1.73
Jacksonville	168	New Orleans	-2.10
New Orleans	169	Nashville	-2.79
Richmond	175	San Antonio	-2.86
Nashville	177	Las Vegas	-2.98
Memphis	184	Baltimore	-3.04
Las Vegas	189	Norfolk	-3.44
Norfolk	192	Memphis	-3.77
Washington	193	Jacksonville	-4.08
Baltimore	197	Raleigh	-4.13
Raleigh	208	Washington	-4.13
Greensboro	211	Greensboro	-4.94
Charlotte	215	Charlotte	-5.18

- 1: Indices are placed in the same direction before summing.
- 2: Lower numbers are higher fragmentation
- 3: Higher numbers are higher fragmentation

**TABLE 5****Combined Indicators of Fiscal Dispersion and Concentration  
in Metropolitan Regions > 1 Million Population, 2007<sup>1</sup>**

Sum of Rankings of Measures in Appendix D, 2		Sum of Z-scores of Measures in Appendix D, 3	
Salt Lake City	56	Salt Lake City	4.74
St. Louis	65	St. Louis	4.48
Atlanta	74	Chicago	<b>4.35</b>
Chicago	<b>75</b>	Pittsburgh	4.13
Pittsburgh	76	Atlanta	4.11
Portland	91	Greenville	3.81
Dallas	100	Portland	3.56
Detroit	102	Dallas	3.44
Seattle	105	Seattle	3.32
Orlando	108	Denver	3.31
Phoenix	109	Phoenix	3.30
Cincinnati	110	Detroit	3.27
Greenville	110	Orlando	3.22
Los Angeles	111	Los Angeles	3.16
Boston	112	Cincinnati	3.11
Denver	113	Birmingham	2.98
Sacramento	116	Cleveland	2.96
Birmingham	118	Houston	2.94
Grand Rapids	118	Sacramento	2.94
Cleveland	121	Columbus, OH	2.85
Minneapolis	121	Grand Rapids	2.78
San Francisco	126	Minneapolis	2.71
Miami	127	San Francisco	2.69
Columbus, OH	128	San Diego	2.65
Houston	128	Miami	2.38
San Diego	128	Boston	2.35
Milwaukee	137	Milwaukee	2.27
Austin	141	Austin	1.39
Hartford	142	Philadelphia	1.36
Philadelphia	156	Kansas City	1.24
Tampa	158	Louisville	1.21
Kansas City	160	Tampa	0.97
Louisville	163	Hartford	0.67
Indianapolis	177	Indianapolis	0.41
Oklahoma City	189	Rochester	-0.49
Rochester	195	San Antonio	-1.00
San Antonio	198	Buffalo	-1.09
Buffalo	202	Oklahoma City	-1.26
New Orleans	207	New Orleans	-1.34
New York	209	Charlotte	-2.85
Jacksonville	222	Las Vegas	-4.68
Charlotte	223	Jacksonville	-5.30
Raleigh	225	Raleigh	-5.55
Norfolk	229	New York	-5.95
Las Vegas	231	Norfolk	-6.83
Memphis	266	Washington	-8.10
Nashville	266	Nashville	-8.58
Washington	267	Baltimore	-10.11
Greensboro	278	Richmond	-10.23
Baltimore	283	Memphis	-10.30
Richmond	284	Greensboro	-11.39

- 1: Indices are placed in the same direction before summing.
- 2: Lower numbers are higher dispersion
- 3: Higher numbers are higher dispersion

**TABLE 6**  
**Decentralization of State-Local Fiscal Relations, 2007**

	% Local Op. Spend of State + Local *		% Local Rev of State + Local Rev (- state IGR) *		% Local Revenue from State (not Own-Source)			Sum of Rankings 1
	%	rank	%	rank	%	rank		
Alabama	56.3	27	39.2	36	29.8	31	Colorado	142
Alaska	34.5	2	20.3	2	31.1	25	Florida	142
Arizona	61	39	42.9	40	32.3	21	Nebraska	142
Arkansas	45.9	11	23.5	6	48	3	Tennessee	140
California	66.8	49	42.6	39	39.5	8	Texas	133
Colorado	64.6	46	51	49	20.5	47	Georgia	128
Connecticut	50.2	18	34.5	18	27.7	35	Illinois	126
Delaware	37.2	3	21.7	5	41.5	4	Nevada	116
Florida	66.7	48	51.6	50	22.7	44	New York	113
Georgia	61.7	43	45.7	44	25.9	41	Missouri	110
Hawaii	19.6	1	20.8	3	7.5	50	Washington	108
Idaho	54.9	24	33.4	17	37.4	10	Kansas	103
Illinois	61.8	44	45.6	43	26.4	39	Arizona	100
Indiana	59.4	36	38.1	29	31.8	22	South Dakota	98
Iowa	56.2	26	38.6	31	30.2	27	California	96
Kansas	59.6	37	41.7	38	29.9	28	Maryland	95
Kentucky	42	7	29.4	12	33.3	17	Alabama	94
Louisiana	48.6	14	32.5	15	28.8	33	Oregon	91
Maine	41.7	6	28.4	9	31	26	Indiana	87
Maryland	53.4	22	39.1	33	25.9	40	New Jersey	85
Massachusetts	50.1	17	33.4	16	33.6	16	Virginia	85
Michigan	60.2	38	35.2	20	40.1	6	Iowa	84
Minnesota	57.6	31	34.8	19	40.1	5	New Hampshire	82
Mississippi	48.6	13	29.3	11	37	11	Ohio	82
Missouri	57.3	30	41.6	37	24.4	43	South Carolina	80
Montana	47.9	12	28.2	8	34.3	14	Utah	80
Nebraska	63.1	45	49.7	48	17.6	49	North Carolina	73
Nevada	69.7	50	48.7	47	32.8	19	Connecticut	71
New Hampshire	53.2	21	37.3	27	28.2	34	Wisconsin	71
New Jersey	54.7	23	37.3	26	27.3	36	Pennsylvania	68
New Mexico	42.1	8	23.6	7	48.1	2	Wyoming	68
New York	61.5	41	44.7	42	29.8	30	Michigan	64
North Carolina	56.5	28	37.3	25	32.4	20	Louisiana	62
North Dakota	45.3	9	28.7	10	29.8	29	Minnesota	55
Ohio	59.1	34	39.2	35	34.6	13	Rhode Island	55
Oklahoma	49.7	16	31.2	14	32.9	18	Hawaii	54
Oregon	58.4	33	39.2	34	31.3	24	Idaho	51
Pennsylvania	55.7	25	38.1	28	33.7	15	Massachusetts	49
Rhode Island	45.7	10	31.2	13	28.8	32	North Dakota	48
South Carolina	48.9	15	36	23	25.7	42	Oklahoma	48
South Dakota	52.2	20	39.1	32	22.4	46	Maine	41
Tennessee	64.8	47	46.4	45	20.2	48	Kentucky	36
Texas	61.7	42	47.2	46	22.5	45	Mississippi	35
Utah	50.4	19	36.7	24	26.6	37	Montana	34
Vermont	41.5	5	15.7	1	60.4	1	Alaska	29
Virginia	57.7	32	38.3	30	31.3	23	Arkansas	20
Washington	56.6	29	44.4	41	26.5	38	New Mexico	17
West Virginia	41.5	4	21.5	4	39.9	7	West Virginia	15
Wisconsin	61.1	40	36	22	39.3	9	Delaware	12
Wyoming	59.2	35	35.7	21	35.3	12	Vermont	7

1: higher rankings are more decentralized

**TABLE 7****Combined Indicators of Population Variation / Sorting in Census Designated Places in the 50 Largest Metropolitan Regions, 2000**

Sum of Rankings of Indices in Appendix E, 1		Sum of Z-scores of Indices in Appendix E, 2	
Chicago	45	St. Louis	8.14
New York	47	Washington, DC	6.70
St. Louis	52	New York	5.91
Washington, DC	52	Chicago	4.85
Louisville	55	San Francisco	4.16
Cleveland	61	Louisville	4.08
Memphis	70	Memphis	3.87
Miami	75	Miami	3.77
Philadelphia	77	Birmingham	3.09
San Francisco	80	Cleveland	2.70
Denver	81	Denver	2.69
Houston	86	Boston	2.37
Phoenix	92	Phoenix	2.20
Birmingham	93	Houston	1.44
Detroit	95	Philadelphia	1.40
Boston	101	Austin	1.40
Columbus	103	Hartford	1.37
Hartford	103	Detroit	1.20
San Antonio	111	Atlanta	0.81
Tampa	111	Tampa	0.41
Kansas City	112	Columbus	0.34
Los Angeles	113	San Antonio	0.23
Orlando	115	Orlando	0.13
Milwaukee	118	Los Angeles	0.10
Austin	119	Kansas City	0.09
Atlanta	121	Indianapolis	0.07
Cincinnati	124	Dallas	-0.10
Indianapolis	128	Milwaukee	-0.20
Raleigh	132	Cincinnati	-0.32
Dallas	138	Oklahoma City	-0.80
Oklahoma City	141	Charlotte	-0.99
Charlotte	145	Richmond	-1.07
Richmond	146	Baltimore	-1.25
Baltimore	151	Raleigh	-1.30
Pittsburgh	161	Salt Lake City	-1.62
Grand Rapids	166	Minneapolis	-2.08
Nashville	166	Nashville	-2.26
Salt Lake City	167	Seattle	-2.38
New Orleans	168	New Orleans	-2.64
Rochester	177	Pittsburgh	-2.78
Greensboro	181	San Diego	-2.96
Sacramento	188	Grand Rapids	-3.19
Buffalo	191	Sacramento	-3.32
Seattle	192	Jacksonville	-4.27
Minneapolis	193	Greensboro	-4.35
San Diego	193	Rochester	-4.36
Norfolk	198	Las Vegas	-5.04
Jacksonville	201	Portland	-5.17
Las Vegas	219	Buffalo	-5.20
Portland	221	Norfolk	-5.88

2: Lower numbers are higher sorting

3: Higher numbers are higher sorting

**TABLE 8****General Sales Tax as a Percent of Own-Source Revenue in Municipalities  
in the 51 Largest Metropolitan Regions, 2007**

	Number of Muni's	% of Muni's with sales tax	Median % sales tax	Avg. local rate, 2010 <sup>1</sup>	Whether State Distributes Sales Tax to Muni's and Basis <sup>2</sup>
Phoenix	33	100	44.2	2.41	AZ: population
Oklahoma City	77	100	36.9	3.83	OK: NS
Denver	73	100 (96)	30.2	4.07	CO: NS
Salt Lake City	118	100	20.6	1.25	UT: POS*
Houston	116	100 (95)	17	1.36	TX: NS
Sacramento	19	100	16.1	1.0	CA: POS *
Seattle	89	100 (94)	16	2.11	WA: NS
Dallas	186	100 (92)	14.7	1.36	TX: NS
San Antonio	49	100 (91)	13.9	1.36	TX: NS
Austin	48	100 (90)	13.9	1.36	TX: NS
Los Angeles	180	100	13.4	1.0	CA: POS *
San Diego	18	100	13.3	1.0	CA: POS*
San Francisco	87	100	9.9	1.0	CA: POS*
Norfolk	14	100	5.2	1.0	VA: POS*
Richmond	14	100	4.2	1.0	VA: POS*
Chicago	271 / 30 / 5	88.5	21	1.97 / 0 / .42	IL: POS (1.0) / IN: CPOS* / WI: NS*
New Orleans	15	86.7	37.4	4.69	LA: NS
Birmingham	88	86.4	41.4	4.03	AL: NS
Kansas City	57 / 25	80.4	23.7	3.23 / 1.65	MO: NS / KS: NS
Nashville	47	63.8	13.8	2.44	TN: population
Tampa	35	62.9	7.1	0.98	FL: population
Las Vegas	5	60.0	6.5	1.11	NV: NS
Memphis	42	59.5	17.2	2.44	TN: population
St. Louis	121 / 60	45.9	43	3.23 / 1.97	MO: NS / IL: POS (1.0)
Jacksonville	15	40.0	8.5	0.98	FL: population
Orlando	36	33.3	5.2	0.98	FL: population
Washington, DC	49 / 19	21.7	6	0 / 1	MD: NS* / VA: POS*
Miami	103	21.4	3.8	0.98	FL: population
Portland	33 / 7	17.5	15	0 / 2.11	OR: NSST* / WA: NS
Greenville	40	10.0	5.8	2.07	SC: NS*
Charlotte	39 / 9	6.3	0.1	2.07 / 1.26	NC: NS* / SC: NS*
Raleigh	35	5.7	0.1	2.07	NC: NS*
Cincinnati	122 / 36	5.7	29.4	1.28 / 0	OH: 3* / KY: NS*
Rochester	42	4.8	22.9	4.52	NY: NS
Cleveland	136	2.9	5.2	1.28	OH: 3*
Minneapolis	160	1.9	4.2	0.26	MN: NS*
New York	188 / 147	1.8	18.2	4.52 / 0	NY: NS* / NJ: NS*
Milwaukee	70	1.4	0	0.42	WI: NS*
Columbus	79	1.3	4.1	1.28	OH: 3*
Philadelphia	91 / 58	0.6	2.8	.33 / 0	PA: NS* / NJ: NS*
Atlanta	113	0.0	0	2.95	GA: NS*
Baltimore	14	0.0	0	0	MD: NS*
Boston	35 / 1 / 8	0.0	0	0 / 0 / 0	MA: NS* / NH: NSST* / RH: NS*
Buffalo	26	0.0	0	4.52	NY: NS*
Detroit	108	0.0	0	0	MI: 4*
Grand Rapids	50	0.0	0	0	MI: 4*
Greensboro	43	0.0	0	2.07	NC: NS*
Hartford	23	0.0	0	0 / 4.52	CT: NS* / NY: NS*
Indianapolis	81	0.0	0	0	IN: CPOS*
Louisville	148	0.0	0	0	KY: NS*
Pittsburgh	255	0.0	0	.33 / 0	PA: NS* / NJ: NS*

POS: point of sale. NS: no share to municipalities. NSST: no state sales tax. NA: not apply

- 1: Based on Padgitt (2010). Includes sales taxes for all local governments.
  - 2: Classification of distribution as of 2005 is based on a survey conducted by Committee on Tax and Finance, FL Senate (2006).
  - 3: Share multiple taxes combined based on need and other factors
  - 4: Share based on population & need
- \*: State does not allow municipalities to levy sales taxes or state limits that privilege to a few governments.

# APPENDIX A

## Basic Equations

### The Hirschman-Herfindahl Index (HHI)

The HHI is a measure of the concentration of qualities of items in a distribution. It was originally developed to measure market concentration based on the share of total sales or production of each firm within an industry. The index is used to assess the competitiveness of an industry, but has been applied more widely to different situations. Its formula is below:

$$HHI = \sum_{i=1}^N p_i^2$$

The symbol  $p_i$  represents the proportion or share of some quality (e.g. sales or production) of an item (e.g. firm) in a distribution (e.g. industry sales), which is squared. The squared proportions are then summed across all items or categories in the distribution, which is symbolized by  $N$ . The value of HHI ranges from  $1/N$  to 1, with smaller numbers indicating less concentration and more dispersion in a distribution. The indicator is reversed by subtracting it from 1 to create a measure of dispersion, fragmentation, or diversification (values range from 0 to  $1 - 1/N$ ). When applied to discrete categories rather than many items within a distribution, the index is sometimes referred to as the Index of Qualitative Concentration or Index of Qualitative Variation depending on whether it is subtracted from 1.

Oftentimes, the HHI, reverse HHI, IQC, or IQV are standardized so that values range from 0 to 1. The formula for standardize reverse HHI or IQV is below:

$$\text{reverse HHI (st.)} = (1 - \sum_{i=1}^N p_i^2) / (1 - (1 / N))$$

### Z scores

Z-scores normalize values in a distribution to account for its mean and standard deviation, thus allowing distributions with different means and standard deviations to be combined to form an index. More specifically, the Z-scores calculations are used to transform all values in a distribution so that they represent how much each value deviated from the mean in terms of units of standard deviations. Each Z-score, then, represents how many standard deviations a value is from the mean of the distribution. The formula is below:

$$Z = \frac{X_i - \mu}{\sigma}$$

### Coefficient of Variation (CV)

The Coefficient of Variation is a normalized measure of dispersion of a distribution. It is defined as the ratio of the standard deviation ( $\sigma$ ) to the mean ( $\mu$ ). Essentially, it adjusts the standard deviation according to the mean, which allows dispersion to be compared in distributions with very different mean values. The formula is below:

$$CV = \frac{\sigma}{\mu}$$

## Population Sorting Index

Based on an index of homogeneity or concentration of population characteristics within jurisdictions (e.g. blocks or neighborhoods) developed by Leik (1966), Pack and Pack (1977, p. 198) develop an index of heterogeneity across the concentration of population characteristics in the jurisdictions create a measure of population sorting or segregation in a broader region. The central component of this index is the HHI, and the formula below shows that it is the average, absolute deviation of HHI calculated for the population characteristics within each jurisdiction minus HHI calculated for the larger region.

$$PSI = \frac{\sum_{i=1}^N |HHI_i - HHI_a|}{N}$$

The HHI components are calculated as proportions of a cumulative frequency distribution to recognize the ordinal nature of the data, such as the categorical data reported by the US Census for education and income.

As calculated here, the HHI component of PSI for education has four categories in the following order: not a high school graduate, high school graduate, some college, and college graduate or advanced college work. The HHI component of PSI for income has six categories: less than \$20,000, \$20,000 - \$34,999, \$35,000 - \$49,999, \$50,000 - \$74,999, \$75,000 - \$124,999, greater than \$125,000. Also,  $i$  is the census place (municipality or census designated place),  $a$  is the metropolitan region, and  $N$  is the number of census places.

## APPENDIX B

### How Metropolitan Areas Are Defined

The 50 metropolitan areas chosen for analysis in this chapter are those in which the sum of the population in all counties in the metro area is greater than 1 million. Metropolitan counties are those designated by the US Census Bureau as being within a Metropolitan Statistical Area (MSA) or a Combined Metropolitan Statistical Area (CMSA) in 2000. Some alterations were made to these designations. Counties were removed from the MSA or CMSA if they had populations less than 50,000 and/or are not contiguous with other counties in the region. Counties were added if they had populations greater than 100,000 and/or are contiguous with other counties in the region. Details about counties in the metropolitan regions are indicated below.

Atlanta	Removed counties: Butts, Haralson, Heard, Jasper, Lamar, and Meriwether. Added counties: Hall
Austin	
Baltimore	Removed counties: Queen Anne's Baltimore City is separate from county
Birmingham	
Boston	Removed counties: Washington (RI), Strafford County, NH (Boston). Added counties: all from Providence, RI metropolitan region
Buffalo	
Charlotte	Removed counties: Anson
Chicago	Removed counties in IL: DeKalb, Grundy, Kendal. Removed counties in IN: Jasper and Newton
Cincinnati	Removed counties: all in IN (Dearborn, Franklin, Ohio), KY (Bracken, Gallatin, Grant, and Pendleton), and Brown County in OH. Added counties (from the Dayton MSA): Clark, Greene, Miami, and Montgomery.
Cleveland	Added counties: all from Akron MSA
Columbus	Removed counties: Madison
Dallas	Removed counties: Wise and Delta
Denver	Removed counties: Broomfield, Clear Creek, Elbert, Gilpin, and Park. Added counties: Boulder
Detroit	Removed counties: Lapeer and St. Clair. Added counties: Monroe
Grand Rapids	Added counties: Muskegon and Ottawa
Greensboro	Added counties (from the Winston-Salem MSA): Forsyth, Stokes, and Yadkin
Greenville, SC	Added counties: Spartanburg and Anderson
Hartford	Added counties: New Haven (MSA), Fairfield and Litchfield
Houston	Removed counties: Austin and San Jacinto
Indianapolis	Removed counties: Brown and Putnam. Added counties: Madison
Jacksonville	Removed counties: Baker
Kansas City	Removed counties from KS: Franklin, Linn, Miami. Removed counties from MO: Bales, Caldwell, Clinton, Lafayette, Ray.
Las Vegas	
Los Angeles	All counties from the CMSA included
Louisville	Added counties: Larue and Hardin
Memphis	Removed counties from MS: Marshall, Tate, Tunica
Miami	All counties from the CMSA included
Milwaukee	All counties from the CMSA included
Minneapolis	Removed counties from MN: Chisago, Isanti. Removed counties from WI: Pierce, St. Croix
Nashville	Removed counties: Cannon, Hickman, Macon, Smith, Trousdale. Added counties: Maury
New Orleans	Removed counties: Jefferson, Plaquemines
New York	Removed counties from NJ: Hunterdon, Ocean, Sussex, Union. Removed counties from NY: Nassau, Putnam. Removed counties from PA: Pike

Norfolk	Cities are separate from counties in VA
Oklahoma City	
Orlando	
Philadelphia	Removed counties: Cecil (MD). Added counties: Mercer (NJ)
Phoenix	
Pittsburgh	
Portland	Removed counties from OR: Columbia, Yamhill. Removed counties in WA: Skamania
Raleigh	All counties from the CMSA included
Richmond	
Rochester	
Sacramento	
Salt Lake City	Added counties: Box Elder, Cache, Davis, Utah, and Weber
San Antonio	
San Diego	
San Francisco	Added counties: Santa Clara, Solano
Seattle	Added counties: Kitsap, Thurston
St. Louis	Removed counties from IL: Bond, Calhoun, Clinton, Jersey, Macoupin. Removed counties from MO: Franklin, Lincoln, Warren, Washington
Tampa	
Washington DC	Removed counties from MD: Calvert. Removed counties from VA: Clarke, Fauquier, Spotsylvania, Stafford, Warren. Fredericksburg City, VA removed

# APPENDIX C

## Fragmentation of Local Government in Metropolitan Regions > 1 Million Population, 2007<sup>1</sup>

	Population, 2007	# of Local Govt.'s		# Local Govt.'s per 100,000 Pop.		# of Local Govt.'s per 10 Sq. Miles	
		Number	Rank	Number	Rank	Number	Rank
Atlanta	5,260,010	316	24	6.4	38	5.0	30
Austin	1,594,525	215	30	13.6	22	5.1	29
Baltimore	2,622,871	32	50	1.2	51	1.4	49
Birmingham	1,112,838	183	34	16.6	15	3.5	36
Boston	6,650,557	756	8	11.4	25	12.8	10
Buffalo	1,125,965	140	38	12.2	24	8.9	19
Charlotte	1,625,780	74	44	4.6	44	2.9	39
Chicago	9,156,040	1527	1	16.9	11	31.3	1
Cincinnati	2,907,122	489	12	17.1	10	12.3	11
Cleveland	2,799,744	410	16	14.7	19	14.1	8
Columbus, OH	1,724,711	322	22	18.6	9	9.0	18
Dallas	6,093,712	449	14	7.6	34	5.8	26
Denver	3,167,029	1024	3	32.5	2	9.2	17
Detroit	4,695,925	400	18	8.7	28	10.5	15
Grand Rapids	1,207,799	279	26	23.4	6	7.1	23
Greensboro	1,168,284	70	45	6.0	39	2.0	43
Greenville	1,073,834	160	36	15.0	18	4.5	31
Hartford	3,107,492	517	11	16.5	16	14.1	7
Houston	5,546,228	915	4	16.6	14	11.9	12
Indianapolis	1,776,709	454	13	25.7	5	12.9	9
Jacksonville	1,275,492	98	42	7.8	30	3.7	34
Kansas City	1,841,906	364	20	20.2	8	11.3	14
Las Vegas	1,838,635	22	51	1.2	50	0.3	51
Los Angeles	17,531,187	848	7	4.9	43	2.5	41
Louisville	1,348,669	371	19	27.2	3	7.4	22
Memphis	1,216,717	92	43	7.6	33	3.1	38
Miami	5,465,183	288	25	5.3	42	5.6	27
Milwaukee	1,744,421	262	27	15.1	17	14.6	6
Minneapolis	2,994,490	401	17	13.4	23	10.3	16
Nashville	1,519,865	116	40	7.7	32	2.5	40
New Orleans	1,088,062	40	48	3.4	47	1.7	45
New York	17,896,761	1292	2	7.3	35	29.6	2
Norfolk	1,671,637	39	49	2.4	48	1.7	46
Oklahoma City	1,191,244	203	31	16.8	12	3.7	33
Orlando	2,034,878	128	39	6.4	37	3.7	35
Philadelphia	6,176,680	894	6	14.5	20	19.8	4
Phoenix	4,175,595	216	29	5.5	40	1.5	48
Pittsburgh	2,357,141	907	5	38.1	1	17.2	5
Portland	2,007,747	200	32	10.1	27	5.5	28
Raleigh	1,525,089	67	46	4.4	46	1.7	44
Richmond	1,212,476	55	47	4.6	45	1.0	50
Rochester	1,031,485	242	28	23.1	7	8.3	20
Sacramento	2,075,119	344	21	16.8	13	6.8	24
Salt Lake City	2,270,946	317	23	14.3	21	1.6	47
San Antonio	1,984,766	156	37	7.8	31	2.1	42
San Diego	2,975,656	165	35	5.5	41	3.9	32
San Francisco	6,332,107	527	10	8.2	29	11.5	13
Seattle	3,784,164	415	15	10.9	26	5.9	25
St. Louis	2,469,874	664	9	27.2	4	20.9	3
Tampa	2,711,222	194	33	7.3	36	7.6	21
Washington, DC	4,569,724	100	41	2.2	49	3.5	37
<b>Mean</b>		<b>368</b>		12.4		<b>7.9</b>	
<b>St. dev</b>		<b>335</b>		8.3		<b>6.8</b>	

1: Rank of 1 is highest

## APPENDIX C, con't

### Fragmentation of Local Government in Metropolitan Regions > 1 Million Population, 2007

	Percent Special Purpose Govts 1		HHI Diversify: % Govts of Each Type 1		Percent Population in Central City 2	
	Percent	Rank	Index	Rank	Percent	Rank
Atlanta	58	27	0.625	25	8.5	3
Austin	75	12	0.558	36	47.9	48
Baltimore	41	44	0.619	27	24.0	26
Birmingham	48	37	0.620	26	20.0	20
Boston	61	23	0.635	24	9.2	5
Buffalo	54	31	0.752	1	23.6	25
Charlotte	28	50	0.519	41	42.6	41
Chicago	70	16	0.683	16	30.4	29
Cincinnati	46	40	0.750	2	10.7	6
Cleveland	44	43	0.742	7	15.0	14
Columbus, OH	37	47	0.740	8	44.1	44
Dallas	56	30	0.665	19	31.6	31
Denver	92	2	0.214	51	18.7	19
Detroit	48	38	0.750	3	17.1	18
Grand Rapids	41	45	0.728	10	16.0	16
Greensboro	29	49	0.531	40	41.2	40
Greenville	72	15	0.568	35	9.0	4
Hartford	73	13	0.465	45	12.6	10
Houston	86	4	0.357	50	37.3	36
Indianapolis	58	26	0.691	15	45.8	45
Jacksonville	82	7	0.387	48	63.5	51
Kansas City	66	18	0.637	23	33.3	33
Las Vegas	73	14	0.479	44	31.1	30
Los Angeles	78	9	0.618	29	21.6	22
Louisville	45	42	0.681	17	42.9	43
Memphis	49	34	0.597	30	54.6	49
Miami	64	20	0.496	43	7.2	1
Milwaukee	57	28	0.743	6	34.4	34
Minneapolis	39	46	0.726	11	22.4	24
Nashville	53	32	0.572	34	39.0	38
New Orleans	50	33	0.699	13	32.5	32
New York	63	22	0.721	12	45.8	46
Norfolk	46	39	0.648	20	41.1	39
Oklahoma City	59	25	0.679	18	46.3	47
Orlando	69	17	0.517	42	11.3	7
Philadelphia	56	29	0.745	5	24.8	27
Phoenix	84	5	0.619	28	36.1	35
Pittsburgh	49	35	0.733	9	13.2	12
Portland	78	10	0.583	32	28.6	28
Raleigh	37	48	0.577	33	38.8	37
Richmond	46	41	0.644	22	16.7	17
Rochester	49	36	0.748	4	20.3	21
Sacramento	93	1	0.387	47	22.0	23
Salt Lake City	60	24	0.557	37	8.4	2
San Antonio	64	21	0.691	14	63.5	50
San Diego	89	3	0.547	38	42.6	42
San Francisco	82	6	0.586	31	12.4	9
Seattle	77	11	0.540	39	15.6	15
St. Louis	65	19	0.647	21	13.4	13
Tampa	80	8	0.384	49	12.2	8
Washington, DC	24	51	0.461	46	12.8	11
<b>Mean</b>	<b>60</b>		<b>0.605</b>		27.7	
<b>St. dev</b>	<b>17</b>		<b>0.121</b>		15.0	

1: Rank of 1 is highest 2: Rank of 1 is lowest.

## APPENDIX D

### Fiscal Dispersion of Local Government in Metropolitan Regions > 1 Million Population, 2007<sup>1</sup>

	HHI Diversify: Spending by Each Local Govt. 2		HHI Diversify: Spending by Municipalities 2		Percent Special Purpose Spending		HHI Diversify: Spending by Type of Govt.	
	Index	Rank	Index	Rank	Percent	Rank	Index	Rank
Atlanta	0.987	1	0.974	10	60.1	4	0.695	21
Austin	0.915	34	0.899	36	57.6	8	0.700	17
Baltimore	0.829	46	0.807	46	3.7	49	0.468	49
Birmingham	0.973	11	0.951	22	55.7	14	0.660	29
Boston	0.983	6	0.981	7	16.3	42	0.643	39
Buffalo	0.895	38	0.883	41	32.6	39	0.723	8
Charlotte	0.845	44	0.891	37	30.0	40	0.655	32
<b>Chicago</b>	<b>0.977</b>	<b>10</b>	<b>0.994</b>	<b>1</b>	<b>58.0</b>	<b>7</b>	<b>0.693</b>	<b>22</b>
Cincinnati	0.983	7	0.952	20	49.0	24	0.697	18
Cleveland	0.968	17	0.972	13	46.4	31	0.703	16
Columbus, OH	0.959	23	0.952	21	52.6	19	0.710	13
Dallas	0.985	4	0.968	14	54.1	17	0.658	31
Denver	0.970	14	0.944	24	54.2	15	0.709	14
Detroit	0.977	9	0.984	6	49.3	22	0.678	24
Grand Rapids	0.983	8	0.920	30	56.8	11	0.648	36
Greensboro	0.858	42	0.657	51	3.1	51	0.446	50
Greenville	0.935	31	0.886	40	76.7	1	0.677	26
Hartford	0.985	5	0.957	18	9.8	45	0.579	42
Houston	0.957	24	0.967	15	61.4	3	0.654	34
Indianapolis	0.909	36	0.933	25	45.6	32	0.675	27
Jacksonville	0.801	47	0.784	48	41.4	35	0.587	41
Kansas City	0.964	19	0.901	35	48.9	25	0.647	37
Las Vegas	0.798	48	0.771	49	35.1	38	0.645	38
Los Angeles	0.961	21	0.986	5	46.8	30	0.726	6
Louisville	0.952	27	0.918	31	49.8	20	0.678	25
Memphis	0.633	51	0.916	32	7.1	47	0.526	45
Miami	0.934	32	0.980	8	42.3	34	0.717	10
Milwaukee	0.961	20	0.974	11	48.1	26	0.654	33
Minneapolis	0.970	13	0.989	3	47.3	28	0.672	28
Nashville	0.758	49	0.905	34	6.1	48	0.496	48
New Orleans	0.911	35	0.864	42	38.0	36	0.706	15
New York	0.710	50	0.973	12	22.0	41	0.573	43
Norfolk	0.909	37	0.855	43	9.9	44	0.351	51
Oklahoma City	0.941	30	0.790	47	47.2	29	0.593	40
Orlando	0.960	22	0.933	26	55.7	13	0.729	5
Philadelphia	0.945	29	0.888	39	49.6	21	0.714	12
Phoenix	0.953	26	0.921	29	57.5	9	0.716	11
Pittsburgh	0.970	15	0.990	2	59.0	5	0.696	20
Portland	0.972	12	0.944	23	58.5	6	0.724	7
Raleigh	0.871	41	0.932	27	13.9	43	0.503	46
Richmond	0.838	45	0.746	50	3.1	50	0.500	47
Rochester	0.888	39	0.955	19	36.1	37	0.690	23
Sacramento	0.949	28	0.916	33	57.1	10	0.736	3
Salt Lake City	0.985	3	0.975	9	56.5	12	0.717	9
San Antonio	0.883	40	0.889	38	47.7	27	0.660	30
San Diego	0.927	33	0.962	16	52.7	18	0.732	4
San Francisco	0.966	18	0.959	17	43.1	33	0.740	1
Seattle	0.969	16	0.929	28	54.2	16	0.738	2
St. Louis	0.986	2	0.987	4	63.7	2	0.651	35
Tampa	0.957	25	0.854	44	49.1	23	0.696	19
Washington, DC	0.855	43	0.827	45	7.4	46	0.532	44
<b>Mean</b>	<b>0.921</b>		<b>0.915</b>		<b>41.7</b>		<b>0.649</b>	
<b>St. dev</b>	<b>0.076</b>		<b>0.072</b>		<b>19.1</b>		<b>0.087</b>	

1: Rank of 1 is highest .    2: Central cities removed from calculations

## APPENDIX D, con't

### Fiscal Concentration of Local Government in Metropolitan Regions > 1 Million Population, 2007<sup>1</sup>

	Percent Central City Spending		Percent County Spending	
	Percent	Rank	Percent	Rank
Atlanta	5.9	8	24.6	30
Austin	25.9	41	9.3	5
Baltimore	28.2	43	66.4	50
Birmingham	12.4	24	15.8	18
Boston	10.2	16	1.0	2
Buffalo	21.0	37	31.4	39
Charlotte	12.7	25	47.5	45
<b>Chicago</b>	<b>12.8</b>	<b>26</b>	<b>11.6</b>	<b>9</b>
Cincinnati	6.2	9	25.8	32
Cleveland	7.8	11	26.4	33
Columbus, OH	13.0	27	21.2	25
Dallas	11.3	18	14.5	16
Denver	15.5	32	12.0	14
Detroit	11.8	21	18.3	20
Grand Rapids	6.7	10	20.6	23
Greensboro	17.6	33	68.8	51
Greenville	3.9	2	11.7	10
Hartford	14.6	31	0.0	1
Houston	14.0	30	18.5	22
Indianapolis	29.6	45	11.9	<b>12</b>
Jacksonville	45.1	48	8.3	3
Kansas City	22.0	38	10.3	6
Las Vegas	8.8	<b>12</b>	47.7	46
Los Angeles	9.4	13	27.3	36
Louisville	20.2	36	21.0	24
Memphis	53.8	51	32.5	40
Miami	2.2	1	36.6	42
Milwaukee	11.8	20	23.5	27
Minneapolis	10.0	15	26.8	34
Nashville	48.0	49	29.6	38
New Orleans	19.9	35	37.8	44
New York	53.6	50	11.9	13
Norfolk	37.8	47	10.7	7
Oklahoma City	22.7	39	8.8	4
Orlando	5.6	7	27.0	35
Philadelphia	22.8	40	13.7	15
Phoenix	12.2	23	11.9	11
Pittsburgh	4.6	3	25.0	31
Portland	10.7	17	21.3	26
Raleigh	11.5	19	66.2	49
Richmond	29.4	44	60.6	48
Rochester	17.7	34	37.7	43
Sacramento	5.4	5	28.3	37
Salt Lake City	5.2	4	16.1	19
San Antonio	32.1	46	15.2	17
San Diego	13.4	29	23.9	28
San Francisco	13.4	28	24.2	29
Seattle	12.1	22	18.3	21
St. Louis	9.8	14	10.8	8
Tampa	5.4	6	33.8	41
Washington, DC	27.6	42	59.3	47
<b>Mean</b>	<b>17.4</b>		<b>25.2</b>	
<b>St. dev</b>	<b>12.6</b>		<b>16.6</b>	

1: Rank of 1 is lowest.

## APPENDIX E

### Variation / Sorting of Population Social Features for Census Places<sup>1</sup> in 51 Metropolitan Regions, 2000<sup>2</sup>

	Absolute Value Education HHI <sub>i</sub> - HHI <sub>m</sub>		Coeff. Of Variation: Percent of White Population		Coeff. Of Variation: Percent of Hispanic Population	
	Index	Rank	Index	Rank	Index	Rank
Atlanta	5.0	32	0.32	8	1.49	6
Austin	6.0	19	0.14	29	0.74	43
Baltimore	4.9	35	0.22	15	0.79	37
Birmingham	5.8	23	0.24	14	2.46	2
Boston	5.4	27	0.09	39	1.95	3
Buffalo	2.9	49	0.08	44	1.07	16
Charlotte	4.5	38	0.14	28	1.26	9
Chicago	7.0	10	0.25	11	1.26	10
Cincinnati	5.9	21	0.16	24	0.71	46
Cleveland	6.3	16	0.19	18	1.64	4
Columbus	8.4	3	0.08	42	0.89	32
Dallas	5.4	28	0.16	25	0.92	30
Denver	7.4	9	0.10	37	1.02	20
Detroit	6.8	12	0.18	21	0.77	40
Grand Rapids	4.5	40	0.13	30	1.07	18
Greensboro	3.2	48	0.19	20	1.08	15
Hartford	5.2	31	0.15	26	1.42	7
Houston	7.5	8	0.24	13	0.94	27
Indianapolis	8.4	4	0.05	48	0.79	38
Jacksonville	4.5	39	0.13	31	0.58	50
Kansas City	6.7	13	0.07	45	0.95	24
Las Vegas	3.4	47	0.11	34	0.74	42
Los Angeles	6.9	11	0.26	10	0.74	44
Louisville	8.9	2	0.11	36	1.17	13
Memphis	6.5	15	0.46	1	0.94	28
Miami	6.6	14	0.43	3	0.94	29
Milwaukee	6.2	17	0.07	46	0.98	22
Minneapolis	4.2	43	0.04	50	0.83	35
Nashville	5.7	24	0.08	43	0.79	39
New Orleans	4.8	36	0.35	6	0.72	45
New York	7.7	6	0.18	22	1.18	12
Norfolk	1.4	50	0.27	9	0.76	41
Oklahoma City	5.2	30	0.21	16	0.94	25
Orlando	5.3	29	0.25	12	0.99	21
Philadelphia	6.0	20	0.19	19	1.52	5
Phoenix	6.2	18	0.40	5	0.89	31
Pittsburgh	5.5	25	0.10	38	0.85	34
Portland	3.4	46	0.04	49	0.87	33
Raleigh	5.4	26	0.21	17	1.07	17
Richmond	4.2	42	0.34	7	1.09	14
Rochester	4.1	44	0.09	40	0.95	23
Sacramento	4.3	41	0.11	35	0.81	36
Salt Lake City	3.9	45	0.06	47	1.19	11
San Antonio	7.6	7	0.13	32	0.69	47
San Diego	4.9	34	0.12	33	0.67	48
San Francisco	9.7	1	0.15	27	0.94	26
Seattle	4.7	37	0.09	41	0.63	49
St. Louis	5.9	22	0.42	4	2.60	1
Tampa	5.0	33	0.17	23	1.33	8
Washington, DC	8.4	5	0.46	2	1.03	19
<b>Mean</b>	<b>5.6</b>		<b>0.18</b>		<b>1.05</b>	
<b>St. dev</b>	<b>1.6</b>		<b>0.11</b>		<b>0.41</b>	

1: Places include municipalities and 'census designated places'.

2: Rank of 1 is highest.

## APPENDIX E, con't

### Variation / Sorting of Population Income and Poverty for Census Places<sup>1</sup> in 51 Metropolitan Regions of US, 2000<sup>2</sup>

	Absolute Value Income $HHI_i - HHI_m$		Coeff. Of Variation: Percent of Poverty Population	
	Index	Rank	Index	Rank
Atlanta	5.0	32	0.58	43
Austin	6.0	19	0.88	9
Baltimore	4.9	35	0.67	29
Birmingham	5.8	23	0.66	31
Boston	5.4	27	0.96	5
Buffalo	2.9	49	0.65	33
Charlotte	4.5	38	0.66	32
Chicago	7.0	10	0.97	4
Cincinnati	5.9	21	0.87	12
Cleveland	6.3	16	0.90	7
Columbus	8.4	3	0.74	23
Dallas	5.4	28	0.69	27
Denver	7.4	9	0.91	6
Detroit	6.8	12	0.87	10
Grand Rapids	4.5	40	0.62	38
Greensboro	3.2	48	0.47	50
Hartford	5.2	31	0.88	8
Houston	7.5	8	0.67	30
Indianapolis	8.4	4	0.64	34
Jacksonville	4.5	39	0.60	42
Kansas City	6.7	13	0.80	17
Las Vegas	3.4	47	0.49	49
Los Angeles	6.9	11	0.63	37
Louisville	8.9	2	1.01	2
Memphis	6.5	15	0.87	11
Miami	6.6	14	0.81	15
Milwaukee	6.2	17	0.81	16
Minneapolis	4.2	43	0.74	22
Nashville	5.7	24	0.63	36
New Orleans	4.8	36	0.55	45
New York	7.7	6	1.01	1
Norfolk	1.4	50	0.51	48
Oklahoma City	5.2	30	0.62	40
Orlando	5.3	29	0.72	24
Philadelphia	6.0	20	0.83	13
Phoenix	6.2	18	0.75	20
Pittsburgh	5.5	25	0.62	39
Portland	3.4	46	0.53	47
Raleigh	5.4	26	0.55	46
Richmond	4.2	42	0.61	41
Rochester	4.1	44	0.70	26
Sacramento	4.3	41	0.63	35
Salt Lake City	3.9	45	0.78	19
San Antonio	7.6	7	0.79	18
San Diego	4.9	34	0.56	44
San Francisco	9.7	1	0.71	25
Seattle	4.7	37	0.68	28
St. Louis	5.9	22	0.98	3
Tampa	5.0	33	0.82	14
Washington, DC	8.4	5	0.75	21
<b>Mean</b>	5.6		0.73	
<b>St. dev</b>	1.6		0.14	

1: Places include municipalities and 'census designated places'.

2: Rank of 1 is highest.