An Empirical Analysis of Intermunicipal Service Sharing and its Effects on Local Government Spending in New York State

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Abstract

This paper addresses empirically a question that has long been of interest to policy makers and local government researchers: does collaboration in the provision of municipal services reduce the cost of local government? The default answer is typically yes, but too often the yes is based on analyses that highlight the anticipated possibility of cost savings rather than post hoc, demonstrated savings attributable to collaboration. Our statistical model retrospectively interrogates the history of intermunicipal service sharing among New York State’s local governments. Using a unique aggregation of local government spending to the county level, we test whether this innovative indicator of the extent of service sharing within the county is associated with aggregate government costs. The regression coefficient on the indicator variable is consistently negative under various model specifications, but statistically insignificant. We interpret this as a hint that there may be small reductions in government spending associated with intermunicipal sharing, but a more statistically grounded interpretation is that there has been no detectable effect.

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Introduction:

“Service sharing” is often used as a shorthand for the cross-municipal, joint provision of services. It implies arrangements that stop short of full government consolidation that would require the dissolution or merger of units of general purpose local government. The question we address in studying service sharing is thereby related to, but distinct from, the full unit consolidation questions that have received more attention in both policy and research. In both consolidation and service sharing research, inquiry has in the first instance focused on the effects on government expenses or costs. The consolidation studies are also concerned to some extent with the implications for service quality, and less commonly for governance related phenomena like citizen satisfaction, trust in government, and local democratic practice.

The scale-related economic/cost questions tend to be informed by a perceived trade-off that is grounded in different realms of theory (c.f. Warner 2006). On the one hand, efficiency-related cost savings and/or service improvements are anticipated largely through the mechanism of economies of scale, from which a rough “bigger is better” rule of thumb is often distilled. Economies of scale have a fundamental relationship to the standard microeconomic theory of the firm, which posits a frequently-observed-in-reality “u-shaped” average cost curve: the average costs of producing a good or service typically first fall at a decreasing rate with output, or scale of production, only to rise eventually. Available production technologies, and the blend of fixed and variable costs, are key influences on this relationship. The empirical problem in this frame is to determine location on the cost curve, in other words to determine whether actual increases in scale lead to actual reductions or to increases in average costs of production.

The contrasting theoretical idea is that citizens/service consumers are served most efficiently when they are able to select their preferred mix of services and taxes from a large number of public service providers. In this argument, optimization occurs as governments compete for taxpayers/residents by providing different service/taxation mixes. The equilibrating mechanism is the idea that people will choose where to live and work. Many people, for example, choose to live in a city or village with a higher level of public services and taxes than in nearby towns or unincorporated areas where both are lower. For any given preferred level or quality of services, people will select among available municipalities for that with the lowest costs. This theory was promulgated through the influential Tiebout hypothesis (Tiebout 1956), and is broadly consistent with public choice theory as associated with the seminal work of James Buchanan.¹ The theory’s practical relevance is clearly related to the empirical validity of the assumption that home and job seekers can and do actively choose locations across a diverse mix of available government service and tax combinations.

¹ Buchanan, nonetheless, noted specific “efficiency retarding” elements in Tiebout’s assumptions of fiscally induced migration that Tiebout’s work “swept... away in an admittedly extreme model.” (Buchanan and Goetz, 1972:26) See also Hattery (2012a) on the importance for public choice theory of the distinction between service provision and production, of flexibility in applying fiscal equivalence, and of regionalized “public economies” or markets for government services.
Neither framework determines a given optimal scale of production for a specific government or group of governments *a priori*. However, the economies of scale argument is typically deployed in favor of municipal consolidation or service sharing, especially where many small governments are common. Public choice arguments typically support maintenance of a multiplicity of government service providers, which must therefore be smaller, all else equal.

In the political realm, policies promoting either consolidation or service sharing are almost universally advanced on the promise of efficiencies that will reduce the cost of government. The “too many governments” argument rests heavily on the notion that local government taxes are “too high” (at least, for the services provided), coupled with the expectation that economies of scale in government will reduce costs. Early empirical work raised some questions about the evidence in support of this expectation. Thus, Boyne’s (1992:355) review of U.S. empirical research concluded, subject to several caveats, that, “the empirical evidence from the USA suggests that local government systems which are fragmented and deconcentrated are generally associated with lower spending and greater efficiency.” Bunch and Strauss (1992:616) noted similarly in the same year that, “empirical studies do not seem to reveal successful realizations of presumed economies of scale; however most of these studies have focused on relatively large communities.”

In New York State, the too many governments/cost saving argument has had political salience for many decades (Hattery 2012a). In 1990, to pick an example which is not the first, Governor Mario Cuomo’s State of the State speech pronounced that too many of the state’s local governments were “unable to take advantage of economies that larger, better coordinated bodies could use.” He appointed a Blue Ribbon Commission to encourage local government consolidation. In the 1992 Commission Report, Robert McEvoy’s contribution on *Models for Sharing Intergovernmental Services* highlighted an implicitly cyclical link between fiscal stress and the urgency of the call for consolidation (McEvoy 1992:11):

> When times are tough, as they clearly are now, two things relative to local government almost always happen. First, local governments get fewer resources from the federal and state governments... The second thing ... is that business leaders and state officials begin talking about the potential savings that can be realized by merging local governments or at least providing certain services on a joint or cooperative basis. The idea of savings through economies of scale and/or the elimination of duplicative overhead costs is a perennial one. But, two things have usually happened following such calls: 1) there has been, almost automatically and immediately, resistance from local officials; and 2) those advocating such changes tend to lose interest as the economy begins to improve.

Under Republican Governor George Pataki, the Shared Municipal Services Incentive program was introduced, and the incentives grew within a year to involve a $25 million budget (Albany Law School 2007). Advocacy of consolidation and service sharing in order to reduce costs have threaded through the programs of subsequent Democratic governors, and have been singled out as a high profile priority under Governor Andrew Cuomo’s administration. Press releases,
headlines, and official reports over the years follow a consistent narrative arc: “The Department of State (Department) shares in Governor Paterson’s and the Legislature’s commitment to making New York State as strong and economically competitive as possible. Key to this is reducing the cost to live and to do business here in New York State. One opportunity to reduce costs is to work together to maximize existing resources to provide municipal services more efficiently. Many local governments are reviewing their service delivery systems, setting priorities and determining which services can be provided through arrangements with other local government partners.” (NYS DOS 2007), “Governor Cuomo today announced $4 Million in grants that will help 21 municipalities find new ways to reduce local government costs and save tax payer dollars through consolidation and reorganization” (Cuomo 2012), “By consolidating and sharing services, local governments can help tackle one of the single-greatest financial burdens on New York’s families and businesses sky-high property taxes,” (Cuomo, 2014), “Governor Andrew M. Cuomo today announced an initiative to reduce property taxes by empowering voters to approve locally-designed plans that eliminate duplicative services to lower the cost of local government.” (Cuomo 2017)

Historically, service sharing has proven to be much more politically feasible than outright municipal consolidation. Benjamin’s (2005:18) analysis of the reasons for a political preference for service sharing over full government consolidation was and remains instructive:

Although the layering and complexity of local government in New York increases costs and reduces the accountability of elected officials to the citizenry, efforts to reduce the number of local governments have met with little success. Such reform threatens the jobs of local employees and elected officials and creates uncertainty about property values and the quality of local services after the proposed change. Furthermore, citizens identify existing local government structures with their idea of community and resist linkage to places that might be less affluent or more racially and ethnically diverse. Thus reformers have come to advocate consolidating local services as an alternative to restructuring.

In New York State, only three cities have been created since 1920, and none dissolved. The total number of towns has remained constant for well over 100 years. Villages, the only other sub-county general purpose local government, have experienced a little more churning. This is in part because village creation and dissolution is the only such action that is at the sole discretion of the voters in the unit being created or dissolved, in this case the village. With cities and towns, others affected by the decision have a say. In practice, the only history of extensive consolidation in New York has involved school districts rather than general purpose local government. School districts, of course, provide a different kind of public service than those delivered by general purpose local government, and are typically associated with at least

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2 New York currently has more than 550 villages. Between 1900 and 2017, 58 villages elected to dissolve, 16 of these after 2010. Between 1920 and 2006, 125 villages were created and 37 dissolved. Since 1940, 32 villages have been incorporated. See https://www.dos.ny.gov/lg/village-inc-diss.html and Hevesi (2006).

3 Reorganization reduced school district numbers to fewer than 700 from over 10,000 in 1900, with signature policy initiatives influencing this trajectory dating from 1914, 1925, 1947, and 1958. (NYS Education Department)
somewhat more measurable standardized indicators of “output” quantity and quality. It is nonetheless helpful to note that Duncombe and Yinger (2007:341), who have done some of the most careful economic work on the impacts of school consolidation, conclude (after acknowledging frequent “large adjustment costs... particularly for capital spending”) that, “Overall, consolidation makes fiscal sense, particularly for very small districts, but states should avoid subsidizing unwarranted capital projects.”

In contrast to the thin history of municipal consolidations, formal and informal service sharing agreements are ubiquitous in local government. Homsy, et al. (2013), for example, report on a survey of New York local governments and document that “service sharing is common” and that the state’s municipalities “have been sharing services – and doing it for a long time”, a conclusion they show to be strong for a variety of sub-elements of service categories including: public safety, transportation and public works, recreation and social services, administrative and support services, and even economic development and planning. This research also confirms the importance of cost savings as a motivation for municipalities. Fiscal stress on the local budget was reported as a motivation for sharing more often (95% of the time) than anything else.

Logically, optimal organization of the scale of service provision for police, solid waste management, social services and so on would seem more feasible on a service by service basis than through overall government consolidation. For example, there is no obvious reason to expect the optimal scale for providing police services to be the same as the optimal scale for providing road maintenance services. To optimize cost reductions, full unit consolidation would have to balance possible gains from economies of scale across multiple and diverse services. On the other hand, however, the cost saving argument against consolidation may be tempered by several contingencies. Among these are the potential for cross-service efficiencies in a single consolidated administration, and possible higher transaction costs of negotiating multiple service-specific reorganizations as opposed to a single grand restructuring.4

Lessons from prior research

Past research on the topic of consolidation, cooperation, and service sharing covers many topics. Most of the work has been motivated by the larger question of how to evaluate possible government strategies for achieving efficiencies in the provision of local government services. This topic increased in urgency with a combination of late 20th century trends including local property tax revolts, devolution of fiscal responsibilities from federal to state and local government, and growing attention to the option for governments to provide but not themselves produce services (e.g. privatization, intergovernmental contracting, franchising). (Warner and Hefetz, 2006). Privatization of government services has perhaps been given the most analytic scrutiny among many cost saving strategies, and service sharing the least. Among

4 Typically, these arguments point to further empirical indeterminacies and complications. Bel and Fageda (2006), for example, suggest in a different context that small municipalities actually face relatively low transaction costs in service sharing.
consolidation and service sharing studies, case studies, mostly prospective, dominate. Based on this kind of evidence, and drawing on school district consolidation research, New York State has anticipated “potential savings”, if fully realized, of “up to $765 million” statewide (Hevesi 2009:2). Moreover, municipal self-reports of outcomes of service sharing support the conclusion that, to some degree that is not quantified, both cost savings (56% of responses reported across all service areas) and service quality improvements (50%) are a result of past service sharing agreements (Homsy et al., 2013).

Much of the best empirical scholarship on the effects of intermunicipal cooperation and service sharing has been pursued outside the United States. A recent review (Bel and Warner 2014) observes that US literature tends to address the rationales for cooperation and barriers to its adoption, while analysis in the European Union has attended more to the economic outcomes associated with cooperation. The “skimpy” existing empirical evidence (Holzer and Fry 2011:81) Bel and Warner reviewed was comprised of eight multivariate statistical analyses published between 2006 and 2014. Seven were limited to a single municipal service (solid waste collection); all but two used total costs for the municipality as a dependent variable. Only half analyzed data collected from more than a single year. The reported results were mixed: “Most works find cooperation is significantly associated with lower cost…. However, [others] find cooperation associated with higher costs and [one] finds the difference is not statistically significant”. (Bel and Warner 2014:60). These mixed results hold even within the four studies employing longitudinal data sets.

Dolley and Akimov (2008:97) reach a more positive but decidedly unassertive conclusion based on their review of mostly Australian evidence on the outcomes of shared local service arrangements: “the judicious use of shared service models for carefully selected local government service functions can make a modest contribution to cost savings and improved local service provision.” Finally, Maher (2015) offers a rare example of a longitudinal domestic study from Wisconsin that finds limited evidence, at best, for cost decreases: “for communities that consolidated services, overall expenditures increased in some circumstances and expenditure reductions were only associated with one service: capacity management. When I examined protective services, we found limited evidence to suggest that spending increased in those communities following the consolidation.”

Our study

Our analysis involved regression estimation using longitudinal data from 1996 through 2013. One goal of the study was to facilitate study reproducibility in the future by using only data that is collected and made available annually for each of New York’s counties. We include only the 57 counties outside of New York City. Most importantly for our purposes, financial data on

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5 Bunch and Strauss (1992) considered a number of early case studies and add nine “projected financial implications” of their own. See also eg. [https://www.dos.ny.gov/lg/lge/Case_Studies.html#consolidationdissolution](https://www.dos.ny.gov/lg/lge/Case_Studies.html#consolidationdissolution) and [http://www.mildredwarner.org/restructuring/NYS](http://www.mildredwarner.org/restructuring/NYS)
municipal expenditures and revenues are assembled and annually made available by the NYS Comptroller at two levels of expenditure and revenue disaggregation. Our dependent variable, the variation in which we wish to explain through its relations to our explanatory variables, is total local government spending. Many other financial variables are available from this source as well, including our core policy indicator of the extent of intermunicipal service sharing. Financial data are available for all New York general purpose governments: counties, city, towns and villages. However, many important nonfinancial datasets of interest from other sources are only available at the county level. This fact provided one practical reason to aggregate all our variables to the county level. A more conceptually important reason for county based analysis is described next.

Though in some contexts the fact that New York State has 61 cities (excluding New York City), 932 towns, and more than 550 incorporated villages offers the benefits of large numbers of observations for statistical analysis, both our dependent variable and policy indicator variable have interpretations that are more appropriate and/or analytically tractable when the amounts reported by individual municipalities are aggregated to the county level. First, we are more interested for policy reasons in a dependent variable that reflects annual spending by local government in aggregate than in annual spending by each individual municipality. While individual municipalities and their residents certainly care about the municipal expenditures and the taxes that must be levied to provide municipal services for their local governments, the central political promise of service sharing (or of wholesale consolidation for that matter) is that the overall cost of local government can be reduced. Some taxpayers may well prefer to finance service provision through one particular government or class of governments over another, but we focus instead on the more trenchant question of the cost of local government overall. Most importantly, by aggregating the separate expenditures of all governments within the county, we are able to step around the complications associated with sharing agreements that may, for example, increase the costs of county government while decreasing the costs for some but not necessarily all town governments in the county.

Aggregation is even more important for our measured indicator of the extent of intermunicipal sharing. The NYS Comptroller includes this indicator in its financial records for every local government. The actual variable, officially labeled “Charges to Other Governments”, reports the “revenues derived from charges for services rendered to other governments.” Both personal communications with staff in the Comptroller’s office and formal publications from that office (NYS Comptroller, 2009:3-4) confirm that this variable can with some caution be reliably interpreted as a fair indicator of the extent of intermunicipal service sharing, and

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6 See http://www.osc.state.ny.us/localgov/datanstat/findata/index_choice.htm
7 A technical concern aggregation lessens considerably, while not entirely eliminating, is the potential confounding effects of spatial autocorrelation.
8 See http://www2.osc.state.ny.us/transparency/LocalGov/LocalGovGlossary.cfm which expands: “Charges to Other Governments may include the following subcategories: general government charges, education charges, public safety charges, health charges, transportation charges, social services charges, culture and recreation charges, community services charges, utility charges, debt service charges, sanitation charges, and miscellaneous intergovernmental charges.”
especially of its fiscal importance. The variable, however, poses limitations for researchers.\textsuperscript{9} It measures fund flows only from the perspective of the receiving government, i.e. the government providing the service. It is in itself reported as the sum of all revenue received, and does not identify which other governments pay for the services provided, or even how many other governments are involved in paying for which services. Moreover, the revenue level of any individual municipality is in part comprised of the expenditures of other municipalities, which introduces complexities into standard statistical assumptions about the independence of distinct municipal observations.

For illustration, consider a hypothetical “City-Town A-Town B” shared service relationship in which a) the City provides fire protection services to Town A and B, and charges them $70,000 and $30,000 respectively for those services, and b) both Towns A and B provides snowplowing services for City roads and each charge the City $5,000. The aggregated sum of the shared service accounting charges among them all would thus be $110,000, the value of the indicator that we choose to use in this study. The City’s financial records would reflect intermunicipal revenues of $100,000, but its relationship with the towns for snowplowing services is not available as a discrete number in the Comptroller’s accounts we can access. For their part, the towns would each show intermunicipal revenues of $5,000 from the city. Though this amount is included as part of intermunicipal revenues, it is not identifiable as a discrete transfer from the city, but only as part of the sum of all such revenues. Most importantly for our purposes, the relationship between the aggregated intermunicipal revenues received and that municipality’s own cost savings is not what interests us most. Instead, we are interested in the relationship between the revenues as an indicator of the extent of service sharing among the involved municipalities and the spending (savings - if any) attributable to them all in aggregate.

Thus, aggregation of both spending and intermunicipal service sharing revenues at the county level provides a relationship that can be used to more clearly test the proposition that the greater the extent of total shared services, the greater the reduction in overall spending or costs for all involved municipalities. However, aggregation at the county level would be a poor choice if a great deal of sharing took place across county boundaries. Fortunately, existing

\textsuperscript{9}The actual value of some forms of sharing (e.g. shared knowledge) are not well tracked by municipal accounting entries. Aside from this initial caveat, very close to two-thirds of the sharing arrangements reported by Homsy et al. (2013) are based on formal MOUs and/or contracts. All of the contracts and most of the MOU arrangements seem likely to leave annual traces in municipal revenue and expenditure accounts. However, there is clear evidence that substantial informal but valuable intermunicipal service sharing also takes place (22% of all arrangements in Homsy et al. 2013). Hattery (2012b:20), to cite a specific case study, reported that, “County, town, village and city highway departments in Montgomery County cooperate extensively to informally share manpower, materials and equipment on a regular basis. Examples include sharing trucks with drivers for hauling materials, and sharing specialized equipment or highway staff with specialized skills, for particular tasks.” Most informal arrangements presumably do not involve formal bookkeeping entries. Overall, however, it seems reasonable to presume that for political as well as economic accountability reasons, higher value individual service sharing arrangements will more likely to show up in the books. Finally, our indicator of intermunicipal transfers isn’t likely to accurately reflect sharing associated with the agreements (13% in Homsy et. al. 2013) involving joint ownership / production / purchase or special districts/authorities. Many of these will have significant implications for municipal budgets.
evidence suggests that sharing across county boundaries in New York State, while it clearly exists, is relatively rare.\(^{10}\)

To explain the variance in total municipal spending, we included some other variables from the NYS Comptroller’s dataset, and supplemented these with other data series available for this time period for all New York counties. These other variables are of possible interest in their own right, but their function in this work is to minimize the amount of bias or imprecision in the parameter of interest to us, i.e. that which specifies the influence of intermunicipal service sharing. To save space, all of these variables are not listed here in detail. However, in general the other variables included in our model were, firstly, intended to measure municipal scale and financial capacity. These variables more particularly included county acreage and estimated annual population, the annual full value of assessment (ie., aggregate tax base for all constituent municipalities), the sum across municipalities of annual federal aid, and of annual state aid, and county labor force participation. The variables in dollar values were all deflated by the most appropriate available municipal cost index. Secondly, we included a group of variables generally intended as indicators of the extent and type of demand for municipal services. These annual variables included county level indicators of unemployment, racial composition, poverty, household income, crime, road mileage, and weather. Finally, we included dummy variables to control for the year and county.

**Results**

Table 1 displays the overall model results associated with the fixed effects regression of our measure of aggregate countywide municipal expenditures on the explanatory variables mentioned above. As can be seen from the overall R-square and F statistic, the “overall” model fit is very high including annual time dummies. The within county R-square of 0.7 also indicates a good ability of the explanatory variables to explain the variability from county to county, with no interactions between counties considered. Though the actual regression parameters are not shown here, almost all of the statistically significant variables have signs that make sense. Thus, the sign on our measures of tax base (assessed value), selected revenue sources beyond intermunicipal transfers, estimated population, and the labor force are all positive – as they increase, so does aggregate municipal expenditure. Perhaps the most intriguing result worth a closer look is that our two measures of crime incidence have significant but opposite signs, with

\(^{10}\) Thus, Benjamin et al. (2007:71) summarize prior research by highlighting that a) that most reported collaborations were between two or three municipalities, with the difficulty of mounting intergovernmental collaborative efforts growing as the number of involved governments increased; b) collaborations proposed under the initial years of NY’s incentives program for sharing also involved relatively few governments, which in any event encouraged sharing among contiguous municipalities; and c) reported collaborations were most common where governments were layered (or nested) geographically, that is, where some of the people served by the jurisdictions seeking to collaborate were citizens (and could vote) in two or more of them. These points are reinforced by Benjamin et al.’s further review of research from the Regional Institute of the University of Buffalo, the Intergovernmental Studies Program of the University at Albany and the Monroe County Council of Governments.
nonviolent crimes being positive associated with aggregated county expenditures and violent crime being negatively correlated.

This study was designed to test the sign and significance on the parameter on our indicator of the extent of service sharing, aggregated intermunicipal revenues. The sign of the parameter, as well as the approximate magnitude of that sign and its associated t-statistic, were remarkably stable under a number of model specifications. For the model reported in Table 1, the parameter was -0.19, the t-stat was -0.47, the P>|t|=0.637. The direct interpretation of the parameter is that for each additional dollar transferred from one government to another within the county (for services rendered), the total expenditure of local government within the county was reduced by the of amount $0.19. In general terms, after controlling for other factors, an increase in intermunicipal service sharing was associated with a decrease in costs. However, the measured amount of this association is so small that it cannot be statistically distinguished from zero.

Thus, our overall conclusion is that although there is a hint here that intermunicipal sharing may be associated with or lead to small reductions in government spending, we cannot state that result with any kind of acceptable level of statistical confidence. This result, while specific to New York State’s experience for the time period studied, is generally consistent with much of the existing service sharing literature cited above. While service sharing can no doubt save specific municipalities costs in specific circumstances, and while this potential should in no way be diminished by our results, and while service sharing may well have ancillary benefits including improved service delivery (not measured in our study), our results do not support a stronger conclusion that service sharing has a good track record in dramatically reducing the costs of government.

Further work

Additional work with this data set is currently being pursued. First, we are working on a number of additional statistical explorations of the stability of our results to further modifications in the model, including modifications to functional forms and with work exploring the potential importance of time lags. However, we are most importantly also looking for resources to use our dataset to investigate the influence of intermunicipal sharing on spending for specific services.
Table 1. Regression of aggregate county municipal expenditures on explanatory variables
Observations: 57 counties, 18 years (1996-2013)

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</table>

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Observations: 57 counties, 18 years (1996-2013)
References


Hattery, Michael. 2012b. Montgomery County efficiency study for shared local and county highway services, Existing Conditions Report, prepared for the NYDOS under Local Government Efficiency Grant Program Contract No. 108813.


