

FROM NEIGHBORS TO PARTNERS: THE SPREAD OF
INTERLOCAL GOVERNMENT COOPERATION
IN THE UNITED STATES

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ABSTRACT

This project investigates the question of why local governments cooperate with one another for service provision and coordinated policies. It proposes that the selection of interlocal cooperation among local leaders in the United States can be best understood as a diffusion process by which local elites learn from the cooperative experiments of neighboring jurisdictions and reproduce them in order to realize similar gains when it makes sense to do so. This process, I argue, is driven by the mechanisms of learning, development of networks of trust, and interlocal competition. The project presents theory, methods, and results in three manuscripts. The first uses a newly constructed longitudinal dataset of financial transfers by local governments to show that localities are more likely to cooperate when larger shares of their neighbors were cooperating in the past. This process is amplified in regions with more intense interlocal competition. The second manuscript demonstrates that the diffusion of cooperation is most intense within particular types of local service provision, namely those that involve capital-intensive and system-maintenance functions of government, such as highways, sewers, and water delivery. Finally, the third paper presents results from an original, national survey of mayors and councilors that involved embedded experiments to tease out the hypothesized mechanisms of diffusion. Findings provide strong support for the role of development of trust and learning in the spread of interlocal cooperation.

To my mother, father, and sister, for all the support and encouragement, and especially
for their unshakable confidence in me.

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CHAPTER 1

INTRODUCTION TO THE PROJECT

More than half of U.S. local governments engage in formal cooperation with neighboring jurisdictions, a surprising pattern in light of theories of collective action and interlocal competition that lead us to expect significant hurdles to meaningful cooperation across borders. The theory developed throughout this project argues that adoption of local cooperation can best be understood as a diffusion process whereby cooperation spreads across jurisdictions through mechanisms such as learning, development of trust, and interlocal competition. Local leaders, I posit, learn about the cooperative agreements of their neighbors and peers through media coverage and professional relationships and adopt similar cooperative policies when it makes to do so. The process reduces transaction costs and heightens incentives for cooperation, making this strategy more likely to spread to neighboring jurisdictions.

To test this theory, the project relies on multiple methodologies, including analysis of observational data on interlocal financial transfers, as well as a novel survey with embedded experiments that was completed by nearly 900 U.S. mayors and councilors. Findings across these methods strongly support the position that the diffusion process is an important driver of interlocal cooperation. Previous scholarship on interlocal cooperation has neglected to incorporate this important part of the story of why local leaders choose to cooperate across their boundaries. Given that cross-boundary cooperation is such a common strategy for local officials, a thorough understanding of its origins and causes should be of great importance to scholars and practitioners, alike.

Local leaders making decisions about how best to provide essential services must weigh political, financial, and practical considerations before entering into high-cost agreements with external partners. I argue that the diffusion process is an essential piece of the explanation of interlocal agreement adoption and one that has been absent from existing studies on intermunicipal collaboration and cooperation.

The project is laid out in three manuscripts, each of which tackles a distinct research question related to this diffusion process. The first manuscript, presented in Chapter 2, uses a newly constructed dataset of interlocal financial transfers over a 30-year span to examine the spatial spread of cooperation over time. The second manuscript, presented in Chapter 3, examines the same dataset for diffusion trends, but within specific categories of local government functions that are predicted to have distinct diffusion processes. The final manuscript, presented in Chapter 4, leverages a unique experimental design to tease out the causal mechanisms driving the spread of interlocal cooperation as a policy choice among local elites. Finally, Chapter 5 summarizes findings and connects the content of the three manuscripts, elaborating on the contributions and implications of this project. More detailed information on each of the main chapters follows.

Chapter 2 analysis of financial data covering roughly 36,000 local governments shows that local governments are more likely to cooperate when a larger share of their neighbors were cooperating in the preceding time period. This diffusion process proves a substantively significant predictor of cooperation, and is even more intense in regions with highly fragmented local governance, where interlocal competitive dynamics are expected to be a more important driver of elite decisionmaking. This finding is consistent

with a diffusion process and suggests that the activities of neighboring governments can help reduce transaction costs and provide incentives for cooperative behavior.

Additionally, the fragmentation of governance has an important moderating effect due to enhanced competition levels, a new finding that is somewhat counterintuitive. The same competitive pressures that cause leaders to focus inward on creating ideal tax-and-spend packages in order to prevent the exit of their citizens can also cause them to pick up on the cooperative experiments of their neighbors. These results add to our understanding of both interlocal cooperation and the diffusion process, which has tended to focus on narrow policies that involve only the adopting government. When examining the diffusion of a multi-partner policy with high transaction costs, the mechanisms and trends are distinct. Analysis of the original and comprehensive dataset constructed for this project allowed for new knowledge about cooperation and diffusion.

Chapter 3 focuses on the question of whether the diffusion process for cooperation varies depending on the types of services provided through cooperative agreements. Local leaders may be more likely to pick up on the cooperative policy experiments of their neighbors in particular types of government functions. The theory presented here posits that interlocal cooperation should diffuse most intensely within functions that tend to have relatively small cost-benefit gaps, which shrink and are sometimes closed through the diffusion process. The diffusion process drives cooperation by providing information about cooperative agreements and potential partners and by developing networks of trust among leaders who compete with one another for taxpayers. I argue that this process will more often lead to increased cooperation within services that are capital-intensive and geared toward basic, essential functioning of a locality, such as

water delivery, highway maintenance, and sewers. These services are associated with high opportunities for gains from cooperation and relatively low costs of cooperation as compared to labor-intensive and lifestyle-oriented functions, such as welfare and health. Analysis shows that diffusion of interlocal cooperation is indeed substantially more dramatic in capital-intensive functions that involve system maintenance.

Chapter 4 presents a theory of the mechanisms that drive the diffusion of interlocal cooperation among local governments and presents findings from an original national survey experiment. The survey on U.S. mayors and councilors was designed to test for these mechanisms. The theory argues that learning, development of trust, and interlocal competition should be key drivers of the spread of interlocal cooperation as a strategy of governance. The results provide support for the former two mechanisms, but a treatment designed to isolate the effect of the competition mechanism had no effect. Local leaders were more interested in pursuing a proposed cooperative agreement when it involved a city they had cooperated with in the past and when they learned about positive outcomes of cooperative experiments among neighboring jurisdictions. The study not only adds to our understanding of why local governments cooperate with neighbors for service provision, but it also expands diffusion theory by incorporating a new mechanism that lends itself to multi-partner policies – the development of networks of trust. Indeed, the importance of this mechanism is the strongest and most consistent finding.

CHAPTER 2

THE DIFFUSION OF LOCAL COOPERATION: A STUDY OF U.S. INTERMUNICIPAL FINANCIAL TRANSFERS, 1977-2007

Introduction

More than half of municipal governments in the United States cooperate with their neighbors for local service provision, yet scholarship has failed to sufficiently explain why they do so. This paper argues that intermunicipal cooperation, as a policy choice among local government leaders, diffuses across space and time through policy diffusion mechanisms, such as learning and competition. As some localities experiment with cooperative agreements and succeed, leaders in other localities take note, learn from successful cooperation, and begin their own collaborative experiments in order to remain competitive with neighboring jurisdictions for citizens who “vote with their feet” (Tiebout 1956). Moreover, leaders in municipalities under severe fiscal stress may select cooperation as a means of political survival – that is, to avoid electoral failure due to citizen dissatisfaction, or even total elimination of the local government since cooperation may serve as an alternative to municipal consolidation or annexation (Carr and Feiock 2004). Under budgetary strain or other stresses, leaders may have strong incentives to engage in this behavior, especially if their neighbors or peers already do so. This is an indisputably political process: leaders who become aware of cooperative options weigh the costs of cooperation against the costs of inaction.

The highly fragmented and decentralized nature of the United States makes it difficult for local governments to cooperate. Local governments providing public services within their own boundaries may be unable to create optimal outcomes because of

spillover effects resulting from uncoordinated policies that affect neighboring jurisdictions and because of inefficiencies associated with small-scale provision. Therefore, we should expect cooperation between localities to offer potential gains through capture of externalities and realization of economies of scale. Coordinated action across boundaries involves high transaction costs, however; governing authority in a region may be fragmented among a multitude of local jurisdictions, all of which have elected leaders dedicated to distinct constituencies. Nevertheless, a majority of local governments engage in cooperation regularly and have done so for at least 30 years, the data in this analysis show.

I suggest that the diffusion process alters the calculus of local government leaders by reducing transaction costs associated with cross-boundary agreements. Leaders who see their neighbors saving tax dollars and/or improving service delivery through cooperative agreements become more likely to have the information and incentives required to overcome their own collective action problems and engage in similar cooperation in the future. Because intermunicipal cooperation is a common tool of local government, understanding the patterns of adoption of cooperative policy and the reasons behind it should be of great importance to scholars and practitioners alike. Local leaders use cooperative policy regularly to provide essential public goods, but to date, the literature has failed to analyze the use of cooperative agreements across space and over time to answer the question of why leaders opt for this policy choice when they do.

Previous studies of interlocal cooperation have established a relationship between cities' contextual environment and their decisions to cooperate, theorizing that city leaders choose to cooperate in order to gain a competitive advantage, when they have

stronger connections with neighboring cities, or when a supply of potential partners is readily available (e.g., Kwon et al. 2014; LeRoux et al. 2010; Minkoff 2013; Post 2002). Empirical tests have focused on only a few cities or a larger cross-section at a single point in time, however, making it impossible to decipher how context matters. I argue that a city's decision to cooperate depends not only on its position relative to other local governments but also on the previous cooperative behavior of those other governments, which influences the incentives the government has to cooperate and the costs it faces in doing so. To test the diffusion theory presented here, I leverage a newly constructed dataset on interlocal financial transfers over the period 1972-2007. Matching Census of Governments data on local government organization and finance to municipal population data allows for comparison of cooperative behavior over a 30-year period across municipalities of all sizes.

The statistical analysis of transfer patterns shows that local governments are more likely to cooperate when a higher proportion of neighbors were cooperating in the past, a finding that is consistent with a diffusion process. Horizontal fragmentation conditions this effect, suggesting that the diffusion process operates at least in part through competitive dynamics. In areas with a higher density of municipal governments, cities' decisions to cooperate are even more strongly associated with the lagged cooperation rates of their neighbors. Where cities must compete with neighboring jurisdictions for residents and tax revenues, they are even more responsive to their neighbors' efforts to improve service provision through cooperation.

Interlocal Cooperation: The Literature

The question of why local governments cooperate with one another to provide public services has received much attention in extant literature. Scholars have approached this question from numerous perspectives, linking cooperative behavior to heightened incentives caused by increased externalities over time (Scholz and Stiftel 2005), to federal grant opportunities (Bickers and Stein 2002), to the influence of local council members (Zeemering 2008), and to social networks that provide information and reduce transaction costs (Feiock et. al 2010). Local-level *intergovernmental cooperation* refers to all policies, formal and informal, that necessitate some coordination among multiple local governments. This definition includes “handshake” deals among local leaders that do not result in formal policy, as well as cooperative contracts or written agreements among local governments. Sometimes these cooperative agreements involve the exchange of funds, but other times, they do not. Written agreements could involve shared services that include revenue-service exchange or they could simply divide labor and resources among the localities in a way that does not require financial transfer (Post 2002). Examples include coordinated purchase of materials or equipment to realize economies of scale, sharing of an assessor or other staff members among several municipalities, or contracting among multiple municipalities for police or fire services.

Local governance in the U.S. context is highly fragmented with neighboring municipalities providing general tax-and-spend packages within geographically distinct jurisdictions. Additionally, overlapping layers of governments responsible for specific functions, including special districts, add another dimension of complexity to local service provision. This fragmented system means that efficient solutions to local policy

problems are often confounded by collective action dilemmas, externalities, and common pool resource problems. The efforts of localities to cooperate may be plagued with the hurdles often seen in common pool resource dilemmas, especially defection of cooperators, domination by a single cooperator, and irresolvable conflict among participants (Feiock and Scholz 2010; Ostrom 1990; 2005).

Much of the recent literature on intermunicipal cooperation is rooted in the institutional collective action (ICA) framework developed over the last decade, which extends theories of contracting and individual collective action problems to group or institutional actors, including local governments (Carr et al. 2009; Feiock 2007; 2013). According to this framework, cooperative responses to ICA problems may offer joint gains to participants, but those gains are not always incentive enough to produce more desirable outcomes (Feiock 2007).

The ICA framework rests upon the assumptions of the Coase theorem, which states that when transaction costs are sufficiently low, rational actors will reach Pareto-efficient resource allocation through voluntary bargaining (Coase 1960). The actions of local government actors, then, are understood as cost-benefit analyses, and when the estimated gains are sufficiently high to outweigh the required transaction costs, a cooperative agreement will emerge to capture economies of scale and policy spillover effects (Lubell et al. 2002; Ostrom 1990). Costs include information and coordination costs, negotiation costs, monitoring and enforcement costs, and agency costs that emerge from mismatch between the interests of bargaining agents—in the current case, local government officials—and constituents (Feiock 2007). ICA theory predicts that those government actors that have cooperated previously will develop norms of reciprocity that

reduce transaction costs and build social capital. Previous cooperative policy adoption should lower transaction costs even for those localities that have not yet cooperated, as they will have access to information on their peers' past or ongoing cooperative experiments, which reduces uncertainty at the bargaining table. Social and professional connections among decision-makers in different localities also can make these localities more likely to overcome barriers to cooperation (Gerber and Loh 2014; Kwon and Feiock 2010).

While the existing literature provides clues about why interlocal cooperation occurs, it fails to fully theorize the mechanisms driving cooperation due to limited spatial and/or time perspectives. To better understand the processes that lower transaction costs and produce voluntary interlocal agreements, we need to incorporate theory that explicitly accounts for change across space and over time. The diffusion literature in political science offers this necessary theoretical support to the ICA framework. Scholars have long noted that governments often take up policies put in place by their peers. Governments tend to emulate one another's policy choices, and cooperative policy across local borders should be no exception.

Numerous scholars have found that regional diffusion is a real and consistent phenomenon. Empirical research has consistently shown that geographic neighbors are more likely, on average, than non-neighbors to pick up on policies adopted in any given state or locality (Gray 1973; Walker 1969). Berry and Berry (1990) elaborated on the precise mechanisms by which regional diffusion occurs. These mechanisms include *learning* by policymakers who observe trends through connections and leadership networks, *citizen demand* which is inspired by shared media markets and shared physical

borders, *competition* between localities, and *shared culture* of politics in various regions. Other diffusion work shows that competition between states helps explain diffusion (Volden 2002). Just as states compete with each other for tax base, local government leaders look to their neighbors in their policy decisions because they know at least some of their citizens have the option of exiting to more attractive tax-and-spend packages (Tiebout 1956). Additionally, citizens may use “voice” to publicly demand policies when they learn about the policy adoptions of neighbors (Hirschman 1970; Oakerson and Parks 1999).

If cooperation diffuses across local boundaries, then the ways in which those boundaries are packed into geographical areas and layered over one another may affect the diffusion process. The effects of local government fragmentation on cooperative behavior, then, must be explored. The concept of local government fragmentation refers to the density of local governments, and it includes two distinct types. Horizontal fragmentation refers to the density of typically non-overlapping multipurpose municipalities that offer general tax and spending packages to their residents. These include towns, cities and counties. Vertical fragmentation refers to the dimension of local institutional design by which general governments and single-purpose districts overlap one another, creating layers of governments. Vertical fragmentation is largely driven by the presence of special districts, such as water districts, fire protection districts, lighting districts, and library districts. These two types of fragmentation involve distinct dynamics. Horizontal fragmentation affects the number of players involved in intermunicipal cooperation, opportunities for cooperation, and levels of interlocal

competition, while vertical fragmentation may affect the complexity of service provision in an area.

Several scholars have examined the relationship between fragmentation and cooperation, but theoretical approaches and empirical findings have been mixed. Post (2002) finds that metropolitan areas with high densities of local governments by land area have higher levels of cooperation. Post argues that larger spillover effects and increased diseconomies of scale associated with high levels of fragmentation cause increased cooperation in highly fragmented metropolitan areas. In other words, fragmentation creates more *opportunities* for cooperation. Other scholars have suggested that fragmentation increases collective action problems and transaction costs, and therefore may be associated with lower levels of cooperation (Shrestha and Feiock 2011). Carr et al. (2009) find support for this latter association: increased local government fragmentation is associated with a decrease in intermunicipal cooperation.

If competitive dynamics among local governments are an important driver of policy adoptions, as diffusion theory suggests, then we should expect that areas with higher levels of intermunicipal competition experience this diffusion more intensely than those with low levels of competition. Scholars have long associated horizontal fragmentation levels with interlocal competition (Berry 2008; Ostrom, Bish, and Ostrom 1988; Schneider 1989). If horizontal fragmentation promotes competition between local governments, we should see a positive interaction between horizontal fragmentation and the diffusion process.

While no previous work has directly tested this question, a dyadic study of interlocal development agreements among Colorado municipalities provides support for

the linkage between policy competition and cooperative behavior (Minkoff 2013). Minkoff's analysis of cooperative development agreements between 88 cities in the dataset showed that municipalities in the least policy competitive areas of the state, as measured by spending per capita on economic development, were significantly less likely to have formal developmental agreements. While this study leveraged a different measure of competition, its results suggest an association between competition and cooperation. This paper further explores this association by investigating the relationship between horizontal fragmentation and interlocal transfers.

Theory

This paper argues that the spread of cooperation, both formal and informal, can be understood in much the same way as other types of policy diffusions. Local leaders pay attention to the actions of their neighbors and other peers and emulate their behavior when it makes sense to do so. When it comes to policy diffusion in local government, local leaders may learn from successful innovation and carefully replicate it to realize similar gains. They may adopt policies undertaken by their neighbors in order to remain competitive for taxpayers and development. In the realm of interlocal cooperation, I expect the primary mechanisms of diffusion to be learning, development of networks of social embeddedness, and competition among peer municipalities.

I expect that learning is central to the diffusion of interlocal cooperation. Past adoptions produce information that benefits the cooperators and their regional peers in future cooperative efforts. As municipal leaders learn about their own and their neighbors' experiences with cooperation, they will have more information, and thus less

uncertainty, in future bargaining. Government leaders that observe the successful cooperation of peer governments would be expected to learn and replicate cooperative behavior in order to produce similar outcomes. So, successful cooperation within one group of localities would spur similar efforts by peers.

Past successes with cooperation will also create social networks and development of trust among policymakers who can then extend their cooperative efforts into new functional and spatial areas. These cooperative experiments create new connections among leaders across municipal borders and new knowledge about what works in terms of negotiating, monitoring, and resolving conflict in cooperative deals.

Competition also is expected to drive the diffusion of cooperation. As interlocal cooperation produces net gains to the participants via economies of scale and reduced externalities, competitors will observe the gains and attempt to produce the same for themselves – either by joining the cooperative effort or by creating a similar cooperative agreement. The gains realized by the cooperators would make those localities more attractive to residents and/or developers, and therefore regional competitors would be compelled to overcome collective action costs and adopt the practice, as well. Essentially, the costs of *not* cooperating begin to outweigh the costs of cooperating. Competition, unlike learning and development of networks of trust, does not reduce transaction costs. Instead, it drives local elites to overcome whatever costs exist in order to achieve potential gains.

The analysis that follows will test whether cooperation has diffused in patterns that are consistent with this theory. If localities learn from past cooperative efforts of their regional peers and form networks of trust through past cooperative experiences, then

we should expect that the likelihood of a locality cooperating increases as the regional rate of cooperation increases. That is, as the percentage of a locality's neighbors that cooperate increases, the more likely that locality is to cooperate in the future. Hypothesis 1, then, will provide an indication of whether diffusion is at work in intermunicipal cooperation.

Hypothesis 1: The likelihood of any municipality cooperating at time t should be positively associated with the prevalence of cooperation among localities in the same geographic area at time $t-1$. That is, if more neighbors are cooperating, the locality should be more likely to cooperate in the future.

The predicted effects of the density of general-purpose local governments in the area, known as horizontal fragmentation, lead to competing hypotheses. Higher density of local governments is associated with increased externalities and diseconomies of scale, creating more opportunities for cooperation (Post 2002). Here, we would expect a stronger diffusion process in highly fragmented areas because there are more jurisdictions from which to learn, more localities within single media markets, and likely more gains to be realized from cooperation. However, horizontal fragmentation also means more borders to work across, more actors, and thus, higher transaction costs and more barriers to collective action. In this case, we would expect a weaker diffusion process in highly fragmented areas because adopting cooperative policy is more costly and more complicated.

Hypothesis 2a: The likelihood of a municipality cooperating will be positively associated with the level of horizontal fragmentation in the area (due increased opportunities for learning and potential gains from cooperation).

Hypothesis 2b: The likelihood of a municipality cooperating will be negatively associated with the level of horizontal fragmentation in the area (due to increased transaction costs associated with policy adoption involving more players and boundaries).

The density of general-purpose governments also is associated with higher levels of intermunicipal competition, and if competition drives the diffusion process, we should see an interaction between horizontal fragmentation levels and the effect of the cooperation rate. In areas with more tightly packed neighboring local governments, the option of citizen exit becomes more feasible. If a local government fails to reproduce the policy successes of its neighbors, it may lose taxpayers who choose to move to more attractive and very proximate jurisdictions. Horizontal fragmentation, then, would be expected to moderate the effect of the percentage of neighbors cooperating at $t-1$. The effect should be larger in highly fragmented areas, where competitive pressures among local governments are stronger.

Hypothesis 2c: The interaction between cooperation rate at $t-1$ and the density of general-purpose governments should be positive due to increased competitive dynamics in highly fragmented areas.

The expected relationship between vertical fragmentation (as measured by the prevalence of single-purpose governments) and cooperation also is unclear, given existing literature. Like horizontal fragmentation, vertical fragmentation is associated with increased institutional collective action dilemmas. That is, when local public goods provision is highly layered with shared responsibilities among overlapping governments, those governments are unlikely to produce optimal service levels without coordination. This could produce two contrasting expectations: 1. Increased vertical fragmentation

leads to increased opportunities for gains from cooperation and thus, more cooperation; or 2. Increased vertical fragmentation means more political players and higher transaction costs and thus, more barriers to cooperation and reduced cooperation levels.

Alternatively, special districts could be created as a substitute for cooperation, since they have greater political boundary flexibility than general-purpose governments (Mullin 2009). Instead of designing a cooperative agreement, a group of municipalities may coordinate to create a special district that handles a particular problem or works toward a particular goal, common to all the municipalities involved. This may be especially relevant to functional areas with high levels of externalities, such as environmental issues, planning, or economic development. In this case, I would expect a negative relationship between cooperation and prevalence of single-purpose governments.

Hypothesis 3a: The likelihood of a municipality cooperating will be positively associated with vertical fragmentation (due to increased opportunities for gains).

Hypothesis 3b: The likelihood of a municipality cooperating will be negatively associated with vertical fragmentation (due to increased collective action problem and/or substitutive nature of special districts).

Method and Data

The highly varied nature of cooperative agreements among municipal governments makes them somewhat difficult to study empirically, but nonetheless, revenue exchanges provide a clue about where cooperation occurs. Like other studies of interlocal cooperation (Kwon et al. 2014; LeRoux and Pandey 2011; Post 2002), this project will rely on interlocal financial transfers to serve as a proxy for cooperation.

While intergovernmental transfers between localities do not provide a perfect measure of cooperation, they offer a clear indication of which localities are engaging in formal cooperative efforts. A transfer may mean that a city is contracting with a neighbor for services, sharing staff, or otherwise coordinating with neighbors. Informal cooperation cannot be tested using this measure, but since informal and formal cooperation are closely tied, the proxy of intergovernmental transfers should shed light on diffusion trends among localities. Informal cooperation may involve handshake deals among local officials who do not codify their agreements. As such, data on such deals are not readily available.

Data on interlocal transfers are available through the U.S. Census of Governments, which collects local spending data for all governments throughout the country every five years (in years ending 2 and 7). These data show whether localities transferred money to other local governments and/or received money from other local governments. They do not indicate the source or destination of these transfers. The Census data reveal which localities are cooperating but not with whom. These data were obtained for all years in which a census was conducted between 1977 and 2007, the most recent year available.¹ While previous studies of local cooperation have focused on localities within particular states or metropolitan statistical areas, or only large cities, during short periods of time, this dataset allows for a 30-year analysis of the majority of municipalities in the continental United States.

¹ Census of Government financial data is available, but substantially less complete prior to 1972. Dramatic variation in the coding of interlocal transfers in 1972 and prior years, as compared to 1997 and later years, indicated that the earlier years could not be compared reliably on the cooperation measure. Complete financial censuses of governments are conducted every five years on the 2s and 7s.

These data allow for an over-time study of cooperation patterns, as measured by intergovernmental transfers among all non-county general-purpose local governments, including cities, towns/townships, boroughs, villages, and the like. Counties are excluded because of their very different roles in public service provision, which may produce distinct patterns of cooperation. For each local government in the dataset, decennial Census data on population characteristics were matched to financial data from the Census of Governments (COG). This makes possible comparisons across municipalities of all sizes, in urban and rural areas, inside and outside of major metropolitan statistical areas, while controlling for important demographic features. Cooperative agreements occur among large and small local governments, and the patterns of cooperation for small cities, which face distinct challenges, may differ from those of large cities. In order to maximize coverage of these small municipalities, population data were compiled from various Census datasets, including those for “places” and “minor civil divisions.” Linear interpolation was then used to produce estimates of demographic variables for the COG years (on the 2s and 7s).²

The analysis requires a time series model with maximum likelihood estimation. Given the fluid nature of cooperative policy adoptions, by which localities move in and out of cooperative agreements continuously, the event history analysis model that dominates the policy diffusion literature is inappropriate for this analysis.³ Instead, the analysis uses a Generalized Estimating Equation (GEE) model, which accounts for within

² The Decennial Census datasets were obtained through the Minnesota Population Center’s National Historical Geographic Information System: Version 2.0 (Minneapolis, MN: University of Minnesota 2011), which may be found online at <http://www.nhgis.org>.

³ Most uses of the Berry & Berry model require the policy adoption to be a single event that occurs once and remains in place permanently. Cooperation policy differs from this type because localities often flow in and out of cooperative agreements, meaning they may cooperate in one year but not the next, and then cooperate again the following year. Cooperation agreements often contain end dates, especially if they aim to solve a temporary problem.

group associations from year to year and produces consistent population-averaged coefficients.

For each local government in each data year, cooperators are determined by coding interlocal transfers as existent or not, across all functions. If a city had any local transfer, in or out, it was a cooperator. The theory above suggests that a given municipality's likelihood of being a cooperator in any data year will be positively associated with the share of neighboring localities that were cooperators in the preceding time period. Since the level of cooperation cannot be assessed using dollar amounts – that is, more money transferred does not translate to more cooperation – any amount transferred in or out qualifies a locality as a cooperator in that year. Given the binary nature of the dependent variable, the GEE model uses a logit link function. Because a municipality's likelihood of cooperating in a given year will be associated with its cooperative behavior in preceding years, the structure of the within-group correlation is specified as autoregressive (AR1).⁴ This measure of cooperative behavior cannot distinguish between voluntary transfers between localities and those transfers mandated by the state governments. The model will include state fixed effects to help control for this and other state-level rules that influence cooperative behavior.

The independent variable of primary interest is a lagged county-level measure of cooperation rate, which for each municipal government, will indicate the percentage of other general-purpose governments in the county that were cooperators at t-1.⁵

Hypothesis 1 predicts that municipalities situated in counties with a large percentage of

⁴ A separate time series logit model with a lagged dependent variable is tested for robustness and produces similar results to those shown in Table 2.

⁵ This measure excludes the municipality itself from the calculation, such that a municipality's own cooperative behavior at t-1 has no effect on the value.

cooperators are more likely to become cooperators in the next time period because they are more likely to interact with cooperators, to be exposed to information about cooperation, and to feel pressure to emulate successful cooperation in order remain competitive for taxpayers and development.

The unit of analysis is the non-county, general-purpose local government. The independent variable of interest for Hypothesis 1 is the percentage of other municipalities in the county that cooperated at $t-1$. To test Hypotheses 2 and 3, the model includes county-level spatial measures of horizontal and vertical fragmentation. I standardize fragmentation measures by land area, rather than population, to better capture the externalities and diseconomies of scale that exist in service provision (Post 2002).

Among control variables, overall revenue growth captures the relationship between fiscal health and interlocal cooperation that other studies have uncovered (Agranoff and McGuire 2003; Shrestha and Feiock 2011; Stein 1990). Additionally, population heterogeneity may be associated with decreased trust and social capital, both of which are expected to promote cooperative agreements (Feiock 2004; Gerber and Gibson 2009). Localities that are very different from one another may face higher transaction costs in working together, and their populations may have more distinct service provision preferences. To measure social heterogeneity, municipal-level percentages of residents who are white were collapsed to the county level to create a county-level standard deviation on this measure (Gerber and Gibson 2009). For each locality, I then calculated the number of standard deviations the municipal percent white fell from the county mean. This variable provides a measure of how different a locality is from its within-county peers on racial composition. Similarly, creation of an economic

heterogeneity measure involved collapsing municipal-level median household income (MHI) to the county level to produce county-level standard deviations and then calculating for each municipality the number of standard deviations its MHI fell from the county mean. This variable provides a measure of how different a locality is from its within-county peers on household income. The model also includes a number of municipal-level demographic controls, including population logged, percent white, median household income, and percent in poverty. The model interacts city population and the lagged county cooperation rate to see whether cities of different sizes learn from their neighbors at different rates.⁶

The final dataset covers 35,894 distinct municipalities in the 48 contiguous states. The number of municipalities varies across data years, ranging from roughly 31,000 local governments in early years to 35,000 localities in subsequent years. The COG data on financial transfers demonstrates that interlocal cooperation, as measured by financial transfers, occurs frequently among municipalities during the period of study. Any municipality that showed interlocal financial transfers in any category, on the revenue or expenditure sides, was coded as a “cooperator.”⁷ In 1977, the percentage of all U.S. local governments that cooperated totaled 55% and remained between 50 and 55% in the 30 years that followed. Table 2-1 shows summary statistics on model variables.

⁶ Local population controls were created by matching Census of Governments data to Decennial Census data using Census Places datasets obtained through the National Historical Geographic Information System at the University of Minnesota. This method worked for roughly half of the localities in the dataset. Due to distinct coding methods used by the Census for townships and towns, these remaining localities had to be matched to Decennial Census data through Minor Civil Divisions datasets. Roughly 600 localities (1.5 percent) in the Census of Governments dataset failed to match to Decennial Census data through this process, and these are not included in the statistical analysis. Tests indicated no significant differences between the matched and unmatched localities on the model variables.

⁷ Because education often dominates local spending, I calculate the trend twice – once inclusive of all functions, including education, and again excluding any cooperation on education. The trends are identical, indicating that education is not driving the aggregate trend.

The steady aggregate total of cooperators raises the question: if diffusion of cooperation were occurring, why would the overall total percentage remain unchanged? This aggregate national-level pattern masks local-level diffusion trends, which the statistical model below explores. While high levels of cooperation may lead to an increase in total cooperators in one area, as the theory predicts, low levels of cooperation may lead to a decline over time in the number of cooperators in other areas. Additionally, state-level policies and institutions may cause localized increases or decreases in cooperation rates, separate from diffusion effects. A quick look at state-level aggregate trends reveals that cooperation rate trends vary dramatically from state to state. For example, the data show that cooperation rates have increased steadily in Arkansas, Georgia, Indiana, Iowa, and several other states (see Appendix A for trend charts for each of the states). Delaware, Illinois, Maine, and New Hampshire have had more volatility in their cooperation levels. California financial transfers indicate a slow but steady decrease in cooperation over the 30-year period of this analysis.

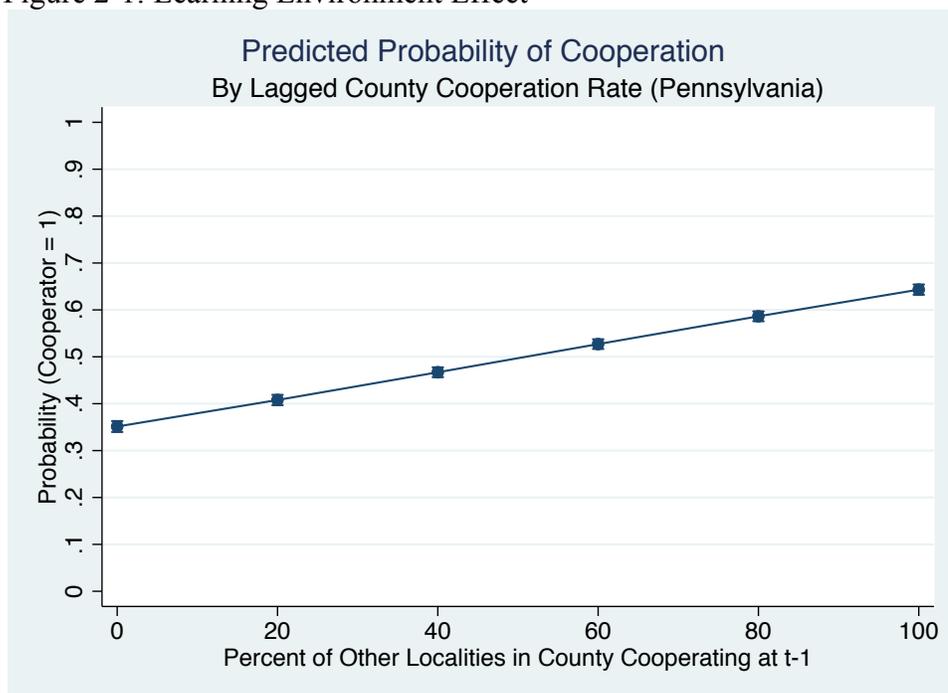
Table 2-1: Summary Statistics on Model Variables

	Mean	SD	Min	Max
Percentage of Other Municipalities Cooperating (county level, lagged)	52.2	30.64	0	100
Log Population	6.97	1.69	0	15.92
Log Revenue Growth Rate	0.48	0.66	-4.61	7.56
General-Purpose Govs/10sqm (county level)	1.81	6.15	0.004	97.35
Special-Purpose Govs/10sqm (county level)	3.97	22.33	0	615.71
Racial heterogeneity: % White (muni level)	0.7	.66	0	8.15
Income heterogeneity: MHI (muni level)	.76	.58	.00001	6.49
Log MHI (2010 dollars)	10.73	0.35	7.4	13.12
Percent Poverty	13.06	9.5	0	100
Percent White	92.86	13.64	0	100
Percent Urban	25.69	41.3	0	100

Results

The results of the GEE logit model with state fixed effects are displayed in Table 2-2.⁸ The model produces a coefficient for lagged county cooperation rate that is positive and highly significant, and when combined with the positive and significant interaction term for this variable and local government density, it demonstrates that local governments are more likely to cooperate when larger shares of their neighbors were cooperating in the previous period, consistent with Hypothesis 1 (see Table 2-2). This finding is consistent with a diffusion process in which local governments observe and learn from the cooperative experiments of their nearby competitor cities, developing networks of trust that encourage increased cooperation.

Figure 2-1: Learning Environment Effect



Source: Author's analysis of Census of Governments and U.S. Census demographic data

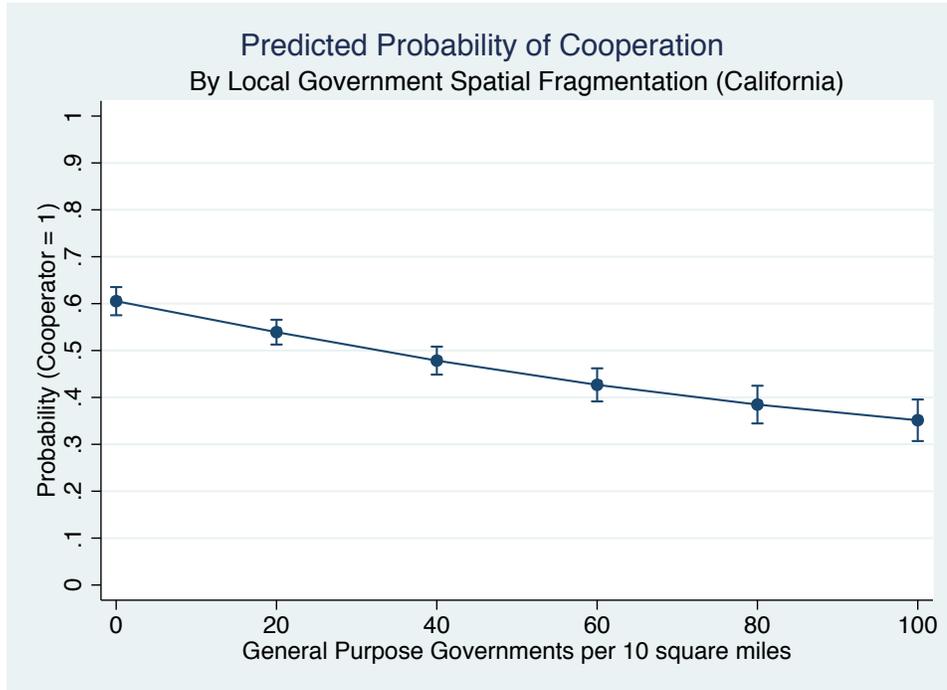
⁸ Table 2 results are shown for those groups that were equally spaced in the panel dataset. Approximately 13,000 municipalities in the dataset had uneven spacing, meaning a year of data or more were missing, creating problems with lag assumptions. However, the results in Table 2 are robust to the forced inclusion of these groups into the GEE model.

These results demonstrate that municipalities, on average, are significantly more (less) likely to cooperate if a larger (smaller) share of their neighbors were cooperating in the previous period. The result is substantively significant. To illustrate, a Pennsylvania municipality is 30% more likely to cooperate if it is situated in a county where all other municipalities had been cooperating compared to a county with a 0% lagged cooperation rate (see Figure 2-1).

Tests for Hypothesis 2, involving horizontal fragmentation, are more complex. With respect to the independent effect of general-purpose government density, the model shows a significant relationship. Analysis of this effect shows that when all other variables are held at their means, municipalities in counties with higher fragmentation levels are less likely to cooperate (see Figure 2-2). In California, the state with the highest levels of horizontal fragmentation, an increase in spatial fragmentation from minimum to maximum is associated with a 25% decrease in likelihood of cooperation. However, since most states have much lower fragmentation levels with maximums under 40 localities per 10 square miles, the probability change associated with an increase in fragmentation levels from minimum to maximum is much smaller in most states.

Overall, this finding supports Hypothesis 2b, which stated that high density of local governments creates additional boundaries and players, complicating the cooperation process and increasing transaction costs. Hypothesis 2a, which stated that horizontal fragmentation would be associated with increased levels of cooperation made possible by greater opportunities for cooperation is not supported.

Figure 2-2: Horizontal Fragmentation Effect



As expected, the interaction term on the horizontal fragmentation measure is statistically significant, providing support for Hypothesis 2c. Previous studies of the effects of fragmentation on cooperation failed to consider the importance of the relationship between local government fragmentation and the past cooperative behavior of neighboring jurisdictions. This study allows for testing of the moderating effect of local government fragmentation, which is associated with heightened interlocal competition, on the influence of neighbors' cooperation experiments. Results show that the effect size of the lagged cooperation rate is significantly larger in counties with higher levels of local government fragmentation, as measured by spatial density of general-purpose governments.

Figure 2-3 shows how the effects of changes in the lagged county-level cooperation rate vary across levels of fragmentation in California, a state with very high levels of fragmentation. All other variables in the model are held at their means to

produce these estimates. The relationship between the lagged cooperation rate and the probability of cooperation is relatively flat in counties with low levels of fragmentation, as the 10th percentile line shows. The relationship becomes more dramatic in counties with mean fragmentation levels, and even more positive in counties with very high fragmentation levels.

Figure 2-3: Competition Effect (California)

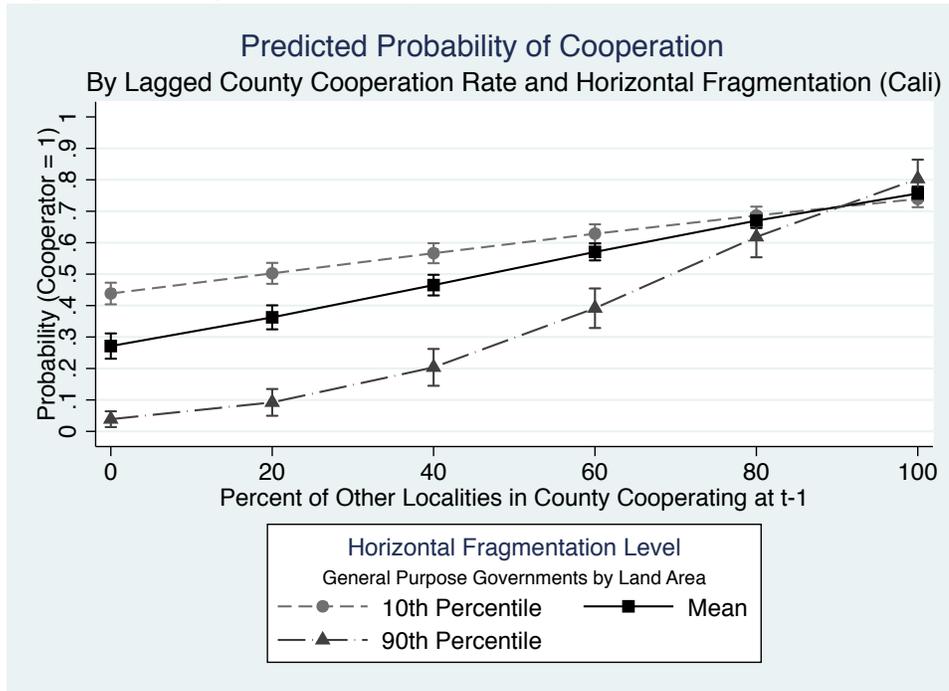
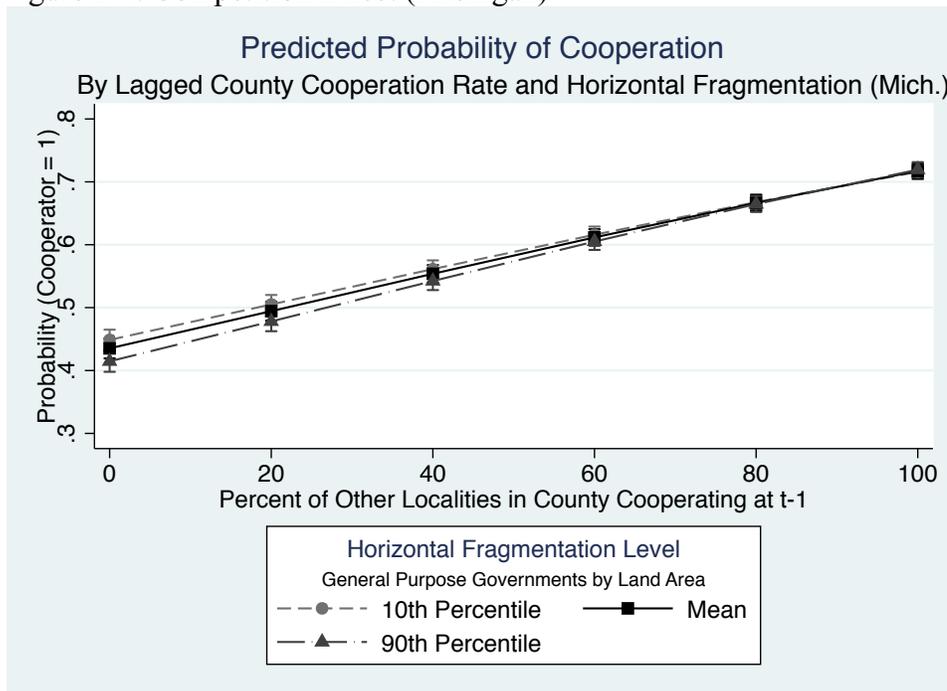


Figure 2-3 shows that in a county with mean fragmentation level (about 23 governments per 10 square miles), an increase in the lagged county cooperation rate from 40% to 100% is associated with an increase from 47% to 76% in the likelihood of cooperation. Meanwhile, in a highly fragmented county (90th percentile, or 90 governments per 10 square miles), the same change in the county cooperation rate is associated with an increase from 20% to 80% likelihood of cooperation. The effect of the lagged county cooperation rate is more positive in highly fragmented counties that tend to have more intense levels of interlocal competition. Overall, municipalities appear to

respond more strongly to cooperation among their neighbors in highly fragmented political settings. However, in states with lower levels spatial fragmentation of governance, the substantive significance of the interactive effect is muted. For example in Michigan, a state with average levels of government density, the same interaction is displayed in Figure 2-4. Even with the y-axis restricted to allow for visibility of the three lines, they are nearly on top of each other, indicating that in states with lower overall levels of fragmentation, the competition mechanism may be less important in driving adoption of interlocal agreements.

Figure 2-4: Competition Effect (Michigan)



These results support Hypothesis 2c, which predicted that the density of local governments would condition the effect of the lagged cooperation rate due to higher levels of competition among local governments in these fragmented areas. Leaders in fragmented counties, upon learning of their neighbors' cooperative deals, would be more

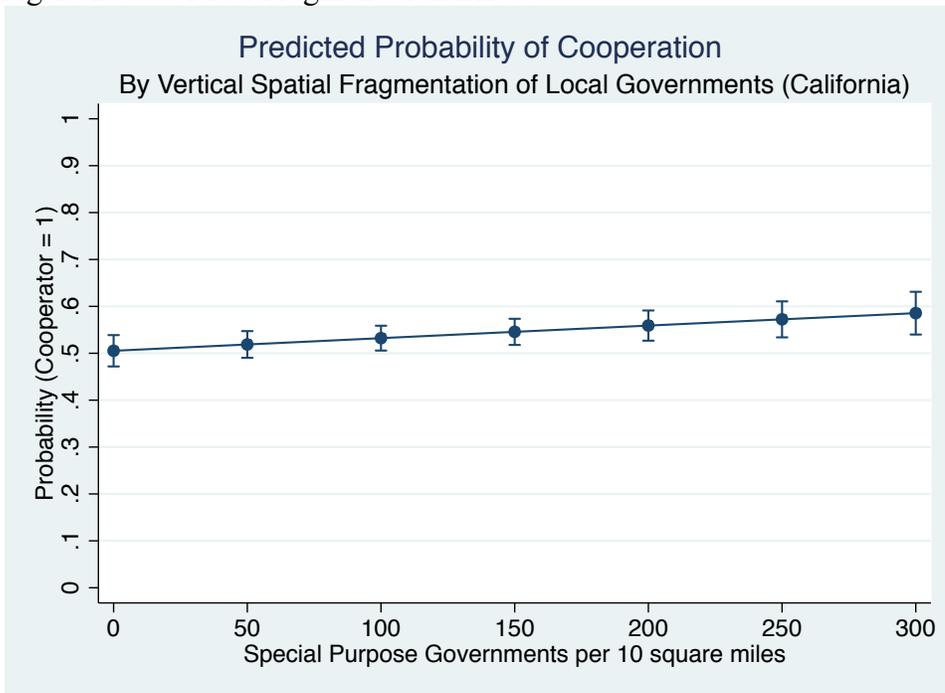
compelled to replicate them in order to prevent the exit of their citizens to more attractive tax-and-spend packages in very proximate municipalities.

Moving to results for vertical fragmentation as measured by special-purpose governments per 10 square miles, the model shows a significant, though substantively small, positive effect. Recall that Hypotheses 3a and 3b proposed competing expectations, with the former suggesting a positive association between vertical fragmentation and cooperation due to increased opportunities for such behavior, while the latter suggested a negative relationship due to increased numbers of actors, more complex boundaries, and higher transaction costs. Additionally, Hypothesis 3b posited that the use of special districts in some policy areas as a substitute for intermunicipal agreements would further produce a negative association. The results are here are mildly positive, showing that in California, a state with extremely high vertical fragmentation levels, an increase from minimum to maximum on the vertical fragmentation variable is associated with just a 10% increase in the likelihood of cooperation (see Figure 2-5). In most states, the range of vertical fragmentation is much lower than in California, so this effect is even less substantively important. It may be that the mechanisms suggested in the competing hypotheses are not mutually exclusive and are occurring simultaneously.

Variables included for population heterogeneity have no significant effect on cooperation probability. The literature suggested that cooperation is more costly and difficult in counties with municipalities that are different from each other on social and economic measures. To measure social heterogeneity, the model included municipal-level standard deviations from the county mean on the percent white. To measure economic heterogeneity, the model included municipal-level standard deviations from the

county mean on the median household income. Localities with higher values on these variables are less similar to their within county peers on racial composition and wealth, respectively, leading to expectations of reduced likelihood of cooperation. Neither variable reaches standards of statistical significance. The results suggest that, when controlling for municipal population characteristics such as income and racial composition, heterogeneity across municipalities does not systematically affect municipal likelihood of cooperation.

Figure 2-5: Vertical Fragmentation Effect



The positive and significant coefficient for overall revenue growth rate demonstrates that municipalities that experienced higher revenue growth (in constant dollars) over the course of the five-year period between data points were more likely to cooperate. This variable was intended to account for fiscal necessity, which is frequently cited in the literature as a cause of intermunicipal cooperation. This would lead to

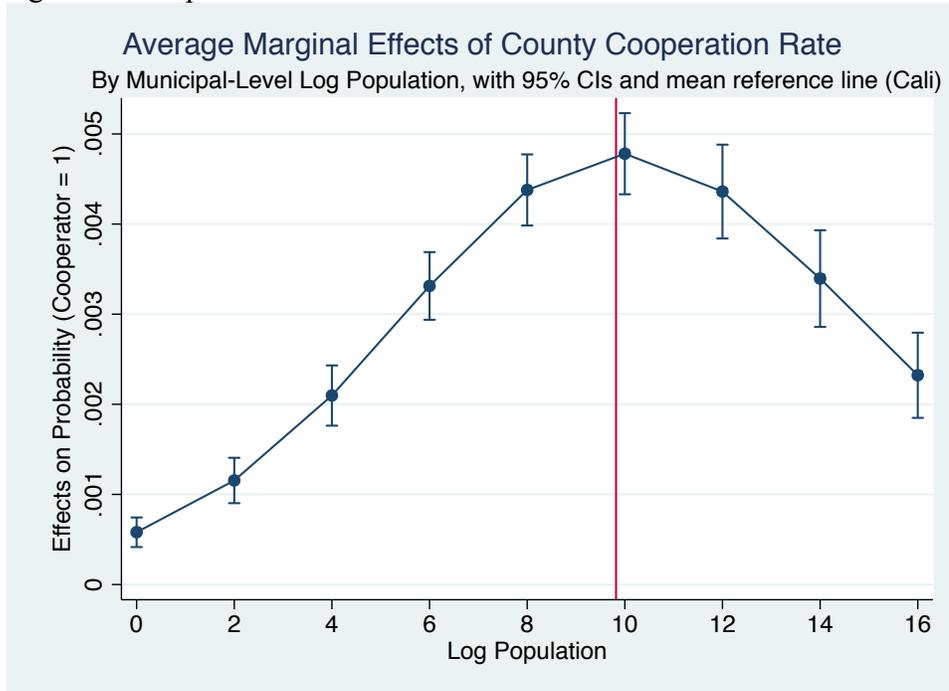
expectations of a negative coefficient. It may be that alternate measures of economic wellbeing would better get at this relationship better than revenue growth (Hendrick 2004). For example, own source revenues as a percentage of total revenues may provide a better indicator of fiscal health (Shrestha 2008). It is also possible that having particularly low or negative growth makes a locality an unattractive partner to potential cooperators.

Finally, most of the municipal-level population controls come out as significant predictors of cooperation. The size of municipality conditions the effect of the lagged cooperation rate, suggesting that cities of different sizes pick up on the behavior of their neighbors at different rates. Figure 2-6 shows that the effect of the lagged cooperation rate is highest for cities of middling size, and lower for the smallest and largest cities. The largest cities are likely to be very different from their neighbors, given their roles as the economic drivers of entire regions, and therefore these big cities may face higher transaction costs and reduced incentives for cooperative agreements, such that learning about others' cooperative efforts does not sufficiently reduce costs to produce an agreement. The smallest municipalities may be less likely to learn about the cooperative efforts of their neighbors because of differential capacity for learning. The smallest municipalities, which typically have all volunteer leadership and no staff, are less likely to have elected officials who are engaged in municipal leadership networks that help produce learning effects. Moreover, even when they do learn, these very small municipalities may feel less need to replicate their neighbors' cooperative policies because small towns typically provide fewer services.

Table 2-2: GEE Model Results

	GEE Logit Model with state FE
Pct of Other Municipalities Cooperating (county level, lagged)	0.0068* (0.0011)
Log Population	0.3182* (0.0106)
Log Population X Pct of Other Munis Cooperating (lag)	-0.00058* (.00015)
Log Revenue Growth Rate	0.1916* (0.0083)
General-Purpose Govs per 10 sq mi (county level)	-0.0332* (0.0039)
GPGs per 10 sq mi X Pct of Other Munis Cooperating (lag)	.00037* (0.000053)
Special-Purpose Govs per 10 sq mi (county level)	0.0012* (0.0004)
Standard Dev. Percent White	0.012 (0.0103)
Standard Dev. MHI	0.0001 (0.0111)
Log MHI (2010 dollars)	-0.29* (0.03)
Percent Poverty	-0.0088* (0.0011)
Percent White	-0.0019* (0.0007)
Percent Urban	0.0015* (0.0002)
Robust standard errors in parentheses * p<.01 N Groups = 34,590 N Obs = 200,980 Avg Obs per group = 5.8	WaldChi2(60) =20,821 Prob > chi2 ~ 0.00000

Figure 2-6: Population Interactive Effect



Wealth (MHI), the percentage of the population that is white, and the poverty rate all are negatively associated with cooperation. Municipalities with wealthy residents may have sufficient means to provide goods on their own, while municipalities with high poverty rates may not have the capacity to overcome the transaction costs required of cooperative agreements. More urbanized localities were more likely to cooperate.

Discussion and Limitations

Despite high transaction costs and abundant collective action hurdles, most local governments in the United States cooperate with one another to provide services to their citizens. This paper adds to the literature by quantifying and tracking these interlocal cooperative trends across time and space. By analyzing the cooperative behavior of local governments across the continental United States over a 30-year period, the paper finds that local governments are more likely to cooperate when a larger share of their neighbors

were cooperating in the previous time period. This is consistent with expectations that local government leaders learn from and replicate the cooperative experiments of their peers. Moreover, the analysis shows that the effect of the lagged cooperation rate is greater in counties with high levels of horizontal fragmentation. The effect of an increased share of neighbors who cooperate is greater for local governments situated in counties with higher levels of intermunicipal competition. This supports the idea that competitive dynamics push local governments to learn and replicate cooperative behavior. Previous studies have not considered this conditioning effect of local government fragmentation because doing so requires a model that accounts for changes over time. The dataset constructed for this paper uniquely allowed for this test across a broad swath of U.S. municipal governments. Results confirm the presence of a conditioning effect: local government density affects the diffusion process itself, not just the probability of cooperation.

Not only is this finding new, it is also somewhat counterintuitive. Expectations of municipal behavior rooted in the Tiebout (1956) model focus on the ways in which competitive dynamics *separate* local governments, leading to insular policy. However, the results here show that these same competitive dynamics can actually inspire the diffusion of cooperative policy, encouraging local governments to pick up on the cooperative behavior of their neighbors.

The findings lend support to the theory that cooperative behavior diffuses across local boundaries. The positive effect of the lagged cooperation rate of neighbors on a municipality's likelihood of cooperating suggests that local elites learn from their neighbors and grow networks of trust over time through past cooperative experiences.

This effect is larger for municipalities situated in counties with higher levels of municipal government density, which supports the hypothesis that interlocal competition drives the diffusion process. The model cannot directly test for these mechanisms, but the results provide suggestive evidence that learning, social networks, and competition all may be at work. In Chapter 4, I address the question of diffusion mechanisms more explicitly using embedded experiments in a large national survey of municipal officials. That project also draws a distinction between successful and unsuccessful experiences with cooperation. The current model does not assume that all cooperative experiments will result in diffusion; failed agreements, while not measurable in the model, may help explain why diffusion does not occur in all places at all times.

This paper argues that existing theories grounded in the Institutional Collective Action framework have not completely accounted for the mechanisms that drive cooperative behavior across local government boundaries. The paper bolsters the ICA framework with diffusion theory, allowing for new predictions about these mechanisms and the patterns of cooperative behavior they produce. A unique dataset of nearly all municipal governments in the United States over a 30-year period provided the means to examine patterns of cooperation and detect the influence of the hypothesized diffusion mechanisms of learning, trust development, and interlocal competition. The findings provide preliminary evidence that all three of these mechanisms are influential drivers of cooperative policy. The dataset demonstrates that local leaders regularly select interlocal cooperation as a tool of governance and that the cooperation rates of their neighbors, conditioned by the level of local government density and city size, help predict this selection.

CHAPTER 3

FUNCTIONAL DYNAMICS IN THE DIFFUSION OF INTERLOCAL COOPERATION

Introduction

Interlocal cooperation among municipal governments in the United States diffuses across borders as local leaders learn from the cooperative policies of their municipal neighbors and replicate them to achieve similar gains in efficiency and quality of service. This occurs, in part, because elected leaders have strong incentives to remain competitive with their neighbors for taxpayers and development (Tiebout 1956). However, existing analyses of this diffusion process test across all functions of government, without differentiating between the various types of public services in which localities may cooperate with their regional peers (see Chapter 2). This paper argues that the behavior of neighboring jurisdictions will be more important in predicting cooperative behavior of municipal governments within particular types of functions. The diffusion process then will more intensely drive interlocal cooperation within certain types of local services.

Municipalities provide a range of goods and services packages to their citizens. Some provide many services, including police, fire, trash removal, drinking water, sewer management, and parks. Others provide fewer services and may require their citizens to contract privately for some services or rely on other levels of government, such as special districts, for service provision. The various functions provided by local governments differ from one another in important ways. For example, some functions are particularly labor-intensive, while others are more capital-intensive. Various authors have explored the importance of this distinction in local government policy outcomes (Altshuler et al.

1999; Post 200; Savitch and Vogel 2000). Another typology of local services posits that functions can be divided into two major categories: system maintenance and lifestyle services, with system maintenance referring to those services absolutely necessary for function of the municipality. These include sewers, highways/streets, and trash removal. Lifestyle services refer to those functions that tend to distinguish localities from one another and for which citizens may have very distinct preferences for the ideal service level. These include education, health, welfare, and parks (Williams 1971).

These typologies provide important insights that not only relate to the general likelihood of cooperation, which has been explored in past research, but also, the degree to which the diffusion process should matter in predicting cooperation, a factor that has not received attention in the literature. An investigation of the ways local governments are affected by the cooperative agreements of their neighbors differently within different types of functions will provide a more complete understanding of why interlocal cooperation occurs, and importantly, why it often does not. I argue that functional variation is associated with systematically different cost-benefit structures for interlocal cooperation. Some functions tend to produce greater gains through cooperation, and some have significantly larger hurdles and costs associated with negotiating, monitoring, and enforcing the terms of interlocal agreements.

The theory developed below argues that the capital-intensive/labor-intensive typology helps identify functions with larger potential gains from cooperation, while the system maintenance/lifestyle typology helps identify functions with higher costs of cooperation. When transaction costs exceed expected benefits, there is a gap that prevents a cooperative agreement from occurring, according to the Institutional Collective Action

framework (Feiock 2013). I think of this gap like a budget gap – it only exists when costs exceed benefits, preventing a cooperative agreement from forming. When expected benefits match or exceed expected costs, the cooperative agreement occurs. The diffusion process, I argue, shrinks these cost-benefit gaps, and in some cases closes them, by providing local leaders with information about cooperation as an option, the expected behavior of partners, and the outcomes of such agreements. It also creates networks of trust among local leaders who become connected through past cooperative experiences and the cooperation efforts of others in their professional networks. Where the gaps close through this learning and network development process, the result can produce cooperative agreements that would not have occurred without the cooperative experiments of municipal neighbors. If diffusion of cooperation is occurring, a locality will become more likely to begin cooperating if a larger share of its neighbors were cooperating in the past.

The theory below suggests that the diffusion process will drive cooperative behavior most dramatically where the gaps between costs and benefits are relatively small, and therefore, easier to close. The diffusion process, I expect, will be more muted in functional areas with large gaps between expected costs and benefits, since these will more often be too large to overcome, even with the information and incentives produced from the cooperative behavior of a jurisdiction's neighbors. The typologies are used to identify functions that tend to have relatively small cost-benefit gaps and those with larger gaps. The theory developed below is tested using a large dataset of interlocal transfers by nearly all general-purpose local governments in the United States, excluding counties, over a 30-year period. The results show that the intensity of the diffusion of

cooperation varies across these functional types, with the most dramatic diffusion process occurring within small-gap functions, such as highway maintenance and sewers.

Diffusion and Functional Variation: The Literature

Past research in policy diffusion leads to expectations that the diffusion process of a policy depends upon the nature of that policy. Nicholson-Crotty (2009), for example, challenges existing theory on the functional form of policy diffusions as laid out by Gray (1973). The Gray model supposes that diffusion is S-shaped: slow at first while early adopters' experiences are developing and being watched by others. Then, others adopt the policy rapidly, leveling off at some point at which no more governments are likely to adopt. However, the S-shape is not standard across all diffusions, Nicholson-Crotty finds. Instead, the speed and direction of diffusion trends vary from rapid with steady sharp slopes to those that are slow or stunted at some point during the process. The author finds support for hypotheses that policy complexity and policy salience help determine the shape of the diffusion function. His analysis relies on data on the U.S. states and 57 policies from 1850 to 2001.

Nicholson-Crotty suggests the complexity and salience of policies impact the diffusion process through the electoral connection of policymakers to their constituencies. Policy salience increases policymakers' willingness to trade short-term electoral gains for potential long-term costs, thereby reducing or eliminating the policy learning period for highly salient policy areas. Meanwhile, complexity has a negative effect on diffusion speed, since short-term and long-term effects of a policy may be more difficult to ascertain. This implies that high-salience, low-complexity policies are most likely to diffuse rapidly.

Interlocal cooperation, however, often occurs without citizen or media attention. Moreover, salience in this area does not necessarily translate to voter preference for cooperation. Instead, cooperative experiments in the functions most salient to citizens may actually be less likely to diffuse to neighbors because voters tend to prefer local control of such functions (e.g. police, zoning), and so cooperative proposals for these services are more likely to inspire public controversy. In many functional areas, citizens pay little attention to how their cities go about providing public goods. These functional areas may provide opportunities for political leaders to create cooperative policy that results in better outcomes without the voters noticing the organizational change but appreciating the quality of life or fiscal benefits.

Variation in citizen preferences and preference intensity in certain service types is expected to affect the diffusion process since local leaders are driven by electoral incentives to provide the packages of goods and services their citizens demand and to do so in the most efficient ways possible. So, I expect the degree to which the behavior of a local government's municipal neighbors affects its likelihood of adopting cooperative policy to depend upon the type of function provided.

Interlocal Cooperation and Functional Variation: The Literature

Existing literature argues that local governments will combine their efforts when cooperation allows for provision of a service they could not provide individually (Olson 1965) and when cooperation results in higher quality and/or lower cost service provision (Stein 1990). They cooperate when the benefits of doing so (often via economies of scale and capture of externalities) outweigh the costs (Feiock 2007; Lubell et al. 2002; Ostrom

1990). As the costs and benefits of various cooperative agreements vary depending on the type of function for which local governments are working together, functional variation should matter in predicting cooperative policy outcomes. Additionally, because functional variation speaks to the size of the gaps between costs and benefits that prevent cooperation, functional types also should help predict the intensity of the diffusion process, which operates by reducing the costs of cooperation, and thereby eliminating these gaps.

The extent to which municipalities tend to cooperate within some functions more than others has been the subject of existing research. Post (2002) finds that the geographic density, or spatial fragmentation, of local governments leads to higher cooperation levels across all functions of municipal government, but that this positive relationship is stronger for capital-intensive (as compared to labor-intensive) functions, which are associated with greater opportunities for realizing economies of scale. Post reasons that where local governments are spatially smaller, the opportunities for capturing economies of scale are enhanced, leading to greater potential benefits of cooperation. Capital-intensive functions typically involve large upfront costs, such as equipment and materials. The purchase of these upfront expenditures is more efficient, and sometimes only possible, when completed in large quantities for larger populations, which drives down the average cost. Labor-intensive functions lack these high upfront costs, so the cost of providing such services is not likely to respond to increases or decreases in scale of the service provision. As such, these functions do not typically benefit from the economies of scale that may be sought through interlocal cooperation (Altshuler 1999; Post 2002). Post's work provides clues about how functional variation

and local government fragmentation interact to produce different levels of interlocal cooperation. However, it focuses on only how spatial and local-level factors affect cooperation. It does not assess the role of diffusion in shaping the adoption of cooperation across boundaries.

Another helpful typology for distinguishing among functions of local governments focuses on the purpose of the service provided. Does the service simply allow for basic functioning of the essential systems of the city or does it instead contribute to the quality of life of citizens? “System maintenance” services include highway maintenance, air pollution control, waste/sewerage, and water systems, while “lifestyle” services include public safety, land use, and education (Williams 1971). Lifestyle services, Oliver Williams argued, are those that distinguish localities from one another, the ones through which local leaders compete with one another to attract citizens and development. Centralization of service delivery is easier in system maintenance functions because they are less politically controversial, less visible to the average citizen, and associated with uniform expectations of citizens: these are essential services with little variation in demand (LeRoux and Carr 2010; Williams 1967; 1971). People want their trash picked up when they put it on the curb and their water to run when they open the faucet. Typically, there is little concern among voters about how these services are provided, only that they are provided.

Meanwhile, lifestyle services, such as parks, land use planning, police protection, education, public housing, and welfare, are provided at quite different levels and in different ways in different localities. Citizens tend to have stronger and more variable preferences in these functions that lead to greater politicization of questions about their

provision. Lifestyle services are associated with decentralized service provision that allows for local control. Wealthier jurisdictions provide distinct service packages through enhanced levels of lifestyle services. These are the functions through which local leaders compete with one another for citizens and development (Williams 1967; 1971). Lifestyle functions are those that involve social access, such that services are targeted at specific populations or used to attract certain types of citizens. Citizen preferences for levels of service vary within these functions. For example, low-income citizens will tend to have higher demand than more affluent citizens for welfare and social services. In the case of a wealthy suburb, local leaders might prefer to focus on parks and recreation, police protection, and land use planning to attract wealthy taxpayers and to provide lower levels of social services to prevent an influx of higher-need citizens.

This typology, too, helps predict the general likelihood of interlocal cooperation and may also help explain how much the diffusion process matters in driving selection of this policy tool. Existing literature provides empirical support for the idea that system maintenance services lend themselves to interlocal cooperation more than lifestyle services do (Gainsborough 2002; Howell-Moroney 2008; Julnes and Pindur 1994; LeRoux and Carr 2010; Rawlings 2003; Savitch and Vogel 1996), although Wood (2006) finds no difference in interlocal cooperation levels between the two types in the Kansas City region. Consistent with expectations stemming from Williams's typology, LeRoux and Carr (2010) find that interlocal networks among government actors in the Detroit region are more centralized and denser for system maintenance functions than lifestyle functions.

The reasoning for higher overall levels of cooperation in system maintenance functions is that they tend to be less value-dependent and involve more universal expectations for service provision levels and lesser degrees of controversy and concern among citizens about how these services are provided (Gerber and Loh 2011; LeRoux and Carr 2010; Post 2004; Wood 2006). “Lifestyle services are expected to remain decentralized because citizens fight to protect local control of these functions and to exclude outsiders from enjoying their benefits,” (LeRoux and Carr 2010, p. 452). In their study of Michigan interlocal cooperation, Gerber and Loh (2015) note that they select land use planning as the function under investigation as a conservative test -- because of this function’s status as a lifestyle function associated with greater hurdles to cooperation.

As with research that focuses on the capital/labor-intensive distinction, existing studies on the importance of service type according to the system maintenance/lifestyle typology focus on how these types produce different governance strategies, such as interlocal cooperation. But none has examined how this typology may help explain variation in the diffusion of cooperation across space and over time. Further, none of the existing studies have examined variation in interlocal cooperation as it relates to both typologies: capital/labor intensive and system maintenance/lifestyle.

Theory

Local leaders are more likely to engage in interlocal cooperation under a host of conditions, for example when they are more connected to one another through social networks (Kwon and Feiock 2010), when they have a larger supply of potential partners (Post 2002), and when local entrepreneurs on city councils seek out cooperation

(Zeemering 2008). The diffusion of cooperation is a separate concept, referring to the spread of cooperation among neighboring localities, the leaders of which learn about the cooperative agreements of their peers and replicate them to realize similar gains.

Diffusion is evident when localities surrounded by more cooperators become more likely themselves to cooperate in the future.

The typologies discussed above provide distinct information about the nature of particular functions of local government. Each suggests that one of the two types in the classification system should be associated with higher levels of cooperation for various reasons. When combined into a single typology, the classification system will provide four categories associated with distinct costs and benefits for interlocal cooperation. One of these categories will include low-cost, high-benefit functions that lend themselves to cooperation, sometimes producing cooperation organically, with or without the influence of diffusion. However, this same category also will exhibit the most intense diffusion process because the cost-benefit gaps that do exist when cooperation does not occur tend to be smaller in these functions. These gaps exist when costs exceed benefits. There is no gap when benefits meet or exceed costs, and in these cases cooperation occurs. Costs may include time and resources dedicated to negotiation, information gathering, and monitoring, as well as potential political costs if an agreement fails or upsets citizens. Benefits may include efficiencies, improved service quality, and political benefits associated with citizen satisfaction when agreements succeed. The diffusion process, which operates by reducing transaction costs, will more often be able to reduce costs sufficiently to close gaps in relatively low-cost, high-benefit functions because the gaps here are typically smaller.

Another category will include high-cost, low-benefit functions in which cost-benefit gaps are larger and harder to close via the diffusion process. Existing work suggests cooperation should occur more in capital-intensive and system maintenance functions, due to greater opportunities for economies of scale and lower variation in citizen preferences, respectively. As such, those functions that fit into both these categories, such as highway maintenance, water, and sewers (See Table 3-1) should have the highest overall cooperation levels and the smallest cost-benefit gaps in cases where cooperation has not yet occurred. Those functions that are both labor-intensive and lifestyle should be associated with the lowest levels of interlocal cooperation and the largest cost-benefit gaps due to reduced opportunities for economies of scale and more variable preferences among citizens and greater desire for local control.

Table 3-1: Typology of Local Government Functions⁹

	Capital-intensive	Labor-intensive
System Maintenance	airport highways water sewerage parking natural resources <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-left: 20px;">SMCI – small gaps</div>	administration corrections protective inspections solid waste management general control
Lifestyle	parks housing libraries	education fire health hospitals police welfare <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-left: 20px;">LLI – large gaps</div>

⁹ These functions come from the Census of Governments (COG) financial data on local governments. The assignment of particular COG functions to these categories is modeled after Post (2002) for the capital/labor intensive typology and LeRoux and Carr (2010) for the system maintenance/lifestyle typology. Not all functions provided in the COG data are included in the typology, as the types are not entirely mutually exclusive. For example, transit is considered cost- and labor-intensive and is therefore not included.

This 2x2 typology produces the following testable hypothesis:

Hypothesis 1: Cooperation rates will be highest for system maintenance/capital-intensive function, lowest for lifestyle/labor-intensive functions, and intermediate for system maintenance/labor-intensive lifestyle/capital-intensive functions.

The functional types mapped out above should help predict patterns of interlocal cooperation. However, across all types of functions, the diffusion mechanisms of learning, development of networks of trust, and interlocal competition should lead to an increased likelihood of cooperation when a larger share of a municipality's neighbors were cooperating in the past. Neighbors learn from the cooperative experiments going on around them: about the options for cooperation, the expected outcomes of cooperation, and the expected behavior of potential partners. They are driven to create competitive tax-and-spend packages in order to attract and maintain a healthy tax base. Regardless of the costs and benefits of cooperation in a particular functional category, costs should generally be reduced through these diffusion mechanisms, shrinking the cost-benefit gaps and leading to more cooperative agreements in each of the functional categories.

Hypothesis 2: For SMCI (small gap), LLI (large gap), and intermediate categories (Table 3-1), the relationship between the share of a municipality's neighbors that were cooperating in the past and the municipality's likelihood of cooperating in the present will be positive.

The typical size of cost-benefit gaps that prevent cooperative agreements should help determine the degree to which the diffusion process drives increased cooperation. When the cost-benefit gaps are relatively large (LLI functions) due to reduced opportunities for efficiencies of scale and greater variation and intensity of citizen

preferences, the diffusion process will less frequently close the gap and cause a new cooperative agreement to be formed. While diffusion processes may be able to reduce transaction costs to an extent, intense public attention to these services, which often favors local control, paired with limited opportunity for economic benefits, will make the diffusion process more difficult for LLI functions. I hypothesize that the diffusion process for LLI functions will be muted compared to the process for SMCI functions due to higher, often insurmountable, costs, and reduced potential benefits. The cooperative behavior of neighbors will be a more important driver of adoption of interlocal cooperation in cases where the potential benefits of cooperation are higher and costs tend to be lower (SMCI), producing smaller cost-benefit gaps that the diffusion process has a greater chance of closing.

Hypothesis 3: The positive effect of the share of municipal neighbors that cooperated in the past on a local government's likelihood of cooperation in the present will be greatest for SMCI (small gap) functions, lowest for LLI (large gap) functions, and intermediate for the other types.

Chapter 2 established that the level of spatial fragmentation of municipal governance in a region moderates the diffusion of interlocal cooperation. The diffusion process is more intense in highly fragmented regions due to enhanced competitive forces in these areas. Local leaders have to be more concerned about the potential exit of citizens who “vote with their feet” in regions with many small localities, where exit options are more plentiful and proximate. So, local governments situated in regions with high levels of spatial fragmentation of municipal governance are more positively influenced to cooperate in the present when their neighbors were doing so in the past. I

expect this interactive effect to hold across the functional categories in Table 3-1. However, this interaction should be most dramatic in the functions for which cooperation is most likely to allow for gains from economies of scale and produce little controversy among citizens. Within SMCI (small gap) functions, local leaders under relatively intense interlocal competitive pressures, will be more likely to pick up on the behavior of neighbors than leaders in less competitive regions. However, in LLI (large gap) functions, the interlocal competition level of a region may have a reduced effect on the relationship between the past cooperation of neighbors and present likelihood of cooperation. In these functions, citizens tend to prefer local control, allowing leaders to compete with one another for citizens and development by creating distinct tax-and-spend packages. In highly competitive, spatially fragmented regions, local leaders are more likely to be torn between adopting the cooperative experiments of neighbors and retaining local control to maintain municipal identity and attractiveness to taxpayers. Leaders in highly fragmented regions face more intense pressure to provide the goods-and-services packages their citizens want, and in LLI functions, citizens more often and more intensely prefer local control.

Hypothesis 4: The moderating effects of spatial fragmentation of municipal governance on the diffusion process will hold across the functional categories due to increased interlocal competition in high fragmentation areas, but this effect will be strongest for the SMCI category due to lack of public controversy and consistently available gains. In these functions, local governments in highly fragmented regions will be most positively affected by the cooperation efforts of their neighbors. Spatial fragmentation is expected to have a reduced interactive effect in LLI functions because in highly competitive

municipal environments, local leaders are more pressed to distinguish their localities from neighboring ones by retaining local control in these functions.

Method and Data

Census of Governments financial data for nearly all non-county general-purpose governments in the United States was collected for Census years (every five years on the 2s and 7s) 1977 through 2007. For each municipality and data year, interlocal revenues and interlocal expenditures were coded according to the typology in Table 3-1.¹⁰ These interlocal transfers serve as a measure of cooperation. Any transfer in or out of the local government qualifies it as a cooperator in that functional area. Since hypotheses are centered on the two extreme types: system maintenance/capital-intensive (SMCI) and lifestyle/labor-intensive (LLI), the other two types are combined into a single intermediate category. So, for each municipality and data year, the dataset identifies whether the local government cooperated in SMCI, intermediate, and/or LLI functions with binary variables (cooperator/non-cooperator) for each category. These serve as the dependent variables for three separate models.

The primary independent variable in each model is the lagged county cooperation rate for the functional type in question. These variables were created by counting the number of other municipalities in each local government's county that cooperated in the three functional categories in each data year, standardizing by the total number of localities in each county, and lagging by one time period (5 years). If Hypothesis 2 is

¹⁰ The system maintenance/capital-intensive type includes air transportation, highways, water transportation, sewerage, parking, and natural resources. The system maintenance/labor-intensive type includes financial administration, corrections, protective inspections, solid waste management, judicial, and central staff. The lifestyle/capital-intensive type includes parks, housing, and libraries. The lifestyle/labor-intensive type includes education, police, fire, health, hospitals, and welfare.

correct, then the lagged county cooperation rate in a functional category will have a positive effect on a municipality's likelihood of cooperating in that functional category in the present. This effect is predicted to be stronger (more positive) for SMCI functions due to enhanced opportunities for economies of scale and lower transaction costs that produce smaller cost-benefit gaps to be closed by the diffusion process (Hypothesis 3). To test Hypothesis 4, an interaction term is included for fragmentation of municipal governance, measured as the number of general-purpose governments per 10 square miles.

Variables are included for spatial vertical fragmentation, measured as special-purpose governments per 10 square miles; logged population, logged median household income, logged revenue growth, percent in poverty, percent white, and percent urban. Additionally, since past work suggests population heterogeneity should be associated with more hurdles to cooperation, the model includes variables that measure how different the municipality is from its neighbors on measures of racial composition and income.¹¹ Given Chapter 2 findings that the population of a municipality moderates the diffusion effect with largest diffusion effects in cities of moderate size, an interaction term for population and the lagged cooperation rate is included in each model, as well. Descriptive statistics on the variables in the models are found in Table 3-2.

Given the binary outcome variable and the assumption of within-panel correlation, a Generalized Estimating Equation with binomial family and logit link is used to fit each of the three models. The models include state fixed effects, due to state-level institutions and rules that shape interlocal cooperation.

¹¹ To calculate the heterogeneity measures for each city-year, I calculated a standard deviation from the county mean on measures of Percent White and Median Household Income.

Table 3-2: Summary Statistics on Model Variables

Variable	Mean	SD	Min	Max
SMCI Cooperator	0.1989	0.3991	0	1
Intermed Cooperator	0.0501	0.2182	0	1
LLI Cooperator	0.0945	0.2925	0	1
Log Population	6.9714	1.6868	0	15.9214
Log Revenue Growth	0.4912	.5928	-7.0682	7.5589
GPGs per 10sqm (Horiz. Frag.)	1.8104	6.1532	0.0037	97.347
SPGs per 10sqm (Vert. Frag.)	3.9706	22.3342	0	615.7051
Log Median Household Income	10.731	0.3542	7.4	13.1213
% in Poverty	13.06	9.5	0	100
% White	92.86	13.64	0	100
% Urban	25.69	41.3	0	100
Racial Heterogeneity	0.6983	0.659	0.0000019	8.1466
Income Heterogeneity	0.7649	0.5801	0.0000142	6.4872

Results

Table 3-2 shows that the means for the function types follow the expected pattern, generally. SMCI functions have the highest cooperation rates with 19.89 percent of the municipalities in the dataset showing interlocal transfers in the high-benefit, low-transaction cost services, such as highways and sewers. The low-benefit, high-cost of cooperation LLI functions have lower rates of cooperation, with 9.45 percent of the observations showing transfers in these functions, which include police and education. The intermediate category has the lowest cooperation rates, at 5 percent. Paired comparison of means t-tests indicate these differences are highly statistically significant ($p < .001$, $N = 243,460$). Overall, the findings demonstrating the difference between SMCI and LLI functions support Hypothesis 1, which suggested SMCI functions should have significantly higher overall rates of cooperation than LLI functions due to distinct cost-benefit structures for cooperative agreements. However, the finding that

intermediate categories have the lowest overall cooperation rates is unexpected. The theory above predicted that these functions would have middling cooperation levels.

With respect to the diffusion effect, measured as the relationship between the lagged county cooperation rate and a municipality's likelihood of cooperation in the present, the association is positive and significant for all three models (see Table 3-3), which provides support for Hypothesis 2. I expected that municipalities would be more likely to cooperate within each of the three categories when more of their neighbors were cooperating in those categories in the past. This would result from the diffusion process, driven by the mechanisms of learning, developments of networks of trust, and interlocal competition for taxpayers and development. These mechanisms drive down the transaction costs of cooperative agreements and create heightened incentives for cooperation in all of the functional categories.

However, as expected, this relationship is not consistent in level across the three functional types. As coefficients in this GEE model with a binary outcome variable and multiple interaction terms are difficult to interpret, I present the distinctions in size of the diffusion effect between the SMCI (small cost-benefit gap) and LLI (large cost-benefit gap) types in Figures 3-1 and 3-2. Figure 3-1 shows the predicted probability of cooperation for a municipality within the SMCI functions, which have high startup costs and are relatively behind-the-scenes functions in the eyes of citizens. The figure shows that, when all other variables are set at their means, an increase in the percentage of neighboring municipalities that cooperated in SMCI functions in the past produces an increase in the probability the municipality will cooperate in SMCI functions in the present. This is true for all functional types, but the relationship is strongest in SMCI.

This supports Hypothesis 3, which stated the effect should be weakest in LLI functions due to substantially increased size of cost-benefit gaps for cooperation associated with LLI functions (reduced opportunities for economies of scale, variable and intense citizen preferences). In these cases, I hypothesized, the diffusion process would face more serious challenges and would less frequently result in the closing of the cost-benefit gap to produce new cooperative agreements. SMCI functions tend to have smaller gaps that can be more easily closed through the diffusion process.

Indeed, in the SMCI functional type, an increase in the lagged county cooperation rate from 0% to 100% produces an increase in the predicted probability of cooperation from less than .1 (10%) to more than .5 (50%) (see Figure 3-1). The same increase in the cooperation rate for LLI functions is associated with an increase in likelihood of cooperation from .13 (13%) to .25 (25%) (see Figure 3-2). As expected, the effect size for the Intermediate type falls between the SMCI and LLI types.

Figure 3-1: Cooperation Diffusion for SMCI Functions

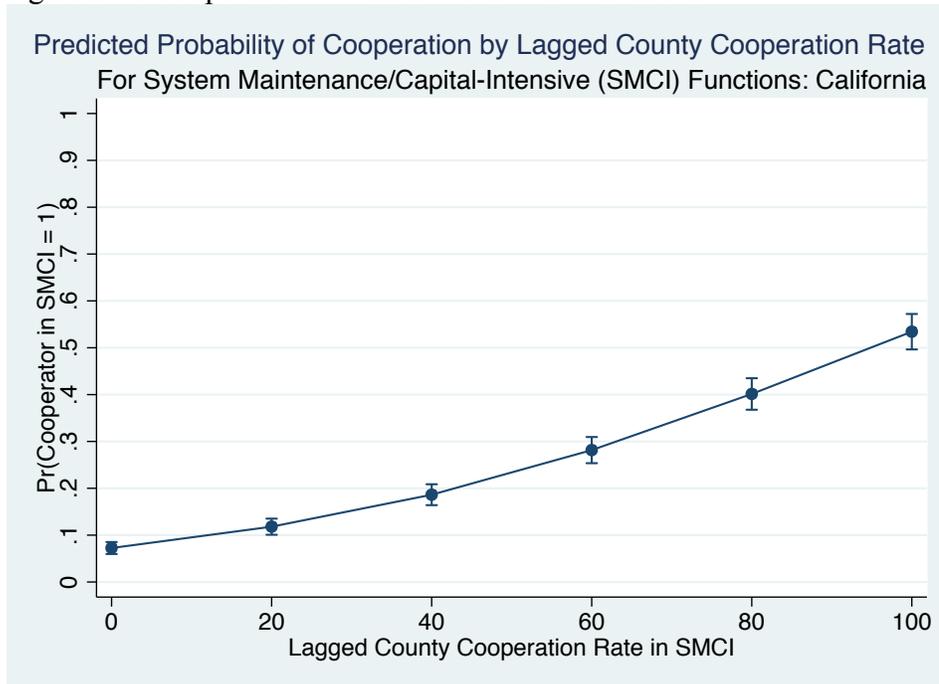
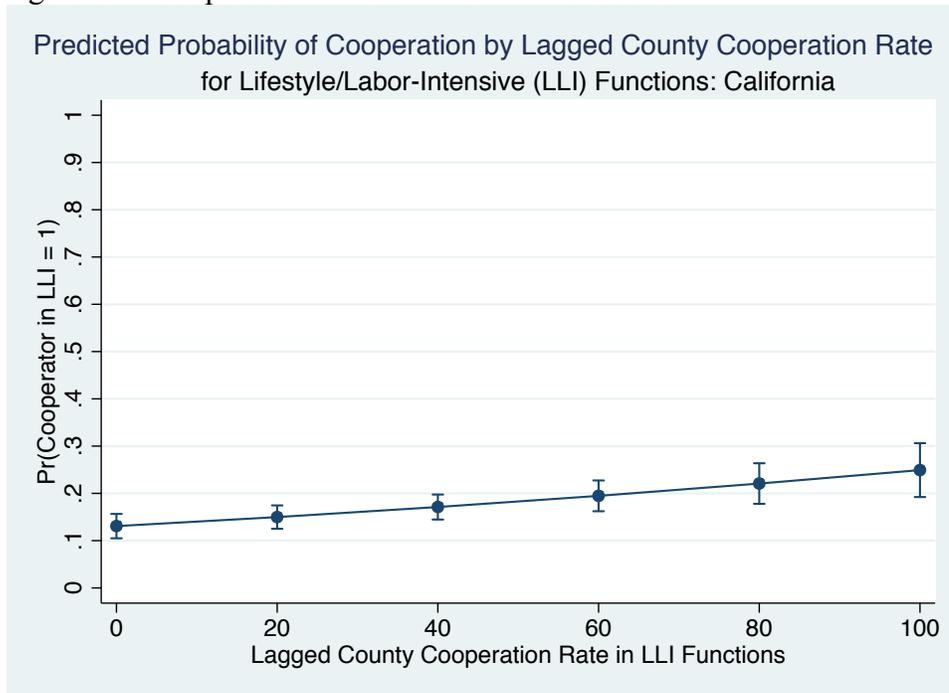


Figure 3-2: Cooperation Diffusion for LLI Functions



The results demonstrate that the moderating effect of spatial fragmentation of general-purpose local governments is distinct for the functional types. The theory above argued that in highly fragmented counties, competition among local governments would be more intense due to easier and plentiful exit options for citizens who “vote with their feet.” In highly fragmented counties then, the relationship between the lagged county cooperation rate and probability of municipal adoption of cooperation would be stronger than in low fragmentation counties where competitive dynamics are weaker. Consistent with Hypothesis 4, the level of horizontal fragmentation does moderate the relationship between the lagged county cooperation rate and the probability of a municipality cooperating in the present, but only for the SMCI and Intermediate types. I hypothesized that this interactive effect would be most dramatic when functional areas of cooperation create little public controversy and greater opportunities for efficiencies (Hypothesis 4). The results show that when costs are relatively low and benefits high (SMCI), the level of

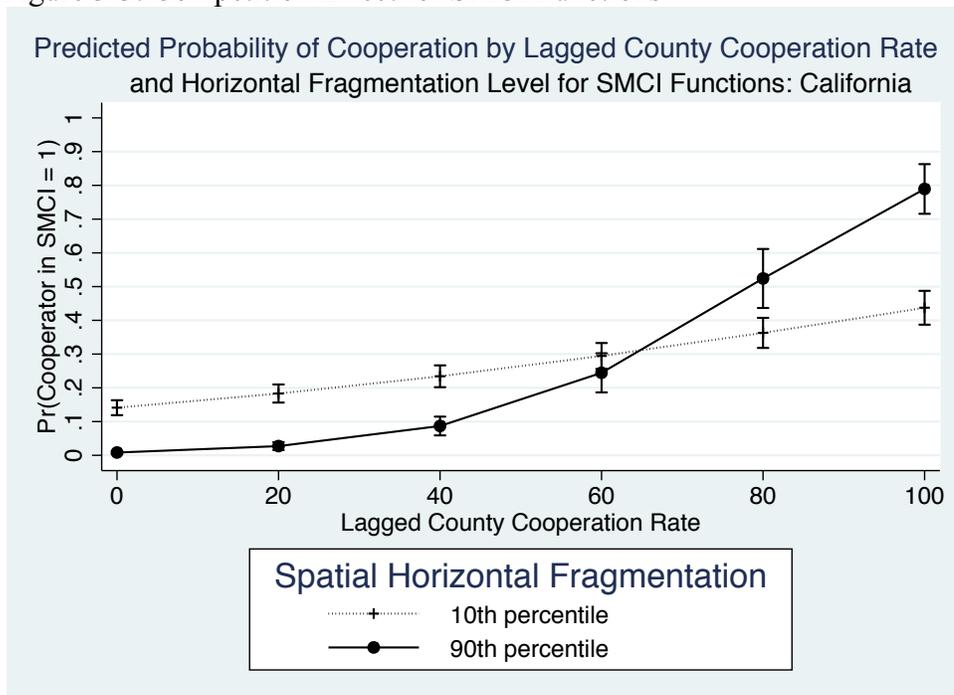
local government fragmentation does moderate the relationship between the lagged cooperation rate and likelihood of cooperation in the expected direction (see Figure 3-3). For LLI functions, the spatial fragmentation of a county has no bearing on the size of the effect of the lagged cooperation rate on the probability of cooperation (see Table 3-3).

Table 3-3: GEE Results for Functional Categories with State Fixed Effects

	SMCI	Intermediate	LLI
Lagged County Cooperation Rate	0.0062** (0.0017)	0.0244** (0.0039)	0.0326** (0.0024)
Log Population	0.2783** (0.0113)	0.3391** (0.0166)	0.3731** (0.0165)
Log Revenue Growth	0.224** (0.0109)	0.0645** (0.0199)	0.1365** (0.0138)
General-Purpose Govs per 10 sqm	-0.035** (0.0035)	-0.0047 (0.0037)	0.008* (0.004)
GPGs per 10 sqm X Lag Coop Rate	0.0005** (0.00005)	0.0008** (0.0002)	-0.00006 (0.00009)
Log Population X Lag Coop Rate	0.0009** (0.0002)	-0.0019** (0.0005)	-0.0024** (0.0003)
Special-Purpose Govs per 10 sqm	0.0019** (0.0007)	-0.001 (0.001)	0.0002 (0.0006)
Log MHI	0.2168** (0.0397)	-0.2513** (0.0797)	0.519** (0.066)
% in Poverty	-0.0005 (0.0015)	-0.0034 (0.0033)	0.0058** (0.0025)
% White	0.0009 (0.0009)	-0.0088** (0.0013)	-0.0027** (0.0013)
% Urban	-0.0038** (0.0003)	0.0075** (0.0005)	-0.0004 (0.0004)
Racial Heterogeneity	0.0092 (0.0126)	-0.0363 (0.0235)	-0.0081 (0.0206)
Income Heterogeneity	-0.0549** 0.0141	0.0352 0.0264	-0.013 0.022
Robust standard errors in parentheses **p<.01, *p<.05 Wald Chi2 (60) Prob > Chi2	13,223.13 ~0	9025.45 ~0	14,018.86 ~0
N Obs: 201,005 N Groups: 34,650 Avg obs per group: 5.8			

For the SMCI functions, the moderating effect is demonstrated by the difference in the size of the diffusion effect for municipalities situated in counties with horizontal fragmentation levels at the 10th and 90th percentiles (see Figure 3-3). In a low fragmentation county (10th percentile), where interlocal competition is less intense, an increase in the lagged county cooperation rate from 0% to 100% is associated with an increase of 29 percentage points in the probability of municipal cooperation, from 14% to 43%. Meanwhile, in a high-fragmentation county (90th percentile), where competition dynamics are stronger, the same increase in the lagged county cooperation rate is associated with an increase of 77 percentage points in the likelihood of municipal cooperation, from 1% to 78%. For the Intermediate type, the distinction between the diffusion effect at low and high levels of horizontal fragmentation is also very pronounced.

Figure 3-3: Competition Effect for SMCI Functions



Hypothesis 4 reasoned that for LLI functions, the interaction effect would be dampened due to heightened public controversy and preference for local control over these services, which often relate to issues of social access. These services include welfare, health, education, and public safety. In fact, in these functions, the level of horizontal fragmentation has no effect on the relationship between the lagged county cooperation rate and likelihood of municipal of cooperation in the present. Within LLI functions, the data suggest, the competitive environment among localities does not affect the intensity of the diffusion process, which is relatively muted across the board when compared to SMCII functions.

Discussion

The results presented above show that the intensity of the diffusion of interlocal cooperation depends upon the type of services provided. Past research has investigated the relationship between some types of functions and general likelihood of interlocal cooperation, but none had yet investigated the importance of functional variation in the spread of cooperative policy. This paper introduced a new combination of existing typologies that not only speaks to general likelihood of cooperation, but also importantly, provides predictions for how the diffusion of interlocal varies depending on functional categories. These predictions are supported by the data, which include interlocal transfers for nearly every general-purpose, non-county local government in the United States over a 30-year period. Not only are the findings above key to understanding why interlocal agreements occur when and where they do, but they also shed light on why cooperation may *not* spread in particular functions. The diffusion process faces greater hurdles within

some functions, and an understanding of this variation provides a clearer picture of the adoption of cooperative policy for scholars of local politics, as well as practitioners.

It should be noted that because the dependent variable in this study is binary – simply cooperation or no cooperation in a particular functional category – the findings are unable to speak to the degree to which diffusion mechanisms may reduce transaction costs in some cases, while not entirely closing the cost-benefit gap. The analysis is limited to explaining when the diffusion effects are sufficient to transform non-cooperators into cooperators, and the findings show that the likelihood of this transformation depends on the functional category of local government services.

While localities are more likely to cooperate when a larger share of their neighbors cooperated in the past in both System Maintenance/Capital-Intensive functions and Lifestyle/Labor-Intensive functions, the positive effect of the diffusion process is substantively greater in SMCI functions. I argue that this distinction stems from the typical size of the cost-benefit gap associated with SMCI and LLI functions. SMCI functions lend themselves to economies of scale and involve little variation in citizen preferences about how these services are provided. On the other hand, LLI functions have reduced opportunities for economies of scale and intense and variable citizen preferences. This means potential benefits of cooperation are relatively higher while transaction costs are relatively lower for SMCI functions. The diffusion of cooperation occurs when local leaders gain information from the successful past cooperative experiments of their neighbors and adopt similar cooperative agreements in order to remain competitive for taxpayers and development. This process, through learning, development of networks of trust, and interlocal competition, reduces transaction costs and heightens incentives for

cooperation. The theory presented above argued that this diffusion process is more intense for SMCI functions because they tend to have smaller cost-benefit gaps to cooperation that can be more easily closed through diffusion mechanisms. The findings provide support for this theory.

Additionally, the results show that for these low-cost, high-benefit SMCI functions, the level of interlocal competition moderates the diffusion process, with the most dramatic diffusion occurring in highly spatially fragmented counties, which are associated with more intense competitive dynamics. I argue that in these functions that tend to create little controversy and consistent efficiency gains, local leaders have little reason *not* to adopt the cooperative experiments of their neighbors and are more intensely driven to do this when they fear losing tax base to very proximate neighbors. This finding is consistent with the Chapter 2 result that spatial density of municipal governance moderates the diffusion process when all functions of government are included in the analysis.

Chapter 2 argued that interlocal competition would be an important mechanism of the diffusion of interlocal cooperation, as local government leaders (to varying degrees) adopt successful cooperative policies to help ensure they do not lose tax base to their neighboring jurisdictions. However, the finding for LLI functions shows an important distinction. In these functions, the results suggest that local competitive dynamics have no effect on the diffusion process. I reason this may be due to conflicting pressures on local leaders in these functions. Local leaders create unique tax-and-spend packages for LLI services, which have social access implications and for which citizens tend to intensely prefer local control. When their neighbors cooperate in these areas, local leaders

may feel the need to respond to these citizen preferences, regardless of the intensity of interlocal competitive dynamics.

CHAPTER 4

MECHANISMS OF COOPERATION DIFFUSION: A SURVEY EXPERIMENT ON MAYORS AND COUNCILORS

Introduction

Local government leaders cooperate with neighboring jurisdictions regularly, choosing to engage in formal and informal interlocal agreements that promise financial savings, gains in efficiency, or enhanced quality of services and other improved policy outcomes. Political elites are more likely to engage in this cooperative behavior when they have had the opportunity to observe cooperative policy experiments of their neighbors because they gain useful information that both lowers the transaction costs of cooperation and enhances the incentives for successful cooperation (see Chapter 2). Successful interlocal cooperation, then, diffuses across local boundaries in much the same way other policies have been found to spread across space and time. One limitation of the work in Chapters 2 and 3, though, is that using observed financial data to measure cooperation does not allow for isolating hypothesized mechanisms of diffusion. This manuscript presents findings from an original survey with embedded experiments that provide clear evidence of the mechanisms that drive the spread of interlocal cooperation.

The theory developed throughout Chapters 2 and 3 argues that the causal mechanisms driving this diffusion are threefold: learning, development of networks of trust, and interlocal competition. When local governments experiment with cooperation, leaders in neighboring localities learn about the option of this governance strategy, its potential benefits or drawbacks, and the behavior of participants in negotiating, monitoring, and enforcing cooperative agreements. They become more likely to

cooperate themselves after exposure to nearby successful cooperation because they know more about cooperation options and their potential partners, they are more likely to have trusted connections with cooperation experience, and they are driven to secure similar gains from cooperation to remain competitive for taxpayers who "vote with their feet."

This paper presents analysis of a survey with embedded experiments that tested the hypothesized mechanisms of diffusion on a sample of more than 800 local leaders, including mayors and council members in the United States. Analysis of their responses found that development of trust was a consistent and strong driver of elite interest in cooperative agreements. Local leaders were more interested in a proposed cooperative agreement when it involved a locality they had worked with in the past. The results also show support for the effects of the learning mechanism. Leaders were more interested in a cooperative proposal if they had read about a successful cooperative experiment in a neighboring municipality earlier in the survey. However, there was no support for the competition mechanism. In general, local leaders were equally interested in a cooperative proposal regardless of whether they had read a news story about a cooperative experiment going on in a neighboring locality they viewed as a competitor or one they viewed as a non-competitor.

Not only do the theory and findings presented below provide a more complete understanding of why local leaders choose cross-boundary cooperation when they do, they also add to an understanding of the diffusion process. Previous diffusion work has focused on mechanisms that influence individual unit (typically city or state) policy adoptions. These mechanisms are learning, competition, and emulation (Gilardi 2015). However, by considering a policy choice that necessarily involves multiple units as

partners, this study illuminates an additional mechanism: the development of trust through past partnerships, which turns out to be the strongest and most consistent predictor of respondents' interest in cooperative agreements. Finally, the experimental design of the project allows for clear distinction between mechanisms, which has been a consistent challenge in the diffusion literature (but see Butler et al. 2015).

Diffusion and Interlocal Cooperation: The Literature

To date, scholarly research on interlocal cooperation and the mechanisms of policy diffusion have remained separate. Diffusion studies have not explored how cooperation among local governments spreads across municipal boundaries, and research on how and why local governments cooperate has ignored the influence of cooperative behavior of neighboring localities.

Mechanisms of Diffusion

A large body of work has explored the general mechanisms of policy diffusion and how these may vary depending on the type of policy or innovation that is under consideration. The literature generally agrees on three primary mechanisms of diffusion: learning, emulation, and competition. Emulation refers to the general level of social acceptance of a particular policy, regardless of objective outcomes. For example, state leaders may defend new taxes by noting that similar taxes exist in other states (Berry and Berry 1992). Simple emulation, or copycat behavior, may drive policy adoption in smaller cities that look to bigger cities for policy guidance (Shipan and Volden 2008). Since interlocal cooperation involves particularly high transaction costs, and often very

little citizen interest, I do not expect this mechanism to play a significant role in the diffusion of cooperation.

The learning process, by which information about the outcomes of policy innovations spreads and affects decisionmaking of leaders in other units of government, has been found to be a consistent driver of diffusion (Berry and Berry 1990; Shipan and Volden 2008). Berry and Berry (1990) in their study of state lottery adoptions test separately internal factors that make states more likely to adopt lotteries, as well as regional diffusion – measured as the number of immediate neighbor states that have adopted lotteries. The authors theorize that learning through professional and political networks, shared media markets, and shared borders influences adoption likelihood. Lotteries are more likely to be adopted when political elites learn about them through their networks with leaders in other states.

Recent diffusion work has shown that the learning mechanism is dependent on policy outcomes. Mooney (2001) demonstrates that policy outcomes are key to understanding when policies diffuse across states. For example, if states have begun picking up on a new policy, but then have bad outcomes, then neighboring states will notice, learn from the information, and *not* adopt the policy. Here, we would expect a negative regional effect associated with a halt or reversal in the diffusion process. Social learning is a complex process, the outcomes of which will be highly variable, depending on the nature of the policy area and the information on the policy and its effects that is available to policymakers. Similarly, in a state-level study of the Children's Health Insurance Program, Volden (2006) finds support for the importance of policy outcomes

on the diffusion process. He finds that early adopters whose policies result in higher rates of health insurance with low costs are more likely to be emulated.

Competition also drives diffusion of policies across state and local boundaries, the literature shows. Berry and Berry (1990) reason that states bordered by states with lotteries will be pushed to adopt their own lotteries to prevent citizens near borders from crossing state lines to play external lotteries, thereby providing tax revenue to competitor states. Competition among states was found to affect welfare payment levels (Volden 2002). While states may want to increase their payment levels to keep up with inflation, they hesitate to do so until their neighbors do. The driving mechanism is that states fear that if their payment levels are higher compared to their neighbors, they may attract needy citizens from other states or drive out wealthier citizens who don't want to pay for the increase. This "race to the bottom" is the result of the competitive nature of states, which must look to their neighbors to determine the optimal package of taxing and spending (Tiebout 1956; Volden 2002).

Throughout much of the diffusion literature, however, operationalization of the hypothesized mechanisms is inconsistent and often conflicting, with the same indicators used to measure distinct mechanisms across studies (Maggetti and Gilardi 2015). For example, various studies use geographic proximity as indicators for learning, emulation, and competition. Simply being near another local government may make a locality's leaders more likely to pick up on its policies for several reasons. Due to shared media markets and professional networks the leaders may hear about neighboring policy innovations (emulation) and their outcomes (learning). These leaders may also be driven to adopt successful policies of neighbors because they compete with them for taxpayers

and development (competition). Separating out which of these mechanisms drives a particular policy adoption, then, is impossible with only an indicator of proximity or contiguity. Gilardi (2015) argues that diffusion scholars should harness the advantages experimental design to better test for mechanisms, noting that this methodology has been almost entirely absent from the diffusion literature to date. However, Butler and coauthors (2015) use embedded experiments in a survey of local elected officials to investigate how political ideology affects local leaders' willingness to learn from one another's policy experiences. They showed respondents vignettes that described the zoning and home foreclosure policies of other cities, offering learning opportunities and found that policymakers who are ideologically predisposed against the described policy were relatively unwilling to learn. However, these officials' ideological predispositions could be overcome with the provision of information that emphasized the policy's outcome or on its adoption by co-partisans in other localities. This paper provides another experimental investigation of the diffusion process, in this case, focusing how the learning environment, competitive dynamics, and trusted networks may drive the adoption of cooperative agreements.

Interlocal Cooperation

The interlocal cooperation literature has provided insights into when local governments are more likely to adopt interlocal agreements. For example, they are more likely to cooperate when there is a greater availability of potential partners (Post 2002), when leaders have more connections with leaders in neighboring jurisdictions (LeRoux et al. 2010; Kwon and Feiock 2010), when cooperation is sought by entrepreneurs in city governments (Zeemering 2008), and when the service to be provided through cooperation

is uncontroversial and associated with uniform citizen preferences (LeRoux and Carr 2010). Much of this research on cooperation among general-purpose governments has leaned heavily on the Institutional Collective Action (ICA) framework, which extends theories of individual-level collective action to institutional decisionmaking (Feiock 2013). Successful interlocal cooperation attempts must hurdle high costs, including informational, bargaining, monitoring, and enforcement costs. Cooperation occurs when expected gains are sufficiently high and transactions costs sufficiently low to make an agreement attractive to all partners (Coase 1960; Feiock 2007).

In sum, the existing literature has established that interlocal cooperation is a high-cost endeavor that is more likely to occur under some conditions, as noted above.

However, earlier observational studies of interlocal cooperation have failed to investigate the diffusion of cooperation across space and time, as well as the mechanisms that might drive the spread of cooperation from neighbor to neighbor. Chapters 2 and 3 sought to address this important question by developing a theory of how cooperation spreads. The theory proposes that when cooperation occurs among some localities, the neighbors of these cooperators (as well as the cooperators themselves) learn from these experiences and develop networks of trust through new and stronger connections among leaders.

Leaders, who must compete with neighboring jurisdictions for taxpayers and development, pick up on the cooperative behavior when it makes sense to do so. This process is driven by the mechanisms of learning, development of networks of trust, and interlocal competition.

Theory

Given the high-cost nature of intergovernmental cooperation, I argue that simple emulation, or copycat behavior, is unlikely to cause the spread of cooperative agreements. These agreements involve multiple players with limited information and transaction costs that include, negotiating deals, monitoring, and enforcing. While cities may copy some policy choices with little thought or analysis, this behavior would be more likely to occur in low-cost policies.

Hypothesis 1: Simply hearing about a cooperative agreement in a neighboring municipality will have no effect on a local leader's interest in pursuing interlocal cooperation.

The first hypothesized mechanism of diffusion for interlocal cooperation is learning. When some local governments begin cooperating, leaders in neighboring localities learn about the agreements through professional networks and media coverage. They have the opportunity to learn about cooperation as a strategy, the behavior of involved partners, and the outcomes of the cooperative agreements. This information lowers transaction costs for the leaders in future cooperative agreements. After learning about cooperative agreements and their outcomes, local leaders will become more likely to adopt successful attempts and avoid replication of failed efforts.

Hypothesis 2: When local leaders are provided with information about a cooperative agreement in a nearby locality and outcome information that indicates the agreement is providing benefits to the involved partners, they will be more interested in cooperation. When they learn the cooperative experiment has failed or had other negative effects for partner cities, they will be less interested in pursuing cooperation.

The second hypothesized mechanism of diffusion of cooperation is development of networks of trust. When local leaders experiment successfully with cooperation in one functional area, they develop trust with the leaders of neighboring municipalities and will be more likely to coordinate on other functions with the same partners in the future. The trust developed through past cooperation helps reduce uncertainty at the bargaining table and ameliorates concerns about defection of partners or dominance by a partner seeking an unfair share of the benefits of cooperation.

Hypothesis 3: Local leaders who have cooperation experience will be more likely to cooperate with municipalities with which they have already cooperated, as compared to those with which they have no history of cooperation.

The third mechanism expected to drive the spread of cooperation is interlocal competition. When local officials see their proximate peers cooperating successfully, they are driven to join the cooperative agreement or form their own agreement with other partners in order to remain competitive for development and taxpayers who vote with their feet. Local leaders want to avoid losing tax base to cities that are offering more attractive tax-and-spend packages. So, when they see cooperative experiments in cities that attract citizens with similar preferences (competitor cities), they will feel more pressure to pick up on successful cooperation to realize the same benefits and remain competitive.

Hypothesis 4: Leaders will be more driven to adopt cooperation when they learn that cities they see as competitors (as compared to those they do not see as competitors) are engaging in successful interlocal cooperation for service provision.

Method and Data

A unique national survey with embedded experiments tested the hypothesized mechanisms. This design, unlike observational studies that dominate diffusion research, allowed for careful isolation of these mechanisms with particular treatments that were randomly assigned to the respondents, more than 800 mayors and councilors from across the United States. The survey, conducted in July 2015, simulated the learning environment of mayors and councilors with a mock news story that presented information about a cooperative agreement involving a nearby local government. Later, it asked the respondents to rate their interest in a cooperative agreement with another specific nearby local government. The design randomly varied treatments within the news story and the cooperative proposal in order to test the hypothesized diffusion mechanisms for their independent effects.

The link to the survey was sent to emails contained in the 2014 American Municipal Officials Survey dataset.¹² The AMOS project is a joint venture between Washington University and Yale University. The dataset, provided by the AMOS project investigators, contains names and e-mail addresses of elected municipal legislators (e.g., city councilors, alderpersons) and executives (e.g., mayors, first selectmen) from a large sample of municipalities from across the United States. The survey instrument, designed and distributed through Qualtrics, was provided via Web link in an email to roughly 25,000 mayors and councilors of cities of all sizes. Of these, 1,861 respondents started the survey and 1,052 completed it. After restricting the survey to those respondents who completed the questions necessary to receive all treatments, the number of respondents

¹² The survey was pretested on municipal leaders in the Syracuse, NY area in June 2015. All municipalities in Onondaga County (which includes Syracuse) were removed from the email listing prior to distribution of the complete survey.

was 874. Roughly 700 of these were councilors or aldermen, with the balance being mayors. Respondents came from 48 states, with no respondents from Nevada or Hawaii.

The dependent variable in the analysis below is the respondent's interest level in a hypothetical, proposed cooperative agreement, which is measured on a 0-10 scale. The survey imposed treatments that ought to affect this score if the hypothesized diffusion mechanisms are at work in driving adoption of cooperative agreements. Two of the three treatments in the survey were provided through a short news story displayed to each respondent. The story shown was randomly assigned to be either a control news story about fraud charges against the owners of a dog rescue charity or a story about an interlocal cooperation agreement for roads maintenance involving a nearby locality. Roads/streets maintenance was selected as the function of interlocal cooperation in this survey experiment because it is a service that nearly all local governments provide. Other services, such as police, fire, water, and health are provided in different places by different levels of governments. Indeed, more survey respondents reported providing this service than any other single service. The nonprofit fraud story was chosen for the control as it had no connection to local government, and would have no effect on officials' preferences on interlocal cooperation.

Those respondents who received the treatment news story also received two additional treatments within it, one to test for the learning mechanism, and another to test for competition. For the learning mechanism, the news story was randomly assigned to display outcome information that was positive, negative, or ambiguous.

To test the competition mechanism, the survey randomly varied whether the city mentioned in the news story was one the respondent viewed as a competitor or a non-

competitor. This information was obtained through an earlier question in the survey in which the respondent was asked: “If someone relocating to your region for a new job were considering moving to your municipality given its real estate options and the levels of services provided, which one other specific municipality (city, town, borough, etc.) in your region do you think they would be *most likely* to also consider in their housing search?” A follow-up question replaced “most likely” with “least likely” to obtain an example of a non-competitor locality. The survey randomly selected one of these responses and filled it into the mock news article. Figure 4-1 shows an example of one of these news stories. In this case the respondent was assigned the cooperation news story (rather than a control story), the non-competitor city (rather than a competitor city), and positive outcome information (rather than negative or ambiguous information).

Figure 4-1: Treatment News Story about Interlocal Cooperation

Read the following news clip under the assumption it appears in your local newspaper:

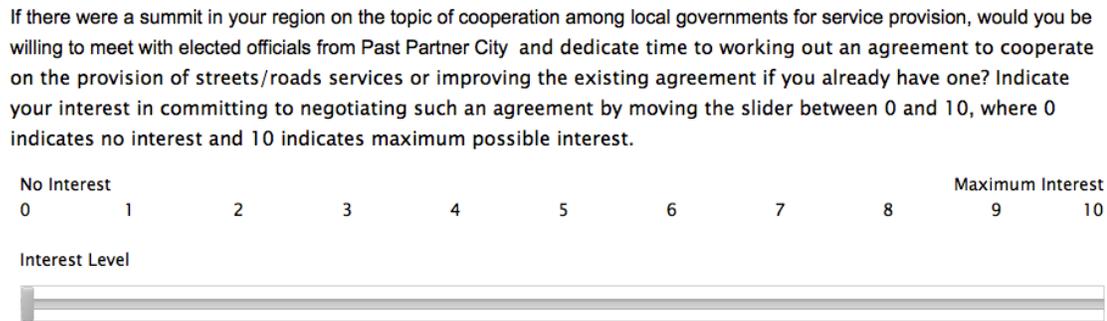


Non-Competitor City recently began cooperating with neighboring municipalities on road services through an intermunicipal agreement. The deal involves sharing responsibility for maintaining local roadways. Local leaders aimed to improve the quality of roads and road-related services while saving tax dollars. Initial analysis of costs and citizen satisfaction in Non-Competitor City and its partner municipalities indicate the deal is working -- saving money and at least maintaining road quality.

Respondents then answered a series of questions about themselves and the localities they represent. Later in the survey, they were asked to rate their interest in a proposed cooperative agreement for roads maintenance with a particular nearby local government. The survey, using the respondents’ own answers to previous questions, randomly varied whether the cooperative agreement proposal involved a local government with which the respondent’s locality had past cooperation experience or one with which the locality had

never cooperated. See Figure 4-2 for an example of this question wording in which the respondent was assigned a past partner city. In the actual survey, the question would include the name of a specific local government the leader identified earlier in the survey.

Figure 4-2: Interest Level in Cooperative Agreement Question



In total, the survey experiments created 14 distinct combinations of treatments/controls.

The dependent variable is the interest level in the hypothetical, proposed cooperative agreement, which is measured on a 0-10 scale as shown in Figure 2. The theory outlined above leads to expectations that the highest overall interest levels would be found among respondents who receive a news story about a competitor city (interlocal competition) with positive outcome information (learning) and later, in the outcome question, a cooperative proposal that involves a locality with which they have past cooperative experience (trust development). Average responses to the outcome question on interest level are compared across groups using Ordinary Least Squares (OLS) Regression to determine the effects of each treatment.

Summary statistics on the demographic characteristics and key responses of survey participants are reported in Table 4-1. Responses to the question on interest in a proposed cooperative agreement were left skewed, as most respondents selected interest

levels of 8, 9, or 10. The median on this variable was 8, and the mean was 7.24, with a standard deviation of 2.86.

Table 4-1: Summary Statistics for Key Outcome Variable and Demographics of Respondents

	Mean	Standard Dev.
Cooperation Interest	7.24	2.86
Age	41.62	11.82
Survey Respondents		
Race		
White	91%	
Black	28%	
Hispanic	2%	
Gender		
Woman	30%	
Man	69%	
Party ID		
Republican	38%	
Democrat	35%	
Independent	23%	
Cooperation Level		
Cooperate Regularly	49%	
Cooperate Sometimes	38%	
Cooperate Rarely	7%	
Cooperate Never	7%	
		N=874

Results

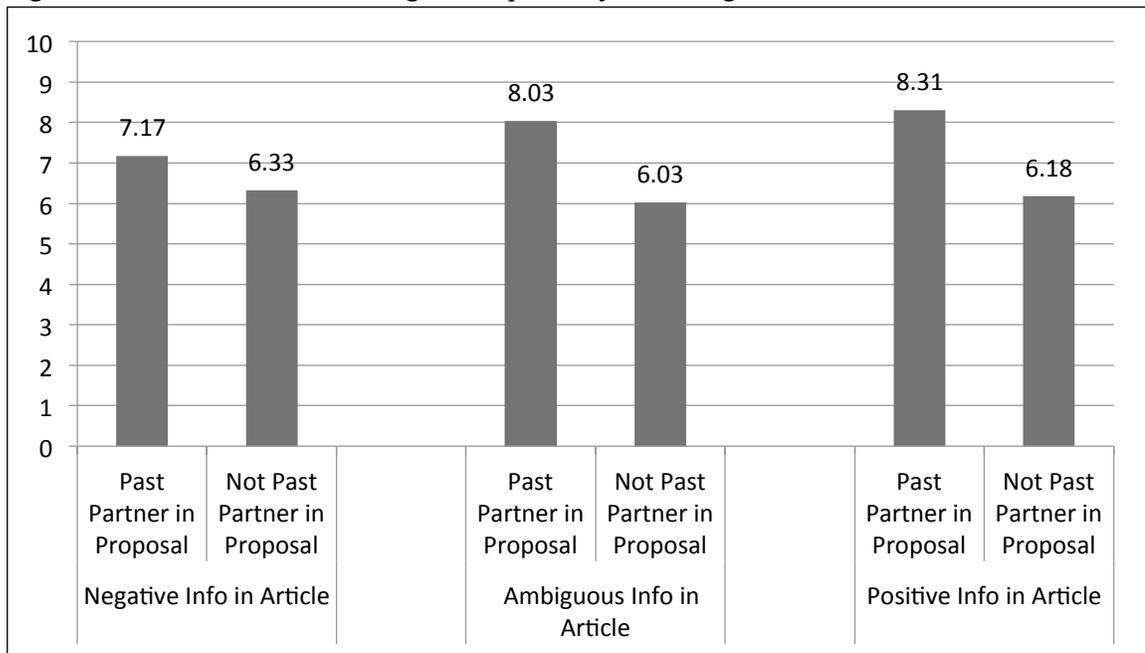
The most consistent and striking finding across a series of OLS models is the effect of the past-partner treatment designed to test for the development of trust mechanism of diffusion. When local leaders were faced with a cooperative agreement proposal that involved a partnership with a city with which they had previous cooperation experience, they rated their interest in the agreement significantly higher than if the proposal involved a city with which they had no previous cooperative agreements. This is consistent with Hypothesis 3. Model 1 shows that respondents who received a past

partner in the outcome question rated their interest about 1.5 units higher (on a 0-10 scale) than those who received the non-past partner treatment (see Table 4-2), controlling for the effects of the other treatments. Model 1 simultaneously tests the effects of all three hypothesized mechanisms with the analysis restricted to those who provided examples of nearby cities with which they had cooperated and those with which they had not cooperated. A response to both prompts was required in order to randomly assign the past-partner treatment designed to test the trust development mechanism. Unfortunately, a large share of respondents (roughly 500) did not provide an example of a city with which they had never cooperated. Model 1 also restricts analysis to those respondents who received either negative or positive outcome information about the cooperative agreement in the news story, as this provides the clearest test of the learning mechanism, which the diffusion literature ties to availability of outcome information. Model 2 shows analysis of the three treatments, as well, but also includes respondents who received a news story with ambiguous outcome information, which allows for a larger sample size. The size of the past-partner treatment is roughly the same in this specification and remains statistically significant.

The learning mechanism treatment was designed to test whether leaders who received positive or negative outcome information reported systematically different interest levels when asked about a cooperative agreement proposal. Leaders who received positive outcome information in the mock news story reported interest levels roughly 1 point higher (on a 0 to 10 scale) than those who received negative outcome information, controlling for the other treatments (see Model 2). This finding is consistent when the learning treatment is scaled to include respondents who received ambiguous information,

which substantially increases the number of respondents in the model. Leaders who received negative outcome information gave interest levels roughly .51 lower than those who received ambiguous information, and those who received ambiguous information scored their interest .51 lower, on average, than those who received positive outcome information (see Model 2). These coefficients are significant at the $p < .1$ level, and given the small sample size, these results suggest local leaders' interest in cooperation is affected through the learning process as expected in Hypothesis 2. Figure 4-3 shows the means across treatment groups for the past-partner and learning treatments. Average interest levels were highest among those respondents who received a past partner in the cooperative proposal and positive outcome information in the news story.

Figure 4-3: Mean Interest Rating of Proposal by Learning/Trust Treatments¹³



¹³ Note to Figure 3: This figure presents scores for only those respondents who received the competitor city treatment in the news story. It should be noted the results are not substantively different when those who received the non-competitor city treatment are compared instead.

On the question of whether simple emulation drives cooperation, the results show support for Hypothesis 1, which suggested this treatment should have little or no effect because of the high-cost nature of interlocal agreements. Respondents who received a news story about an interlocal agreement with ambiguous outcome information did not have higher average interest levels in the cooperative proposal as compared to those respondents who received the control news story about a couple arrested on fraud charges related to an animal rescue charity. All of the respondents who received the cooperation news story also received a treatment of either the competitor or non-competitor city in the story. Additionally, all respondents, including those who received the control news story, were treated with either a past partner or non-past partner city in the outcome question asking their interest level in cooperative agreement proposal. The mean interest level reported by local leaders who received the control news story is roughly identical to those who received a news story about a cooperative agreement going on nearby (see Table 4-2, Model 3).¹⁴ The model controls for the effect of a past partner (versus non-past partner) being embedded in the outcome variable question, which is discussed above. Simply hearing about a cooperative experiment going on in a nearby locality appears to have no effect on local leaders' interest in pursuing a proposed cooperative agreement. The theory developed above predicted copycat behavior would be an unlikely driver of diffusion of interlocal cooperation.

Across most models, the competitor-city treatment has no effect on cooperation interest. When the mock news story reports a cooperative agreement going on nearby

¹⁴ Model 3 was restricted to respondents who received either the control news story or a treatment story about a cooperative agreement with ambiguous outcome information. The ambiguous treatment respondents include those who were treated with a competitor city, as well as those who read about a non-competitor city. However, if the model is restricted to those who were treated with a competitor city, where differences in means would be expected to be highest, there is still no effect for the control news story.

involves a competitor city, respondents reported neither higher nor lower interest levels in the cooperative proposal (see Models 1 and 2). Hypothesis 4 posited that leaders confronted with a news story about a competitor city would be driven by interlocal competitive dynamics and therefore would rate their interest in the proposed agreement higher on the 10-point scale. This was not supported by the data.

Table 4-2: OLS Model Results¹⁵

Treatments	Model 1	Model 2	Model 3	Model 4
Competitor City in Story (Competition)	0.28 (0.54)	0.3 (0.36)		-2.26** (0.9)
Past Partner in Cooperative Proposal (Trust)	1.52** (0.54)	1.59** (0.35)	1.78** (0.28)	
Positive Outcome Info in Story (Learning) (Negative=0, Positive=1)	1.01* (0.53)			
Outcome Info in Story (Learning) (Neg=0, Ambiguous=1, Pos=2)		0.51* (0.26)		0.3 (0.66)
Control News Story (Emulation)			0.12 (0.31)	
Constant	5.52 (0.55)	5.44 (0.42)	6.01 (0.29)	6.18 (0.92)
	N=119 R ² = .09	N=262 R ² =.09	N=517 R ² =.07	N=54 R ² =.11
** p<.05, * p<.1 Robust standard errors in parentheses				

¹⁵ Notes to Table 1:

Model 1 includes 119 respondents, including only those who provided examples of past-partner and non-past partner cities in the survey, and among these, only respondents who received the positive or negative outcome information treatments in the mock news story as well as the competitor city or non-competitor city treatments in the news story.

Model 2 includes 262 respondents, including all of those in Model 1, but also those who received ambiguous outcome information in the news story about a cooperative agreement in their region.

Model 3 includes 517 respondents, including all those respondents who received either the news story about a cooperative agreement with ambiguous outcome information or the control news story about fraud charges related to a local animal rescue.

Model 4 includes only those respondents who indicated their locality had no experience with interlocal cooperation and who received a news stories about a cooperative agreement, rather than the control story.

However, an interesting and unexpected finding resulted from analysis of those respondents who reported that their governments engage in no interlocal cooperation. These non-cooperators could not receive the past-partner treatment because they have no past partners to identify. In this group, the competition mechanism had a large, negative effect on cooperation interest (see Table 4-2, Model 4). Among local leaders with no cooperation experience, hearing that a competitor city is trying out cooperation (as compared to a non-competitor city) actually makes them *less* interested in pursuing cooperation themselves, regardless of whether positive, negative, or ambiguous outcome information is provided. It may be that leaders of local governments that have never cooperated feel threatened by cooperative agreements among competitor cities but lack the information and networks of trust to show interest in cooperation. This finding, while based on a small group of respondents, is worthy of further investigation in future work.

Discussion and Limitations

The results of this national survey with embedded experiments demonstrate that local leaders were more interested in pursuing a proposed cooperative agreement when the agreement involved a partner city they had cooperated with in the past, lending support to the hypothesis that development of trust is an important driver of the spread of interlocal cooperation. Through past cooperative agreements, local leaders create connections and networks of trust across boundaries that lead to more cooperation in the future. Since interlocal cooperation is a policy choice that may be used for short-term, medium-term, and long-term goals, local governments come in and out of periods of cooperation over time. The experience of past cooperation among local governments

creates the relationships necessary to make cooperative agreements more likely in the future, or to expand existing cooperative behavior into new functional areas of local service provision. This mechanism has not received attention in the diffusion literature to date, largely because most diffusion research focuses on policies that are undertaken by a single unit of government. However, diffusion theory can and should be applied to policymaking that involves multiple players, whether these are two or more municipalities, a mix of private and public entities, or multiple layers of government, such as city and state. Understanding the spread of these multi-partner policies will require investigation of the trust development mechanism outlined above, which was strongly supported by the data.

The evidence is suggestive that learning, too, drives the diffusion of interlocal cooperation. Local leaders who received positive outcome information about cooperative experiments in nearby localities rated their interest in a cooperative proposal higher than did those who received negative outcome information. Those who received negative outcome information rated their interest in the proposal lower than those who received ambiguous outcome information, as well. These results were significant only at the $p < .1$ level, but given the small sample size here, they suggest this mechanism may play an important role in this diffusion process.

Finally, the results indicate that local leaders are no more interested in pursuing cooperative agreements when they learn about cooperative experiments of neighbors they see as competitors or those they do not. It may be that leaders are more driven by the intensity of interlocal competitive dynamics in their region (as found in Chapter 2), but not by a perceived challenge or threat by a similar neighboring jurisdiction that begins

cooperating. Further study is needed to tease out how interlocal competition affects the spread of cooperation.

This paper relied on a survey experiment to tease out the mechanisms of diffusion of interlocal cooperation. The survey attempted to mimic the learning environment through use of a mock news story, which was presented to respondents. Later in the survey, it attempted to mimic the policymaking environment by proposing cooperative agreements with specific municipalities and asking the respondents to rate their interest. This, of course, does not approach perfect replication of real-world conditions. It may be that respondents were more willing to rate their interest higher without much consideration than they would have rated a real proposal. After all, the survey proposed an agreement that was purely hypothetical. If this were true, though, the effect would be to produce conservative estimates of the effects, since this would have effectively reduced variation in interest levels across the board. Additionally, the mock news story did not appear in the respondents' own news sources, but rather was presented in a plain text with a news heading. This may have reduced the respondents' interest in the content or their sense of the credibility of the information presented. It cannot be ruled out that respondents would have different ratings of interest in cooperation if they read an actual story in their hometown newspaper. Further study will be needed to ensure that these effects hold across research methodologies.

This study used a novel survey with embedded experiments to test the effects of hypothesized diffusion mechanisms on political elites across the United States. The findings clearly demonstrate that past relationships among local leaders are a key driver of cooperative policymaking at the local level. They also suggest that local leaders learn

from the outcomes of cooperative agreements of their neighbors, making them more or less interested in pursuing cooperation depending on whether outcomes were positive or negative, respectively. These contributions should be taken into account in future research on the cooperative behavior of local government leaders. The paramount importance of trusted networks in predicting cooperation interest suggests that other diffusion studies of multi-partner policies need to account for this mechanism, which has to date not been included in diffusion research.

CHAPTER 5

PROJECT SUMMARY AND DISCUSSION

Elected local leaders respond to political pressures to provide goods and services efficiently and effectively. As a result, they become more likely to adopt interlocal cooperation after observing successful cooperation going on around them, especially if they are situated in regions with intense interlocal competition. They are more likely to cooperate with trusted partners with whom they have cooperated in the past. They are strategic about the areas in which they cooperate with one another, more often picking up on the cooperative experiments of their neighbors when they involve functions of government that allow for gains from economies of scale and draw little attention from citizens. Adopting cooperation in these functions allows leaders to create more efficient tax-and-spend packages while avoiding public controversy and potential electoral backlash. This paints a picture of a political leader who is responsive to the preferences of voters, seeking to provide services as efficiently as possible while retaining local control of the services citizens care about most.

Existing work on interlocal collaboration and cooperation has revealed important predictors of cross-boundary collaboration at the local level, such as social networks among leaders, availability of partners, fiscal need, and entrepreneurship by executives and other political elites. However, these studies have missed an essential piece of the story. Local leaders do not make decisions in isolation, rather they are influenced by the decisionmaking of leaders in neighboring jurisdictions, and this influence has important effects on cooperative policy outputs. Leveraging two unique and original datasets, this

project has demonstrated that diffusion mechanisms make a real and substantial difference in the incidence of cooperation.

Chapter 2 demonstrated that leaders are more likely to select interlocal cooperation when larger shares of their neighbors were cooperating in the past and that this effect is amplified in regions with highly fragmented local government. This produces two important takeaways: 1. Local leaders learn from the cooperative experiments of their neighbors and alter their behavior as a result of this new information; and 2. In areas with highly competitive interlocal pressures, where citizens have easy exit options, local elites are even more likely to replicate cooperation in their jurisdictions. The comprehensive dataset that was constructed for this analysis included nearly every non-county, general-purpose local government in the United States over a 30-year period, lending enhanced validity to the results. Analysis of interlocal cooperation has long relied upon interlocal financial transfers data provided by the Census of Governments, but has never before involved such a complete analysis of these data across space and time.

Chapter 3 relied on the same comprehensive dataset of financial transfers by local governments but added a functional dimension to the question of how interlocal cooperation diffuses. The data show that, consistent with expectations, cooperation spreads most intensely when it occurs in functions that are both capital-intensive and focused on system maintenance. Capital-intensive services allow for gains from economies of scale, while system maintenance services tend to involve less political controversy about levels and means of provision. This produces lower transaction costs in these functions, which include street maintenance, sewerage, and water delivery. The data show that local leaders are substantially more likely to cooperate in these functions

when a larger share of their neighbors did so in the past. The relationship between the cooperation rates of neighbors and a locality's likelihood of cooperation in labor-intensive functions that are also lifestyle oriented (e.g., police, health, welfare), is positive but much less so than in the capital-intensive, system maintenance functions. This chapter demonstrates that the intensity of the diffusion process depends on the functional area of service provision, and indicates that when transaction costs are relatively low and potential gains are relatively high, cooperation spreads more rapidly.

Chapter 4 presented results from an original, national survey with embedded experiments that was completed by nearly 900 mayors and councilors in July 2015. The survey experiments randomly manipulated key information provided to respondents in order to test separately for the hypothesized mechanisms of diffusion relevant to interlocal cooperation. These included learning, development of trust, and interlocal competition. The respondents were asked to rate their interest in a cooperative proposal later in the survey. This response served as the dependent variable that was to be affected by the randomized treatments. Two treatments were embedded in a mock news story that provided information about an interlocal agreement approved in a nearby locality. The survey randomly varied whether the agreement involved a competitor city or a city the respondent did not view as a competitor, as well as whether outcome information was provided and whether that information was positive or negative. Finally, the third treatment varied whether the proposed cooperative agreement involved a partner city with whom the respondent had worked with in the past or one with which she had no cooperative experience. Results provide strong support for the importance of trust development in driving cooperation, as respondents rated their interest significantly

higher when the proposal involved a past partner. Learning also appears to play an important role, as respondents who received positive outcome information reported higher interest levels in the proposal. The competition mechanism had no effect, however, suggesting that leaders are equally likely to learn from the cooperative experiences of neighbors, regardless of their status as a competitor city.

Results across the three manuscripts provide consistent and robust evidence that interlocal cooperation diffuses across space and time as local political elites learn from one another and develop networks of trust. Findings on the competition mechanism are mixed. Chapter 2 provided support for this mechanism, showing that the diffusion process was more intense in highly fragmented areas where interlocal competition dynamics are relatively strong. Chapter 3 also showed support for this mechanism, but not across all functional categories of local services. Competition moderated the diffusion process in system maintenance, capital-intensive services, but not in lifestyle, labor-intensive services. This was consistent with expectations since lifestyle services tend to be associated with citizen preference for local control, complicating the spread of cooperation in these areas. Chapter 4 showed no support for the competition mechanism.

The seemingly conflicting results on the competition mechanism between the first two manuscripts and the third may be related to the research design. The observational studies of cooperation relied on a measure of the intensity of interlocal competition at the county level, while the survey manipulated whether the city mentioned in the news story was one the respondent viewed as a competitor. The former was an important moderator of the diffusion process, while the latter had no effect. It may be that the political context in terms of intensity of competitive dynamics at the regional level matters in driving local

elite behavior. Meanwhile, leaders may be equally affected when they learn about cooperative agreements by competitor and non-competitor cities. In future work, I will join the survey experiment data to local demographic and financial data to better control for other similarities between cities that are identified by respondents as competitors. It may be that when these factors are included, the competitor status has an effect.

The analysis presented here suggests that local leaders are at once efficiency-seeking technocrats and responsive policymakers. Much like leaders at higher levels of government, local officials are free to make policy as they see fit in areas where voter preference intensity is low and relatively constant. Under these conditions, local leaders focus on achieving the most competitive tax-and-spend packages in order to retain and attract taxpayers. Here, they are particularly driven to adopt cooperation when it is going on around them. In areas where voters tend to prefer local control and have more intense and variable preferences about ideal service levels, leaders respond to these preferences by *not* cooperating, in general, and by more regularly rejecting cooperation in these functions even when neighbors have begun cooperating in them. This behavior is in line with what we expect of democratically elected leaders at all levels of government. Policymakers at the state and federal levels, too, spend time on mundane policy with little public attention or controversy. Much of a governor's budget work draws little attention, and in these areas she is likely to focus on efficiency – matching tax and spend levels to the preferences of voters because she knows ultimately, voters will hold her responsible for the fiscal condition of the state. At the local level, a larger share of leaders' time and resources may be dedicated to this sort of behind-the-scenes policymaking. However, the electoral connection is far from absent. Local leaders, too, focus on creating efficiencies

where they can because citizens have the power to vote in new leadership and may have options to relocate to other localities if they are unsatisfied with their service packages and tax rates. Additionally, when constituents have intense preferences in particular areas that tend to favor local control, leaders respond to these in order to retain support and keep their jobs.

This project has extended diffusion theory by building onto theorized mechanisms of diffusion as they relate to multi-partner policies. Policies that involve multiple partners may diffuse due to emulation, learning, and competition, as previous diffusion of innovation theory suggests. However, in these coordinated policies, development of networks of trust emerges as a new and critical driver of diffusion. While diffusion research has tended to focus on narrow policies adopted by single units of government, this is an unnecessarily limited view of diffusion. Future studies of multi-partner policies should provide important knowledge to scholars and practitioners, and the work presented here suggests these studies should consider the role of trust development as a separate mechanism of diffusion.

Given increasing interest in interlocal cooperation and collaboration among scholars of political science, public administration, and urban and environmental planning, as well as leaders of state and local government, the research presented here should be of broad interest. This work relates to important discussions in several streams of literature. For example, current research questions the feasibility and success rates of voluntary cooperative policy. Kantor (2015) pushes back against new regionalism claims, particularly those of Katz and Bradely (2013), that complex networks of cooperation will necessarily improve policy outcomes and enhance equity for people living in

metropolitan areas. Kantor argues that the ability of local governments to successfully collaborate on their own has been remarkably variable, with many instances of failure, and successes tending to occur within limited functional scopes or under exceptional circumstances. He notes that state and federal intervention may be key to producing the kinds of interlocal cooperation required for improving social equity in urban areas.

The work presented in Chapter 3 suggests that the degree to which incentives or mandates from higher levels of government are required to drive adoption of local cooperation are related to the types of functions to be provided. Local governments may be able to learn from and adopt voluntary cooperation in system-maintenance, capital-intensive functions, yet remain unmoved by nearby cooperative innovations in lifestyle, labor-intensive functions that often include issues of social access and redistribution. In these more politically controversial areas, local government leaders are compelled to compete with one another in ways that lead to sorting and concentration of disadvantage in some jurisdictions. Here, local leaders may need strong incentives or mandates to participate in cooperation that produces more equitable outcomes.

The urban and environmental planning literatures, too, are engaged in a debate over the extent to which voluntary cooperation should be expected to produce positive effects and ultimately, better outcomes. Mandarano (2008), for example, uses a case study of the New York-New Jersey Harbor Estuary Program to assess the success of the collaborative approach in terms of the quality of the deliberative process, key outputs, and environmental and social outcomes. The findings show that collaboration among stakeholders led to increased learning and trust, positive institutional changes, and better environmental outcomes. However, other recent work in environmental planning

suggests success of regional collaborative institutions designed to facilitate cooperation is variable and certainly not a foregone conclusion (Hughes and Pincetl 2014).

The research presented here does not assume that all cooperation results in successful outcomes, but it suggests that when successful cooperation occurs, it can spur the spread of cooperation into new jurisdictions and functional areas. The cooperative experiences of some localities create new information in a learning process and aid in the development of trusted cross-boundary networks, both of which significantly lower transaction costs for neighboring jurisdictions. These effects regularly lead to an alteration of cost-benefit calculations through reduced costs, such that cooperative agreements that were previously untenable become possible and attractive options to strategic local elites.

This project focused on the decisionmaking of elected officials – specifically, mayors and councilors of local governments. However, existing work in public administration suggests that the theory developed here can be extended and shaped to include appointed city managers. City managers in the council-manager form of government have distinct incentives, goals, and pressures that may alter the cost-benefit analysis of cooperative agreements. Appointed managers are more isolated from electoral pressures and may therefore have the autonomy to successfully pursue interlocal cooperation (Feiock et al. 2003; Krueger and McGuire 2005). City managers may be better positioned to pursue cooperation in functions that are fraught for elected officials, such as the politically controversial lifestyle services discussed in Chapter 3. Future work should examine how city managers differ from elected officials in the ways they learn from the cooperative experiences of neighbors and peers, develop networks of trust,

respond to interlocal competition, and replicate cooperative strategies for improved service provision.

The multi-method design of this project allowed for analysis of observational data to detect the diffusion of interlocal cooperation and a survey with embedded experiments to more explicitly identify the causal mechanisms of this diffusion. However, the design created some limitations, highlighted by the planning and public administration literature discussed above. For example, investigation of the effects of regional collaborative institutions such as those studied by Mandarano (2008) and Hughes and Pincetl (2014) were outside the scope of this project. The project also could not account for the effects of institutional variation such as council-manager versus mayor-council systems. However, the relationships identified in the observational and experimental analysis provide a roadmap for future work that can drill down spatially and/or temporally to identify other important factors in the spread of interlocal cooperation. Regional collaborative institutions, for example, may aid diffusion by creating new and stronger networks and providing a new venue for learning among local leaders. Alternatively, they may serve as substitutes for the type of interlocal cooperation studied here, slowing or halting diffusion. Research targeting this question and others will build upon the findings of this project, further illuminating the process by which local governments adopt cooperative strategies.

Cooperative agreements allow local governments to provide services they could not provide on their own or to create efficiencies and improvements in service provision, all while maintaining local autonomy. Local leaders, like elected officials at higher levels of government, want to keep their jobs. This makes interlocal cooperation an attractive

alternative to more dramatic types of regional governance, such as consolidation or creation of regional authorities with real political power. Given political incentives of local elites, we should expect interlocal cooperation to remain a common strategy.

The research presented here shows that where this strategy is used successfully, it should be expected to drive a surge in cooperation among neighboring jurisdictions. This leads to two expectations: 1. The fragmented nature of local governance will remain the norm since local leaders have alternatives to consolidated regional government and strong incentives to use them; and 2. Given that cooperation and its spread lag in functions associated with social access, ability to achieve social equity may be limited without use of other tactics or mandates for cooperation from higher levels of government. These questions are central concerns in urban politics and public administration. In a study of 51 large metropolitan areas in the United States, Savitch and Adhikari (2016) find metro areas have become more fragmented and more unequal over time. The authors attribute these trends to the maintenance of local autonomy alongside new options for selective regional coordination and cooperation, particularly the use of special district regional authorities.

This project has demonstrated, across a comprehensive, longitudinal dataset of local government financial transfers, that local leaders' decisions to engage in interlocal cooperation are strongly influenced by their neighbors' previous cooperative experiences. This diffusion is most intense in regions with highly fragmented local governance and within functions that are capital-intensive and focus on system maintenance. Finally, results from the survey experiment demonstrate that this process is driven most consistently by the development of trust among local leaders and by learning about the

outcomes of nearby cooperative agreements. These findings provide a more complete picture of why local governments cooperate with one another for service provision and enhanced policy outcomes. Since local governments provide the most essential services and policies that affect the daily lives of citizens, the contributions made here to our understanding of when, where, and why interlocal cooperation occurs should be of critical value to scholars and practitioners.

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APPENDIX A

LOCAL COOPERATION TRENDS BY STATE

Proportion of localities in each state that had local-to-local transfers in or out, over time.

