

The Life Cycle of Shared Service Delivery: Differentiating Opportunities, Goals, Collective Mechanisms, and Transaction Costs

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Abstract:

A significant portion of the current literature on local government restructuring rests on theories of privatization, which are based on competition and cost savings, service-specific characteristics, and a static scheme of transaction costs. Nevertheless, this theoretical foundation is far too narrow for intergovernmental relations in the highly fragmented municipal landscape within the United States. In fact, our research suggests that the focus on competition and cost savings may undermine sustainability in shared service agreements over time. Among local governments, inter-municipal cooperation, not privatization, is the growing reform. For regional governance systems to sustainably function, scholarship must examine these collective agreements and ponder how they evolve over time into the uncertain future which is filled in collaboration risks.

In this paper, we investigate the life cycle of a broad set of inter-municipal agreements, both nascent and long-standing, and ask what are the determinants of shared service agreement duration. We merge Feiock's institutional collective action (ICA) framework with Ostrom's core relationship thesis, and apply it to the municipal scale of public service cooperation. Our theoretical framework shows the evolution of shared service agreements throughout their life cycle. In doing so, our work helps refocus the literature's narrow attention away from cost savings and competition to the many values of cooperation, such as local government reciprocity and trust, improved service quality, and increased regional coordination.

To answer these important questions, we conducted a survey of all cities, counties, towns, and villages in New York State in 2013 to assess the level of sharing across 29 common public services. The length of shared service agreements varies between 1 to 80 years. What drives shared service agreement duration? Our multilevel linear regression model shows that sharing agreements fall along a cooperation continuum. As such, we identify opportunities, goals, collective mechanisms, and differing transaction costs for both shorter and longer term shared service agreements. We also merge our data with local budget data, and show the cost savings quickly erode overtime. Our findings may inform policy instrument selection and implementation for stable institutional collective action.

For shorter term agreements, they commence because of staff transitions and service disruptions, have the goal of cost savings, and evaluations in the short term are employed to ensure agreement execution. We argue that transaction costs, as a result, are higher at the start of shared service agreements. On the other hand, longer term shared service agreements build from institutional trust and reputation, have the goals of increased service quality and regional service coordination, and are often sustained through agreement formalization. Hence, transaction costs are lower for longer term shared service agreements. Additionally, our multilevel regression results, which groups 2,606 particular service agreements within 595 unique units of local government in New York State, show that both government level and agreement level variables drive agreement duration. Our analysis calls for new theories on shared services that build directly from the benefits of improved coordination, citizen interest, and service quality, not from normative theories based primarily on competition and costs.

Introduction

Recent research has focused on the restructuring of local government service delivery through the lens of privatization. Private contracting is generally promoted based on cost savings. However, cost savings and efficiency gains from public service privatization are limited and decline over time (Bel, Fageda and Warner 2010; Hodge 2000). This may be due, in part, to the lack of regular evaluation (Wassenaar, Groot, and Gradus 2013). Both private and inter-municipal contracting have been shown to be unstable, at least in the US context (Hefetz and Warner 2007; Warner and Hefetz 2012). Many local governments are exploring service restructuring in the face of fiscal stress and state austerity, but inter-municipal cooperation, rather than private contracting, is the growing reform (Kim and Warner 2016; Homsy and Warner 2014).

The US has a high degree of municipal fragmentation, both in the horizontal and vertical dimensions, which creates a variety of challenges in providing services both within and across political boundaries (Berry 2009; Kim 2017). One response to service fragmentation is inter-municipal cooperation, or shared service delivery (Lago-Peñas and Martinez-Vazquez 2013). Service sharing and collaboration is normally carried out through various networks, both formally and informally structured, which local governments have established both in the US and around the world (Haveri 2006; Fotel and Hanssen 2009).

While cost savings are one driver of cooperation, they are not the only motivating factor, and often cost savings are not found (Holzer and Fry 2011, Bel and Warner 2015). Some factors which drive inter-municipal cooperation also drive privatization, which is defined as contracting public services out to for-profit institutions. These commonalities include the desire to achieve scale economies, reduce overall costs, and promote innovation in service delivery (Bel and Fageda 2017; Bel and Warner 2016). However, unlike privatization, there are several key unique motivations of service sharing between municipal governments. These include, but are not limited to, equity, improving relationships with neighboring communities, and improving cross-jurisdictional service coordination (Lowery 2000; Feoick 2007; Warner 2011; Hefetz et al. 2014; Kim 2017). These motivators of inter-municipal cooperation and service sharing may endure better over time when compared to just cost savings. This requires a revisiting of the theory surrounding inter-municipal service sharing.

The landscape of local government service delivery is dynamic, not static. Local governments live within the reality of fiscal stress, economic restructuring, changes in regulatory requirements, and changing needs of their citizens. Crafting shared service agreements with the goal of having a longer duration may be critically important to both achieve and maintain service coordination and enduring economies of scale at the local level. Agreements that are only struck to save costs may be easily abandoned once those cost savings are achieved or the needs of one party change (Zeemering 2017; Birk 2013). Shared service agreements may mature and change overtime along a cooperation continuum to meet the dynamic needs of local governments situated within a governance

network and the constituents they serve. While privatization has proven to be relatively unstable (Hefetz and Warner 2007; Warner and Hefetz 2012), little is known about the duration of shared service agreements. Our analysis is an attempt to fill this scholarly gap.

In this paper, we investigate a broad set of inter-municipal agreements, both nascent and longstanding, using data drawn from a statewide survey we conducted in New York State in 2013. Our models show that a narrow focus on just cost savings is a characteristic of shorter term shared service agreements. Agreements with a longer duration are more likely to achieve the public goals of regional coordination in service delivery and increased service quality. They also are more likely to be formalized. In addition, when local governments have beneficial past sharing experiences, sharing agreements exhibit a longer duration. Both relationships and reciprocity between local governments matter in setting up sharing that lasts. We argue that shared service agreements spring from and endure because of ideals of cooperation and reciprocity at the government level. Theories of shared services must move beyond the market competition and cost savings focus of privatization, and instead be based on principles of cooperation.

Theoretical Issues

To understand what explains the duration of shared service agreements, we need first to look at both the drivers and outcomes of sharing. One of the primary drivers for service restructuring is cost savings, but this may be too narrow a theoretical focus for inter-

municipal cooperation. While some evidence of cost savings under cooperation has been shown, especially in waste management services (Bel, Fageda and Mur 2013; Bel and Warner 2015), cost savings across a broader range of services and studies has been found only in about half of the cases of shared services in the United States (Holzer and Fry 2011). Holzer and Fry (2011) argue this is because a broader range of objectives motivate service sharing. The literature on local government restructuring, which has traditionally centered on economic theories of economies of scale and cost savings (Bel, Fageda and Warner 2010; Bel and Warner 2015), may not be broad enough to fully comprehend the multifaceted dynamics that lie behind shared service delivery.

Shared service delivery is driven by concerns over equity, service quality, and coordination (Warner and Hefetz 2002; Holzer and Fry 2011). The fragmented US local government system creates great challenges for equity concerns and service coordination at the regional scale (Lowery 2000; Berry 2009). Unit consolidation is very uncommon in the US, but service level sharing across jurisdictions is becoming more common (Kim 2017; Kim and Warner 2016; Homsy and Warner 2014). Ostrom, Tiebout and Warren (1961) contended that voluntary cooperation may solve the problems of regional service delivery, but more recent scholars have pointed to problems with voluntary cooperation agreements, which are often unstable or inequitable (Frug 2002). Feiock (2007), for instance, noted that stability can be undermined by heterogeneity among sharing partners, a point confirmed in a meta-analysis by Bel and Warner (2016). If inter-municipal cooperation is to be a reform that addresses both economies of scale and regional equity

concerns, it will need to develop new governance forms that help overcome differences among partners.

Transaction costs has been the primary theoretical basis for studies of contracting, and scholars have pointed to challenges with the lack of competitive markets and high transaction costs due to asset specificity and contract management difficulty (Hefetz and Warner 2012; Brown and Potoski 2003; Williamson 1999). Studies of inter-municipal cooperation have found differences in transaction costs for inter-municipal cooperation as compared to for-profit contracting due to the broader objectives driving cooperation (Brown and Potoski 2003; Levin and Tadelis 2010; Hefetz and Warner 2012; Girth et al. 2012; Rodrigues, Tavares, and Araújo 2012). Similarly, more citizen interest in the provision of a service has been shown to motivate more sharing, but not more privatization (Hefetz and Warner 2012). These studies typically find for-profit contracting is higher in services with more competition, and inter-municipal contracting is higher in services with less competition and higher citizen interest. Girth et al. (2012) attributed this to the challenges of monitoring in low competition situations and the greater goal congruence in contracting with other municipalities. But Marvel and Marvel (2007) find that monitoring inter-municipal contracting suffers from weak sanctioning power, as neighboring municipalities do not change. However, none of these studies measured the duration of shared service agreements.

Evaluation of inter-municipal collaboration agreements, while difficult (Spicer 2017; Marvel and Marvel 2007), may be necessary in the short run to help control escalating

transaction costs. Scholars have argued that transaction costs may be higher when contracts are initially crafted or the agreements are ‘incomplete’ (Sclar 2015), and for agreements to exhibit a longer duration, transaction costs must be controlled and lowered as time progresses. Clark and Bradshaw (2004) note that this ongoing process of cooperation may allow for interactive learning; which the traditional view of static transaction costs does not acknowledge (such as Williamson 1999). Institutional learning, paired with evaluations in the short run, may allow transaction costs to be lowered in the longer term.

Governance of shared service delivery occurs both at the agreement level and the unit level. Unit level governance can be supported by local capacity and experience or participation in regional councils of government or other governance networks (Thurmaier and Wood 2002). Such collaborative networks help local governments form a broader regional framework for collaboration. Thurmaier and Wood (2002) argue that agreements formed within these networks are the results of personal relationships between staff members within units of local government, and may be developed further as time passes through ongoing interactions between officials. This can lead to norms of reciprocity which are critical in building trust between local governments and may enable agreements to have a longer duration. Clark and Bradshaw (2004) outline a similar framework where a civic market based on oversight may be possible to ensure cooperation, innovation in public service delivery, interactional learning between local governments, and the internalization of externalities. Within these networks, however,

shared service agreements still run the risk of problems originating from principal-agent conflicts (Feiock 2013; Bel and Warner 2015).

Norms of reciprocity have been studied extensively in common pool resource problems between individuals in communities (Ostrom 2010; 1990). They also have been applied to the local government institutional level (Thurmaier and Wood 2002; Feiock 2007; Feiock 2013; Andrew 2009). While analyzing personal and collective action, Ostrom (2010) notes that “the more benefits that they (individuals) have received in the past from other reciprocators, the higher their own initial inclinations. The more they have faced retribution, the less likely they estimate that free riding is an attractive option” (161). At this personal level, trust, homogeneity of partners, and the iterations of actions are needed. Similarly, at the institutional level, decisions to cooperate and contract with another government can be predicted based on the success of previous interactions (Andrew 2009). Feiock (2013) explores collective action at the local government level with his institutional collective action (ICA) framework. ICA builds upon the work done at the individual level where collective actions rest upon interpersonal trust, past reputation, norms of reciprocity, and sanctioning power (Ostrom 1990). However, many of these constructs have yet to be tested in a comprehensive manner at the inter-municipal level, and no studies to date have measured agreement duration and how it relates to network governance, reciprocity, and intergovernmental relations.

Formal written agreements for shared services also may enable a longer duration of sharing. Agreement level governance ranges from informal and mutual aid agreements to

formal contracting, joint production, and the establishment of special purpose districts (Bel and Warner 2015; Feiock 2009; Scholz and Feiock 2010; Benton 2013). However, scant research has been conducted evaluating the differences in agreement formality as it relates to agreement duration and stability. Formalized agreements are more likely to be utilized for the sharing of physical capital structures, such as municipal facilities, while informal collaborative agreements normally involve smaller scale sharing, such as the use of equipment (Lee and Hannah-Spurlock 2015). Formal, legally binding, cooperative agreements may have higher transaction costs associated with agreement design up front, but also allow for lower transaction costs associated with agreement monitoring; which can be accumulated as time passes (Wood 2006). Thus, in the long run, formal agreements will be associated with lower transaction costs of inter-municipal cooperation (Carr and Hawkins 2013; Feiock 2009).

Informal arrangements, on the other hand, are not as rigid. According to Spicer (2016), formal agreements are restrictive insofar that they are legally enforceable, comprehensive, strict, and secure. Informal agreements are more adaptive in nature. They are narrower in focus, flexible, temporary, and are not always legally binding. Local governments can transition between informal and formal arrangements to fit their unique needs and community contexts (Blair and Janousek 2013). Hence, it is possible for local governments to start sharing in an informal manner to use the flexible benefits of informal agreements, which may come at higher transaction costs, and later transition to more formal agreements after experience with the sharing arrangement is achieved. Thus, transaction costs may decrease over the lifespan of each sharing arrangement, and

agreement duration may be negatively related to the general transaction costs of service sharing (Clark and Bradshaw 2004). Formalized agreements may provide local governments the capacity to craft agreements with a longer duration (Carr and Hawkins 2013, Spicer 2016), and may be used as a tool for local governments to combat problems related to principal agent conflicts (Salamon 2002). Formal agreements may be an especially important tool in sharing done via networks. According to Salamon (2002) “tools significantly structure networks: they define the actors that are centrally involved in particular types of programs and the formal roles they will play” (1632). Agreement formalization sets the rules for actors in service sharing, and can help combat many of the negative externalities associated with cooperative networks because it internalizes them within the organizations, i.e. units of local governments, which agree to share services.

Data

To understand the determinants of cooperative agreement duration, we model governance characteristics, transaction costs, past experiences with service sharing, agreement outcomes, and variables unique to each sharing agreement. Government-level indicators include the jurisdiction’s size, participation in a regional council of governments and motivators and issues relating to shared service delivery. Measures at the service agreement level include characteristics such as the level of formality of each individual agreement, the type of partners used to provide the service, and the result of each shared agreement in terms of cost savings, improved service quality, and improved regional coordination. Our empirical analysis uncovers the drivers of agreement duration, and

sheds light on the key elements in a theory of shared services and transaction costs in terms of agreement duration.

The data used in this study are drawn from an online survey of shared services which was administered to all cities, counties, towns, and villages in New York State in 2013 (except New York City). The survey was administered in cooperation with the New York Conference of Mayors, the Association of Towns of New York State, and the New York State Association of Counties. Of the 1,607 units of local government in New York State, a total of 946 municipalities responded to the survey, constituting a 59 percent response rate of all local governments in the state. All types of local government are well represented in the sample; 79 percent of 62 cities, 77 percent of 57 counties, 53 percent of 932 towns, and 65 percent of 556 villages. New York's local government system is highly-fragmented. According to the 2012 Census of Government, New York State ranks second in the nation for total units of local government within its borders; the state of Illinois is first.

The survey covered 29 public services in five general categories – public works & transportation, administrative/support services, recreation & social services, public safety, and economic development & planning. For each individual sharing agreement, the survey asked if the jurisdiction provides the service and if the service provision is done via a shared service agreement with another jurisdiction. Agreement formality was also included on the survey. Respondents ranked the formality of each shared service agreement along a continuum of an informal understanding, which is the least formal

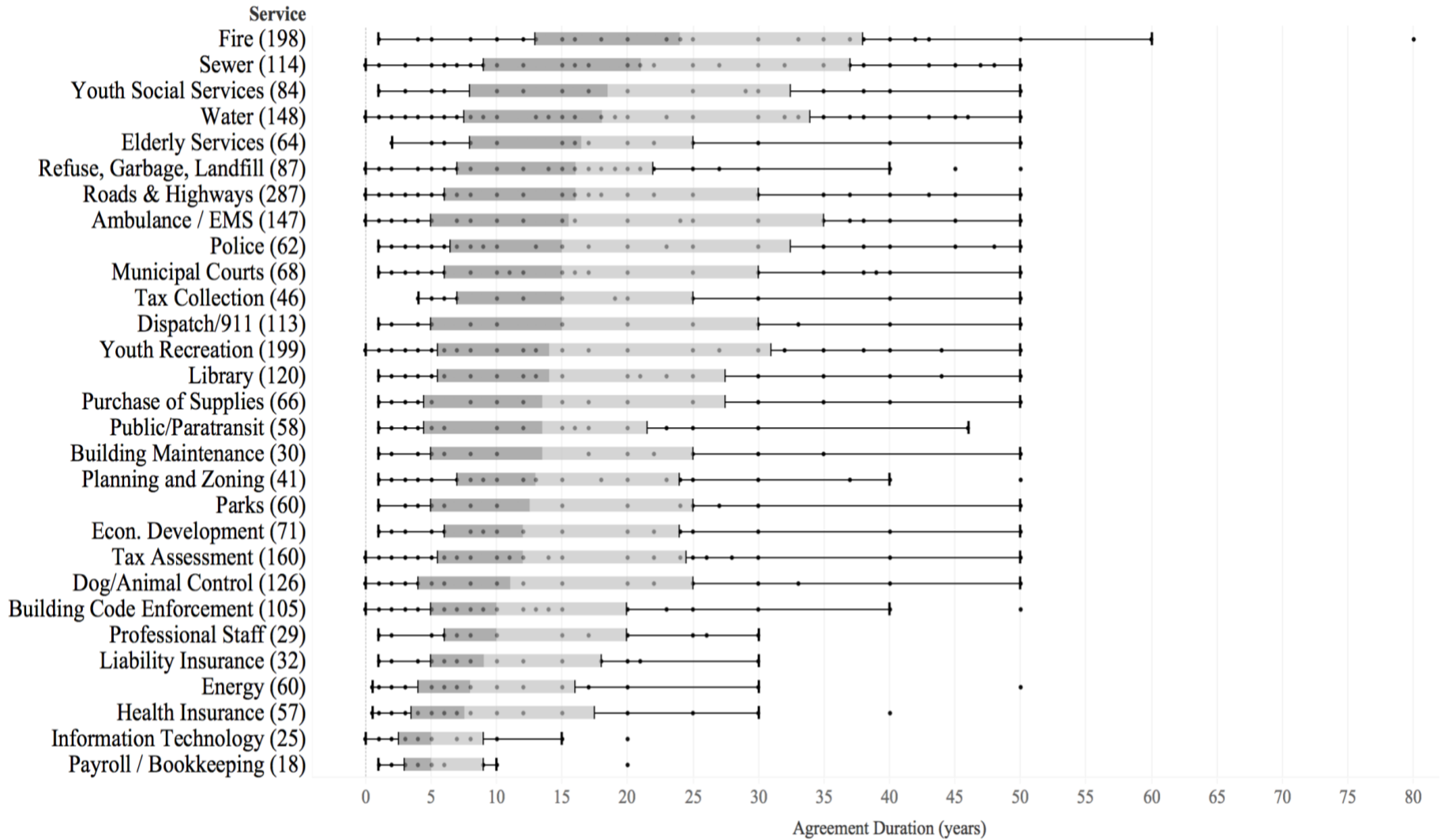
type of sharing agreement, to the creation of a special district, the most formal type of service sharing. Also, respondents indicated the number of years said agreement has been in place, the outcomes of the sharing agreements (e.g. cost savings, improved service quality, and improved cross-jurisdictional service coordination), and if the service provision involved a non-profit or for-profit sharing partner. Lastly, the survey gathered information at the government-level; such as the motivators for service sharing, if the jurisdiction is a member of a council of government (COG), obstacles and management issues related to sharing services, and several governing board characteristics. On average, the 2013 survey found that 27 percent of services are provided through a sharing agreement; which is higher than the average of 20 percent found in the most recent national survey of US local governments (Homsy and Warner 2014). The average duration of these sharing agreements is 20 years, and the duration varies from 1 to 80 years.

Dependent Variable

Our dependent variable is the number of years each shared service agreement has been in place. Agreement duration is important to examine, as it may act as a proxy measure for agreements with lower transaction costs, if, as time passes, transaction costs decrease. Out of the 946 respondents to the survey, 595 governments provided full information on agreement duration for 2,606 individual shared service agreements. The minimum number of agreement duration responses per local government was one and the maximum was 21; with an average of 4.4 shared service agreements per government. Figure 1

breaks down shared service duration by each service measured on the survey. The sharing agreements which exhibit a longer duration are primarily found in public safety (fire, police, and ambulance), public works (roads and highways, water, and sewer) and community services (libraries, youth recreation and youth social services). The agreements with shorter duration are either in emerging service sectors, such as information technology and energy, or ones that are traditionally done in the back offices of city hall, such as professional staff, purchase of supplies, and payroll/bookkeeping. Across all services, the average duration is 20 years with a standard deviation of 14.3 years.

Figure 1. Agreement Duration by Service (number governments reporting)



Source: New York State Municipal Shared Services Survey, 2013. N= 2606 shared service agreements among 595 local governments.

To reiterate, transaction costs have been the primary theoretical basis for studies of local government contracting. Hefetz and Warner (2012) conducted a national survey of local government managers to rate each service by its level of asset specificity, difficulty of contract management, level of competition, and level of citizen interest (1= low...5= high). Of the 67 services measured on the Hefetz and Warner survey, 25 matched the services measured on our 2013 NYS shared service survey. We conducted a correlation analysis on these measures and duration of service agreement. We found no significant correlation between agreement duration and asset specificity, contract management difficulty, or competition across the 25 services. However, we found a significant positive correlation between services with high citizen interest and longer term sharing agreements ($r = 0.669$, $p < .001$). Public safety, public works, youth recreation, and libraries are services with both longer term sharing agreements and high interest among citizens. These services also report higher levels of improving service quality and regional coordination due to sharing. Thus, we posit that a theory of shared services for these sharing agreements lies in the benefits of cooperation – agreement duration, coordination, service quality, and citizen interest. By contrast, the shorter term sharing agreements are related to newer services and are more likely to report cost savings. Thus, shorter term shared services may be focused on characteristics more typical of for-profit contracting – cost savings, evaluation, and competition. See Table 1 for a full breakdown by service of agreement outcomes, other agreement specific variables, and citizen interest.

Table 1. Sharing by Service: Agreement Duration, Outcomes, Formality, Sharing Partners, and Citizen Interest

Service	Average Duration ¹	% Cost Savings ¹	% Increased Quality ¹	% Increased Coordination ¹	Agreement Formality ^{1,A}	% Nonprofit Partner ¹	% For profit Partner ¹	Citizen Interest ²
Fire	34.0	51%	61%	51%	3.2	59.6%	1.5%	4.3
Ambulance/EMS	25.9	50%	66%	48%	1.3	64.9%	3.4%	4.4
Sewer	25.5	45%	53%	38%	3.5	49.1%	4.4%	3.6
Library	23.2	47%	60%	38%	2.5	66.7%	0.8%	3.8
Tax Collection	22.5	60%	53%	44%	2.4	50.0%	0.0%	2.3
Youth Recreation	21.9	55%	65%	45%	2.3	63.3%	1.5%	3.9
Water	21.5	50%	57%	45%	3.3	53.4%	2.0%	4.0
Municipal Courts	20.8	65%	59%	49%	2.4	63.2%	0.0%	--
Roads & Highways	20.4	72%	63%	53%	2.5	53.7%	2.1%	3.7
Police	20.2	57%	57%	43%	2.6	61.3%	0.0%	4.7
Youth Social Services	19.8	39%	68%	50%	2.2	70.0%	0.0%	3.1
Parks	19.7	59%	74%	47%	2.1	63.3%	3.3%	3.5
Elder Services	19.5	36%	67%	45%	2.3	61.0%	0.0%	3.3
Dispatch/911	19.2	51%	67%	40%	2.5	60.4%	2.3%	4.0
Building Maintenance	17.6	72%	45%	31%	2.2	66.7%	0.0%	2.6
Refuse, Garbage, Landfill	17.2	70%	58%	43%	2.8	39.0%	19.6%	3.6
Tax Assessment	16.9	73%	48%	41%	2.6	55.0%	4.3%	3.5
Planning and Zoning	15.8	58%	63%	60%	2.5	56.1%	0.0%	2.3
Dog/Animal Control	15.4	59%	50%	30%	2.5	62.7%	3.9%	3.5
Economic Development	15.4	39%	59%	68%	2.5	73.2%	1.4%	--
Public/Paratransit	13.2	41%	68%	43%	3.0	65.6%	6.9%	2.9
Purchase of Supplies	12.9	92%	14%	11%	2.4	54.5%	0.0%	1.6
Building Code Enforcement	12.6	70%	57%	44%	2.5	53.3%	1.9%	3.7
Liability Insurance	12.1	87%	42%	26%	2.8	68.8%	6.3%	--
Professional Staff	11.3	69%	52%	38%	2.2	41.3%	3.5%	1.9
Health Insurance	10.1	84%	49%	33%	2.8	50.1%	8.8%	--
Energy	9.5	93%	15%	13%	2.8	55.0%	6.6%	3.2
Payroll / Bookkeeping	7.8	59%	59%	41%	1.7	50.0%	33.3%	1.7
Information Technology	6.8	72%	64%	28%	1.9	48.0	4.0%	2.0

Sources: ¹New York State Municipal Shared Services Survey, 2013. N= 2178 shared service agreements. ² Warner and Amir Hefetz (2012). ^A Ranked by level of formality: (1) informal understanding, (2) Memorandum of Understanding (MOU), (3) inter-municipal contract, (4) joint ownership/purchase, and (5) special district.

Independent Variables

Government-Level Characteristics

We include both government-level and agreement-level variables in our model. Table 2 reports the descriptive statistics of all model variables. At the government level, we control for each jurisdiction's population. Prior research on cooperation has found cooperation is highest among small and midsized governments where there may be benefits to economies of scale (Warner and Hefetz 2002; Bel, Fageda and Mur 2013; Bel and Warner 2016). Another measure of government size and capacity accounts for the ability to explore sharing across a wider number of services. This increases chances for iteration, which may extend the duration of sharing. This variable is the number of services provided by the local government out of the 29 measured on the survey. We expect governments which have had more chances to share services will have longer-term sharing arrangements. This is because they have gone through the reciprocity building process of inter-municipal cooperation; which has been repeated more often for governments which provide more services to their constituents.

Regional governance networks may help sharing agreements have a longer duration. A dummy variable is included in the model for jurisdictions that participate in a regional council of governments (COG). 36 percent of the governments included in the model are members of a COG. These kinds of inter-governmental sharing institutions may create a forum for reducing the overall organizational transaction costs of service sharing. We hypothesize that participating in a COG will be associated with longer duration sharing agreements.

Table 2. Descriptive Statistics of Model Variables

Dependent Variable		
	Mean	SD
Agreement Duration (in years) ¹ (1 to 80)	20	14.3
Independent Variables (Government Level)³		
	Mean	SD
Ln (Population) ²	8	1.36
Total Services Provided ¹ (of 29 services)	18	6
Fiscal Stress on Local Budget ¹ (1Low...5 high)	4.4	0.9
Staff Transitions (e.g. retirements) ¹ (1Low...5 high)	2.8	1.3
Community Pressure / Expectations ¹ (1Low...5 high)	3.3	1.2
Unable to Provide Without Sharing ¹ (1Low...5 high)	3.6	1.3
Availability of Willing Partner ¹ (1Low...5 high)	4.2	0.9
Past Experiences with Sharing ¹ (1Low...5 high)	3.6	1.1
Formal Evaluation of Sharing ¹ (1Low...3 high)	2.1	0.7
		% Yes
Participation in Council of Government (COG) ¹ (yes=1)		36.4%
Independent Variables (Agreement Level)⁴		
	Mean	SD
Agreement Formality ¹ (1Low...5 high)	2.7	1.2
		% Yes
Non-Profit Partner ¹ (yes=1)		58.3%
For-Profit Partner ¹ (yes=1)		3.2%
Outcome: Cost Savings ¹ (yes=1)		59.6%
Outcome: Improved Service Quality ¹ (yes=1)		57.2%
Outcome: Improved Service Coordination ¹ (yes=1)		43.1%

Sources:

¹ New York State Municipal Shared Services Survey, 2013. ² 2010 US Census.

³ N=595 units of local government.⁴ N=2,606 shared service agreements.

Each local government was asked on the survey to “indicate the importance of the following factors in your overall decisions to engage in sharing arrangements with other jurisdictions or districts” on a Likert scale of not important (1) to extremely important (5). We measure the effects of six motivations: “fiscal stress on local budgeting,” “staff transitions (e.g. retirements),” “community pressure and expectations,” “the inability to provide services without sharing,” “the availability of willing sharing partners,” and “experience with past sharing arrangements.” The effect of “fiscal stress on local budgeting” and “community pressure and expectations” are hypothesized to relate to agreements of longer duration. We hypothesize the “availability of

willing partners” is most likely to be a problem with newer sharing agreements. “Staff transitions,” such as retirements, and the “inability to provide services without sharing” could possibly open new opportunities for service sharing because of service and staff disruptions. We hypothesize these indicators will be associated with agreements of shorter duration. Lastly, inter-municipal reciprocity is captured in the motivating factor of “past experiences with sharing.” We expect that local governments that are motivated by past experiences will have developed norms of reciprocity, and this will be a driver of agreements of longer duration.

The final government-level variable used in the model is the evaluation of sharing agreements. Respondents were asked “do you formally evaluate your sharing arrangements?” Responses to this survey question were measured on a scale of never evaluate (1), sometimes evaluate (2), and often evaluate (3). When agreements are nascent, they may be more likely to be formally evaluated in order for local governments to monitor and ensure the agreements are actually achieving their desired goals. Monitoring agreements is an important element of transaction costs (Girth et al. 2012). Prior research has found evaluation of sharing agreements is characterized by weak sanctioning power (Marvel and Marvel 2007) because neighboring governments are locked in space. We test whether formal evaluations at the government level are associated with the duration of sharing agreements.

Agreement-Level Characteristics

We consider several agreement-level characteristics that may be critically important to the duration of sharing agreements. Our survey assessed each individual sharing agreement with

service-specific questions regarding the level of formality, for-profit or non-profit partner and the outcomes of sharing (cost savings, service quality, and regional coordination). First, we consider the level of formality of each sharing agreement. Mutual aid agreements (MOUs) are the most common sharing arrangement in the US (Warner and Hebdon 2001), and we find this is also true for service sharing in New York State. Our survey asked about five different types of agreement formality measured along a continuum; (1) informal understanding (16.5 percent of agreements), (2) MOUs / inter-municipal agreement (42.1 percent), (3) contracting with another government (27.9 percent), (4) joint ownership/purchase (6.1 percent), and (5) creation of a special district (7.4 percent). Agreement formality is an ordinal variable ranging between 1 and 5 indicating an increasing level of agreement formality. We hypothesize that agreement formality will be a positive driver of a longer duration of shared service arrangements. This is because formality may be used as a tool for local governments to decrease long term transaction costs, control principal agent problems associated with networks, and enshrine value congruence in a legally binding agreement.

The survey also measured if each inter-municipal agreement involved a non-profit or for-profit sharing partner. A dummy variable is used in the model to indicate the presence of non-profit or for-profit sharing partners. Past research has found that these combination agreements, with both inter-municipal sharing and a for-profit partner, may enable municipalities to have more negotiating power with a for-profit partner (Bel and Mur 2009). But the literature does not show how the types of sharing partners relate to agreement duration and long-term transaction costs. We hypothesize that sharing agreements which involve for-profit partners will be less stable and

exhibit a shorter duration; while agreements involving a nonprofit partner will exhibit a longer duration due to closer value congruence with public government.

Lastly, the survey also asked respondents to report the outcomes of each individual sharing agreement. Local government managers could check if cost savings, improved service quality, and/or improved cross-jurisdictional service coordination were achieved by each sharing agreement (See Table 1). Each of these outcomes are dummy variables in the model. Consistent with the findings of Holzer and Fry (2011), respondents to the survey indicated that cost savings were only present about half the time across all measured services (56 percent), and were most commonly reported in administrative and support services. Improved service quality also was reported about half of the time across all 29 services. Increased service quality was more common than cost savings in public works & transportation, recreation and social services and public safety. Lastly, improved regional coordination was only reported about one third of the time (35 percent) across all services, and was highest in economic development and planning (46 percent). (For detail on outcomes by service see Table 1). We hypothesize that the duration of sharing agreements will be positively related to service coordination and improved service quality because these public values are much broader than simply cost savings. We further hypothesize that cost savings will be a driver of agreements with a shorter duration.

Methodology

Our empirical model was developed to determine what factors are associated with shorter and longer term shared service agreements. We are interested in both government-level

characteristics, such as population and motivators for sharing, and in agreement-level characteristics, such as the agreement's formality, type of sharing partner, and the outcomes of sharing reported by survey respondents. To capture differences across shared service agreements and across governments simultaneously, we used a hierarchical linear model (HLM). HLMs are used in situations where actions are nested inside bigger units, and there are data unique to each level in the nested equation (Snijders and Bosker 2012). We have data at both the government level and agreement level, and in our case, services are nested inside units of local government.

Our nested model is as follows:

$$\text{Shared Service Agreement Duration} = \text{Government level Characteristics } [\beta_1 \text{ Ln (Population)} + \beta_2 \text{ Total \# of Services Provided} + \beta_3 \text{ Membership in a COG} + \beta_4 \text{ Motivators and Management Issues in Service Sharing} + \beta_5 \text{ Agreement Evaluation}] + \text{Agreement Specific Characteristics } [\beta_6 \text{ Agreement Formality} + \beta_7 \text{ Type of Sharing Partner} + \beta_8 \text{ Outcomes of Sharing}] + \varepsilon$$

Model Results

Table 3 reports the results from our 2-level HLM. At the local government level, the number of services provided is positively related to agreement duration. Governments which have more opportunity to build inter-municipal reciprocity due to a larger number of services provided, are more likely to exhibit shared service agreements with a longer duration. By contrast, service disruptions related to staff transitions is negatively related to agreement duration at the government level. Both results are as hypothesized. Participation in COGs, however, is not a significant driver of agreement duration. This is counter to our hypothesis of network governance

and a broader regional framework of service sharing. Population is insignificant on agreement duration, so smaller places are not more likely to have longer term sharing agreements. All the remaining motivators and management factors (citizen pressure / expectations, fiscal stress on local budgeting, the inability to provide services without sharing, and availability of willing sharing partners) are insignificant in the nested model. Lastly, local governments which formally evaluate sharing agreements tend to have agreements which exhibit a shorter duration. The variation in agreement duration explained by the government level model variables is 16.3 percent.

Table 3. Results of Shared Services Agreement Duration

Government Level Variables	Coef.	SE
Ln (population)	-0.253	0.336
Total # Services Provided	0.264**	0.086
Participation in COG	-0.968	0.911
Community Pressure / Expectations	0.618	0.472
Fiscal Stress on Local Budget	0.986	0.534
Staff Transitions (e.g. retirements)	-1.664***	0.415
Unable to Provide Without Sharing	0.567	0.394
Availability of Willing Partner	-0.857	0.586
Past Experience with Service Sharing	0.977*	0.454
Formal Evaluation of Sharing	-1.890**	0.702
Agreement Level Variables		
Agreement Formality	1.079***	0.234
Non-Profit Partner	0.217	0.728
For-Profit Partner	-4.589**	1.717
Outcome: Cost Savings	-2.179***	0.613
Outcome: Improved Service Quality	1.794**	0.640
Outcome: Improved Service Coordination	1.92**	0.655
Constant	13.871	4.129
Between Government Level Variance	49.2	5.9
Within Government Variance	141.1	4.8
R ² Government Level	16.3 %	
R ² Agreement Level	5.2 %	

Source: New York State Municipal Shared Services Survey, 2013. N= 2,606 shared service agreements nested within 595 units of local government.

Shifting now to agreement specific characteristics, the level of agreement formality is a significant driving factor of agreement duration, as hypothesized. Sharing partners, which are for-profit institutions, are more common in agreements of shorter duration, but nonprofit partners has no relationship on duration of agreements. We had hypothesized that principal agent problems and goal congruence would be more pronounced with for-profit partners, and this is supported by model results.

Regarding outcomes of shared service agreements, the results from the HLM show that cost savings outcomes are negatively associated with the duration of sharing agreements, as hypothesized. The agreement outcomes of improved service quality and improved regional coordination in service delivery, on the other hand, are positively associated with agreement duration, also as hypothesized. All the agreement level variables together explain 5.2 percent of the variation in agreement duration. Our results lend support to the notion that the duration of shared service agreements is driven by the public values of improved service quality and improved service coordination across jurisdictions, not from cost savings.

Discussion

These results provide important insights for practice and the theory of inter-municipal cooperation. Our results clearly show there are drivers of agreement duration at both the government and agreement level. The government level of the model explains three times as much variance as the agreement level portion of the model, but both levels are important in understanding the duration of shared service agreements. Our model finds that factors related to

service disruptions (staff transitions), cost savings, and formal evaluation are associated with agreements with a shorter duration (See Table 4). For example, newly emerging services like information technology and energy are more likely to have shorter duration. Our model suggests that agreements which are motivated primarily by cost savings may only last in the short term. Recall the empirical literature shows limited evidence of cost savings in shared service agreements (Holzer and Fry 2011, Bel and Warner 2015). We also see that back-office services and services done with for-profit sharing partners have a shorter duration. Sharing in these public services is primarily driven by cost savings. For-profit sharing partners may also reflect innovative disruption, which may explain why they are an attribute of agreements with a shorter duration.

Table 4. Opportunities, Goals, Mechanisms, and Transactions Costs in Relation to Duration

	Shorter Duration	Longer Duration
Opportunity	Service Disruptions	Experience: Reputation and Trust
Goals	Cost Savings	Improved Service Quality and Coordination
Mechanism	Evaluation	Agreement Formalization
Transaction Costs	High	Low

The results from our model also suggest that cooperation is about something much more than cost savings. We find that longer term agreements are driven by municipal experience with sharing, the public goals of improving regional service coordination and service quality, and agreement formality. Recall that basic services of high citizen interest (such as public safety, public works, youth recreation, and libraries) are characterized by agreements with a longer duration. These findings indicate that crafting shared service agreements that are built to last requires a broader focus than just cost savings. So, too, does the scholarly theory on governmental restructuring and service sharing.

In terms of mechanisms at the government level, the formal evaluation of sharing is negatively associated with length of agreement. Marvel and Marvel (2007) found that inter-municipal agreements are prone to weak sanctioning power. Hence, it is possible that only shorter term agreements are subject to evaluation pressures, and these pressures dissipate as agreements have a longer duration. Also, evaluating agreements in the shorter term may help local governments learn about what options work best for their situation and context, and which changes might be necessary to make sharing endure into the future. This may be why we do not see an impact of formal evaluations in the long term; they may become unnecessary because of more formal agreements which reduce transaction costs. It is also possible that due to locational fixity of neighbor sharing partners, evaluation loses effectiveness over time due to inability to change your neighbors. Local governments are locked in place and this may make formal agreements more important over time.

At the government level, reciprocity of inter-municipal cooperation and past experiences with service sharing is associated with agreements of longer duration. Local governments can learn from past service sharing and this leads to more stable agreements (Mattisson and Thomasson 2007; Clark and Bradshaw 2004). Recall Ostrom's (1990;2010) emphasis on interpersonal trust, past reputation, norms of reciprocity, and sanctioning power. Our models show that past experience with service sharing leads agreements to have a longer duration. This finding supports the notion that the collective action framework, which Ostrom used at the individual level, may be applied at the scale of inter-municipal cooperation. Additionally, the number of services provided, a proxy measure for capacity of iteration in service sharing, also leads

agreements to have a longer duration. Both these results illustrate how experience, reputation, trust building, and reciprocity help service sharing endure.

The duration of sharing agreements is related to more than just service characteristics and reciprocity at the government level. Agreement-level characteristics and the tools governments use to help reduce transaction costs are also important. These include the formality of the sharing agreement, as formal arrangements are more likely to be found in longer term agreements. These results suggest that more formal agreements enable local governments to navigate the uncertain dynamic landscape of service delivery while controlling for and decreasing transaction costs as time passes.

Lastly, our results suggest a shift in transaction costs over time. We hypothesized that the level of agreement formality helps decrease long term transaction costs, and that transaction costs fall over the duration of service sharing. At its inception, sharing is generally executed by more informal means. This allows managers to withdraw from agreements if deemed necessary, institute flexible responses, and negotiate using an informal channel; none of which could be easily done in a highly formalized, rigid framework. Transaction costs, we argue, are higher at the beginning of sharing when formal evaluations are used. After the start of sharing, local governments can then learn what works and what does not for their unique situations, and move towards agreement formalization. In doing so, they both control and lower transaction costs after experience with the sharing arrangement is gained and uncertainties and goal conflicts are reduced via formal sharing agreements.

Conclusion

Traditional theories of shared services rely primarily on theories of economies of scale, static transaction costs, and competition; but a broader theoretical framing of cooperation is needed to fully understand shared service delivery. This is important because cooperation, not privatization, is the growing reform. Our survey shows service sharing is about coordination, improving service quality, and inter-municipal reciprocity, not just cost savings.

Our research illustrates the importance of studying the duration of shared service agreements, and shows that duration can be explained at both the government and agreement level. While shorter span agreements exhibit the transaction costs characteristics more typical of for-profit contracting, longer term shared service agreements show a broader range of drivers, and show that transaction costs can be decreased using agreement formalization. Future research in this area should aspire to track sharing agreements longitudinally, and measure their corresponding transaction costs as time passes.

Shared service agreements, which exhibit a longer duration, are driven by cooperation and reciprocity, not competition, and cost savings is not the primary goal. Citizen interest, service quality, and regional coordination are not primarily determined by cost and competition, in fact they can be undermined by these factors. Future theories of shared services need to give more consideration to these bases of cooperation.

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APPENDIX: The Cost Curve from Shared Service Delivery in New York State

Matching Agreement Duration and NYS Comptroller Budget Data

Year	Duration ¹	Number of Agreements Started ²	Notes:
2016			Most recent Comptroller budget data available.
2015			
2014			Survey administered.
2013	< 1	7	
2012	1	38	
2011	2	39	
2010	3	48	
2009	4	25	
2008	5	71	
2007	6	23	
2006	7	13	
2005	8	34	
2004	9	7	
2003	10	184	
2002	11	0	
2001	12	44	
2000	13	7	
1999	14	3	
1998	15	126	
1997			Start of Comptroller budget data collection.
1996			

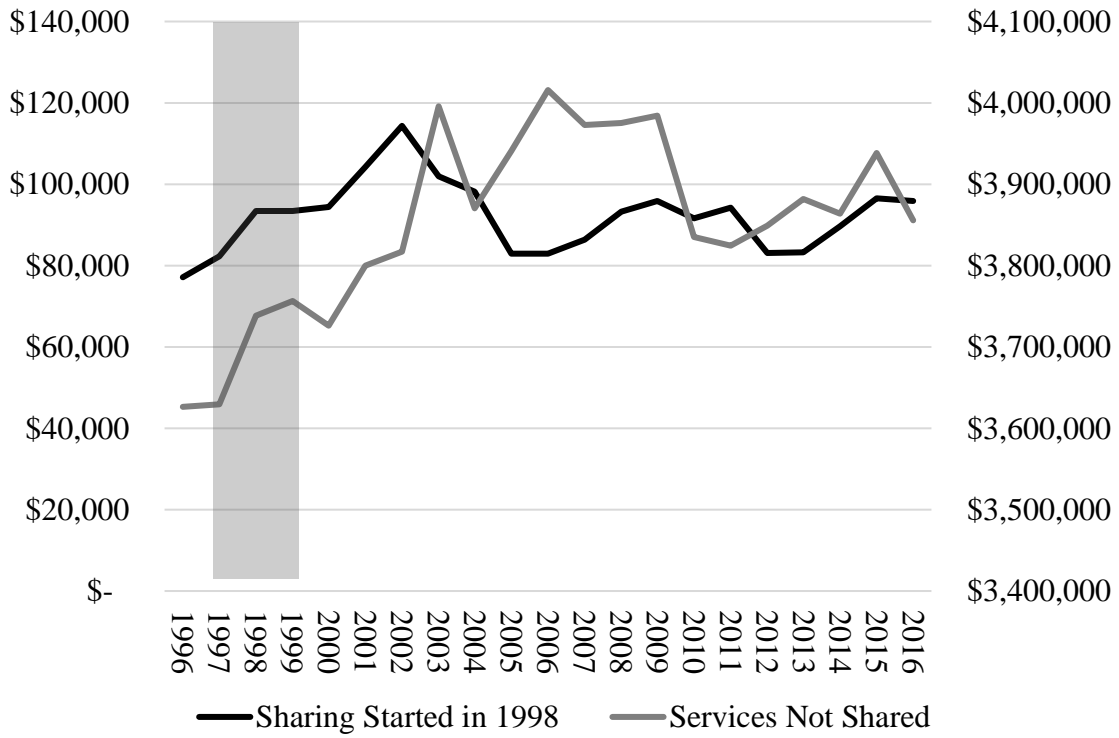
¹ New York State Municipal Shared Services Survey, 2013. ² Calculated = (2013 – Duration).

Services which Started Sharing in 1998, 2001, 2003, 2008, and 2010

Service	1998		2001		2003		2008		2010	
	N	%	N	%	N	%	N	%	N	%
Ambulance / EMS	12	10%	1	2%	11	6%	5	7%	3	6%
Econ dev. & promotion	7	6%	3	7%	18	10%	5	7%	3	6%
Elderly services	7	6%	0	0%	11	6%	3	4%	0	0%
Fire	7	6%	3	7%	8	4%	2	3%	0	0%
Health insurance	1	1%	2	5%	8	4%	3	4%	6	13%
Library	5	4%	2	5%	14	8%	5	7%	1	2%
Planning and zoning	4	3%	1	2%	4	2%	3	4%	2	4%
Police	5	4%	0	0%	2	1%	2	3%	1	2%
Refuse, garbage, landfill	11	9%	4	9%	12	7%	5	7%	0	0%
Roads & highways	22	17%	14	32%	29	16%	14	20%	19	40%
Sewer	6	5%	4	9%	12	7%	3	4%	1	2%
Water	11	9%	0	0%	17	9%	9	13%	5	10%
Youth recreation	18	14%	7	16%	24	13%	6	8%	4	8%
Youth social services	10	8%	3	7%	14	8%	6	8%	3	6%
Total	126		44		184		71		48	

Source: New York State Municipal Shared Services Survey, 2013.

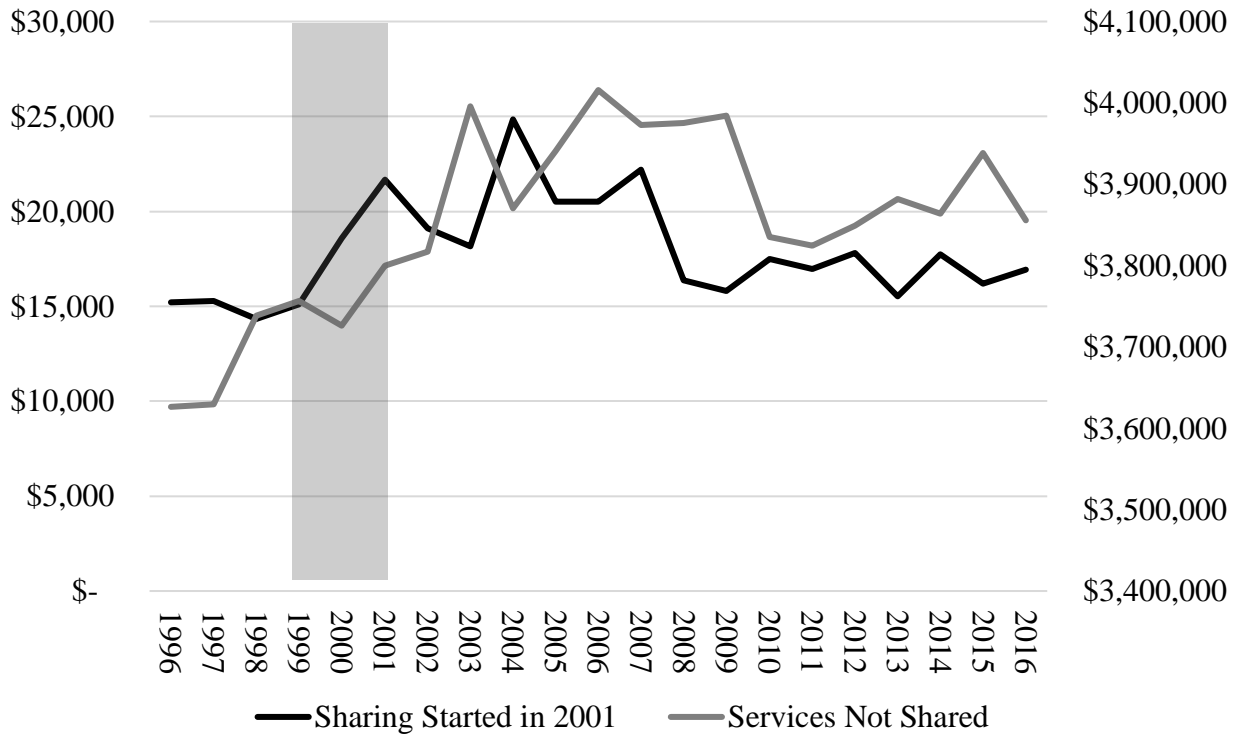
Service Costs Curve: Sharing Which Started in 1998



Data source: NYS Comptroller, Local Government Data.

Note: In constant 2013 \$000.

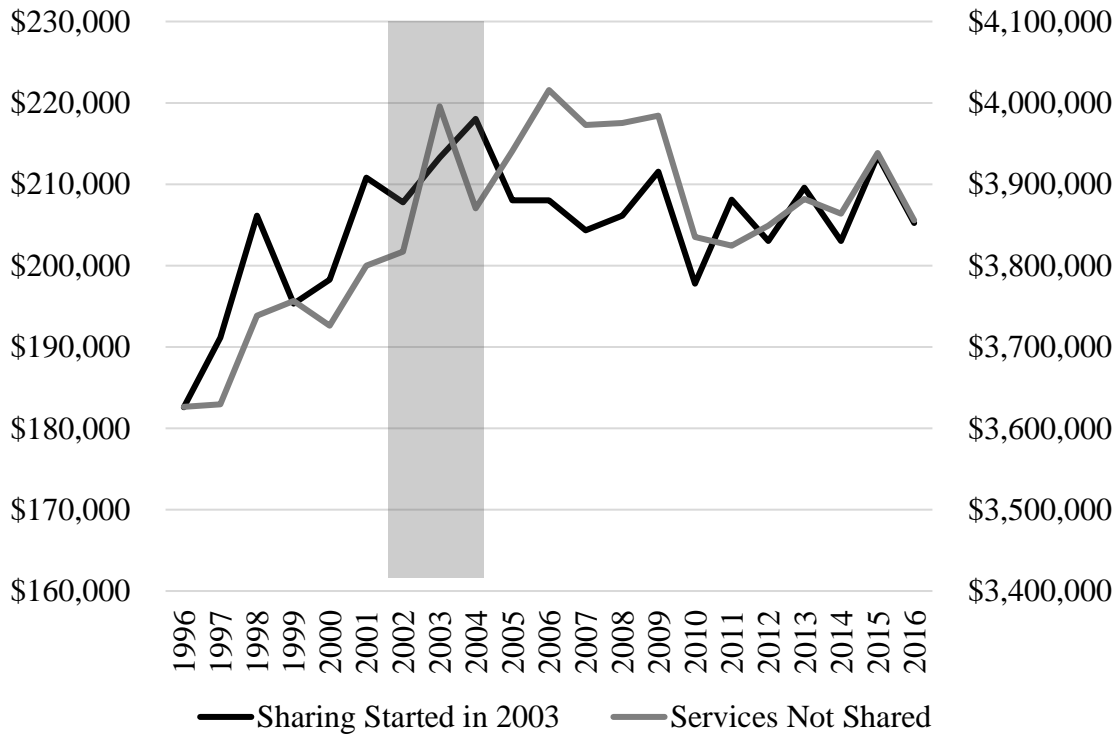
Service Costs Curve: Sharing Which Started in 2001



Data source: NYS Comptroller, Local Government Data.

Note: In constant 2013 \$000.

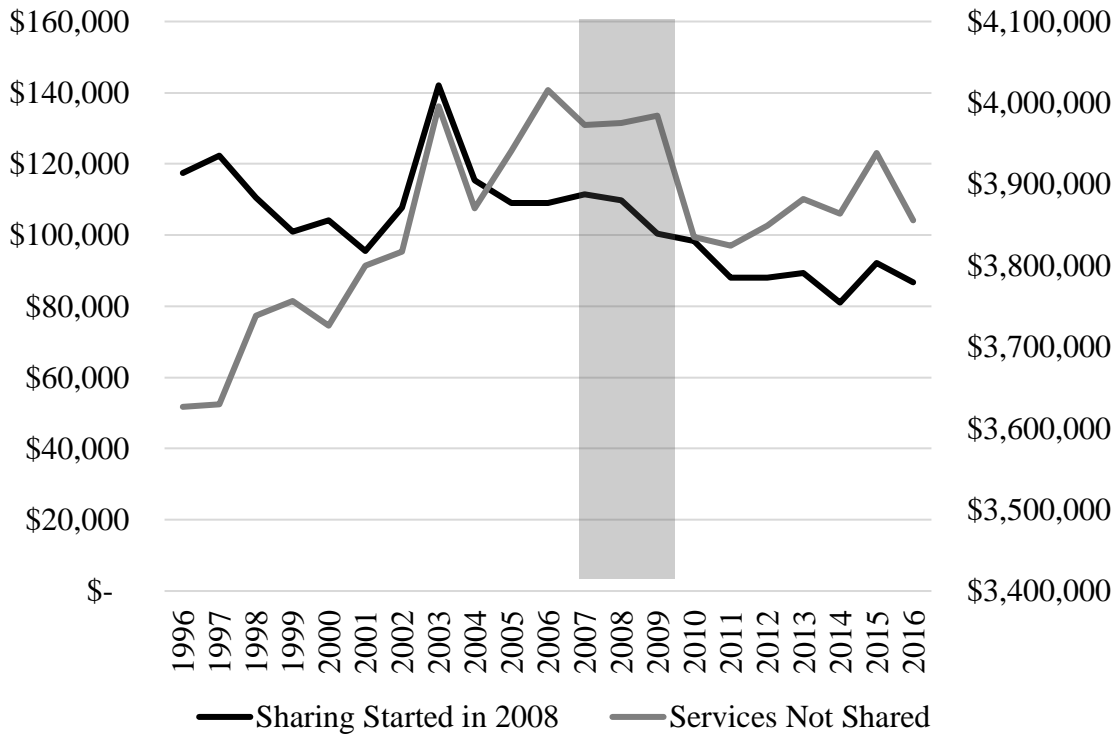
Service Costs Curve: Sharing Which Started in 2003



Data source: NYS Comptroller, Local Government Data.

Note: In constant 2013 \$000.

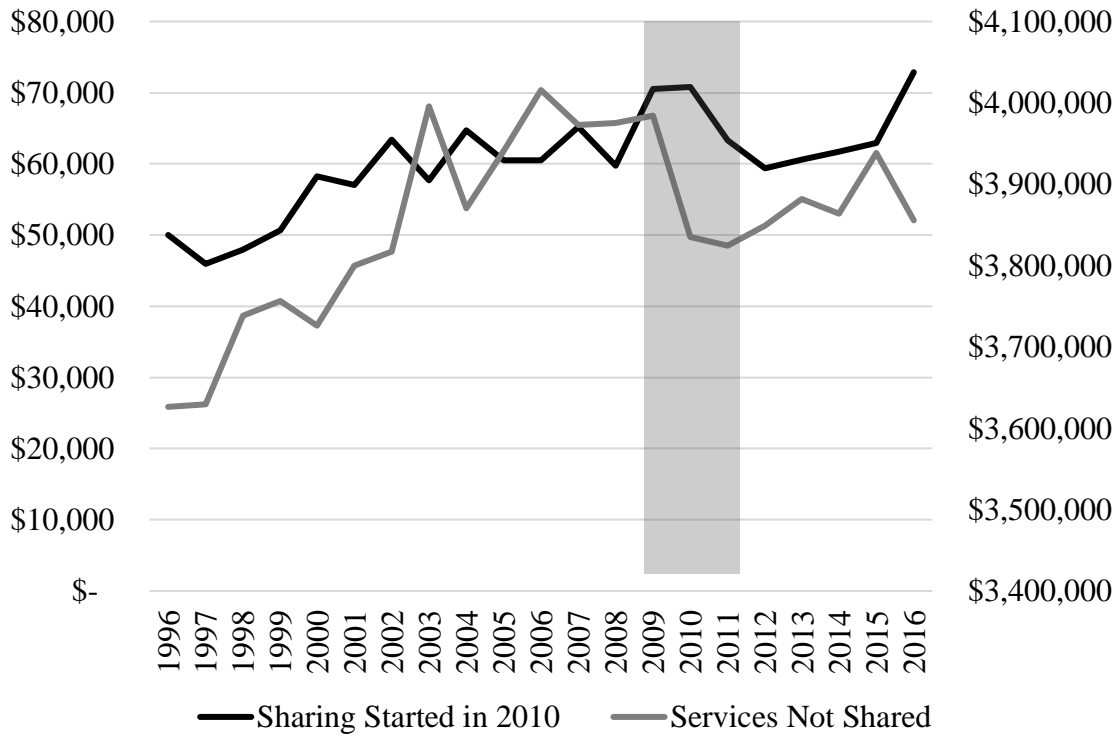
Service Costs Curve: Sharing Which Started in 2008



Data source: NYS Comptroller, Local Government Data.

Note: In constant 2013 \$000.

Service Costs Curve: Sharing Which Started in 2010



Data source: NYS Comptroller, Local Government Data.

Note: In constant 2013 \$000.