Sharing is Caring, But Does It Save Money?

An Analysis of Interlocal Shared Services as a Cost-Reduction Mechanism for New Jersey Municipalities

Abigail Brown, Amanda Bruce, Noah Callahan, Jessika Sherman, and Ian Vlahović

Edward J. Bloustein School of Planning and Public Policy, Rutgers University

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INTRODUCTION

This research practicum examines the relationship between municipal size, cost, and shared services. New Jersey faces a problem surrounding high property tax rates and the assumption that consolidating municipalities and sharing services between municipalities will render overall cost savings, therefore creating an opportunity to lower property tax rates. A 2014 study conducted by Raphael Caprio, PhD., and Marc Pfeiffer, MPA, examined the relationship between municipal size and cost and concluded that there is no significant link between the size of the municipality and the cost of the government. This implies that there is no significant benefit to municipalities sharing services or consolidating.

This report first examines the scholarly literature discussing municipal size as it relates to cost, and existing studies relating to our research questions. The research team replicated portions of Caprio and Pfeiffer's study to both verify their findings and determine what, if anything, has changed in the decade since. This required an analysis of the relationship between municipal size and cost using 2021 municipal data collected from state databases and individual municipal budgets. A similar methodology was used to examine the selected variables and determine if there are any significant differences over time, particularly between resort and non-resort municipalities. Subsequent sections of this report explore the case for sharing services.

Descriptive statistics and inferential analysis seek to answer four key research questions:

- **Is cost per capita affected by a municipality sharing services?**

- **Do any specific shared services have an impact on cost per capita?**

- **Are there differences in shared services spending by population size?**

- **Does sharing a large amount of services impact cost per capita?**

After a discussion of key findings, appropriate recommendations, and conclusions are included.

EXECUTIVE SUMMARY

This report opens with a literature review of existing research into municipal consolidation and interlocal shared service agreements, both in the United States and abroad. These studies reveal mixed and mostly circumstantial results with regard to cost savings derived from shared service agreements between municipalities of varying sizes.

This report then replicates portions of Caprio and Pfeiffer's 2014 study, "Size May Not Matter: An Analysis of the Cost of Local Government and Municipal Size in New Jersey." The research team's findings largely mirror Caprio and Pfeiffer's: A municipality's population alone does not reliably predict its cost per capita of providing municipal services. This portion of the analysis also considered the "resort effect" and determined that resort and non-resort municipalities remain significantly different when compared across several metrics (budget, finance, taxation, housing, zoning, and demographics).

Next, the report assesses whether shared service agreements affect the cost per capita of providing government services in New Jersey municipalities. To determine this relationship, the research team collected shared services data from all New Jersey municipal budgets in 2021. From there, each shared service agreement was categorized into eighteen different categories. The research team determined that the majority of shared service agreements on both the revenue and appropriation sides came from just five categories: *Courts*, *EMS/Fire*, *Regular Police*, *Police in Schools*, and *Education*.

To determine the relationship between municipal size, cost, and shared services, the research team ran a series of linear regression tests. The first test included an independent binary variable of municipalities with shared service agreements and a dependent variable of cost per capita. This test showed that the existence of shared services has no statistically significant impact on cost per capita. Next, regressions were performed separately on each shared service category. From these tests, only planning and zoning revenue; finance and tax appropriations; and parks and recreation appropriations were found to have a significant relationship with cost per capita.

After running our second test, the research team decided to break down the binary categorical values from the first test and run them based on population size. To do this, the research team broke down municipalities into ten groups (deciles) from the smallest to the largest population. This test showed that only the smallest and largest deciles (1 and 10) had a statistically significant relationship between shared services and cost per capita. Lastly, when examining the final question on "super sharers" (municipalities whose shared services appropriations account for greater than 10% of their budget), no relationship was found between shared services within this group and cost per capita.

LITERATURE REVIEW

In a 2014 study, there was no statistically significant correlation found between population and cost per capita for governments (Caprio and Pfeiffer, 2014). These results challenge the long-standing New Jersey "folk hypothesis" that municipal consolidation—the formal merger of two smaller municipalities into one larger entity—could lower cost per capita, resulting in a lower property tax burden for residents.

In a 2018 study, McQuestin and Drew used data spanning five years for an Australian jurisdiction (judicial region), and through a regression analysis found shared services to be associated with a statistically significant reduction in municipal efficiency. The researchers recommend, however, that these findings not be construed as suggesting shared services cannot improve efficiency. If shared services are considered, they need to be carefully designed, as "a problem shared may very well end up as a problem exacerbated" (McQuestin and Drew, 2018). There is still good reason to consider shared services such as "potential improvement to service levels, access to expertise that might otherwise be difficult to attract, more effective regional planning, and internalization of externalities" (McQuestin and Drew, 2018). Another 2018 study finds a shift to shared services tends to result in higher expenditures, but some arrangements could result in cost savings (Dollery, Drew, & McQuestin, 2018).

In a 2019 study, researchers examine specific shared services and their potential for cost savings. In the case of shared services in solid waste management; roads and highways; police; libraries; and sewer services, a cost reduction was observed. In the case of shared services in economic development, ambulance/EMS, fire, water, and youth recreation, no cost savings were observed. In the case of shared services in elder services, and planning and zoning, a cost increase was observed (Aldag, Bel, & Warner, 2019). When analyzing the effect on cost from sharing services over time, only solid waste; roads and highways; police; and libraries show a continued downward trend. The authors explain that the differences observed between types of shared services are due to "characteristics such as asset specificity and the ability to achieve economies of scale on the one hand, or if sharing leads to greater administrative intensity or promotes other objectives such as quality and regional coordination outcomes on the other hand" (Aldag, Bel, & Warner, 2019).

In a 2017 study in the Netherlands, intermunicipal cooperation showed an increase in spending for small and large municipalities, yet mid-sized municipalities were unaffected. In the case of tax collection, spending could be reduced through intermunicipal cooperation, but this could be explained by the fact spending in this field is low (Allers & Greef, 2017).

Municipalities in Illinois have experienced cost savings through service sharing. In the case of many small, adjacent jurisdictions where the same services are being provided, municipalities can experience higher costs and lower capacity. Successful service consolidation has also proven beneficial in multiple areas. The six south suburban Cook County communities serviced by Thorn Creek Basin Sanitary District experienced significant cost savings over a period through the consolidation of sewage treatment (CMAP Illinois). Where municipalities have a limited need for certain services, rather than spending on hiring, training, and management of staff to provide specific services, they could save money by contracting a county to perform that function. For example, Lake County delivers both code enforcement and development review for multiple municipalities. The consolidation of services into a larger entity offers potential cost savings and increased capacity. Shared services have potential benefits or challenges, but through local budgeting and planning processes, these outcomes can be better predicted (CMAP Illinois).

REPLICATION OF THE ORIGINAL STUDY

Before exploring shared service agreements in depth, the research team first sought to replicate[1] and validate the results of Caprio and Pfeiffer's 2014 study to determine:

1. **If, 10 years later, there is any credence to the "folk hypothesis" that small, low-population municipalities are inherently less cost-efficient than large, high-population municipalities (which could help strengthen the case for municipal consolidation); and**

2. **If resort and non-resort municipalities are still significantly different from each other.**

The first step of this replication analysis involved a simple **pairwise comparison of cost per capita and population for all municipalities**. The research team omitted four of New Jersey's 565 municipalities[2] from this stage of the analysis (Pine Valley, Tavistock, Teterboro, and Walpack); with populations under 100 people, their extremely high costs per capita can be considered outliers that would have skewed the final results. The remaining 561 municipalities were then divided into ten groups (deciles) based on their population; Decile 1 contained 57 municipalities and all other deciles contained 56 municipalities each.

This initial comparison of all remaining municipalities appears to support the "folk hypothesis." With an average cost per capita of $4,532, the municipalities in Decile 1 (i.e., those with the smallest populations) are significantly more expensive to operate and thus less cost-efficient than all other municipalities (see Appendix B, Table 1). The municipalities in the next-smallest population group (Decile 2, average cost per capita = $2,194) also differ significantly from five of the remaining eight deciles. Deciles 3–10 showed no significant differences in average cost per capita.

However, these results do not account for what Caprio and Pfeiffer discovered to be a significant distortion factor in determining cost-efficiency by population: The "resort effect." As the authors explained, the 55 municipalities categorized as resorts have, on average, relatively high costs per capita; this is because although most tend to have low year-round populations and many are non-operating school districts, their annual appropriations, public infrastructure, and the municipal services they provide must account for their peak occupancy during the "high season" that lasts from late May to early September. **Might these low-population, high-cost per capita communities artificially inflate the averages for Deciles 1 and 2, thereby causing New Jersey's smallest municipalities to *appear* more cost-inefficient than they actually are?** To answer this question, the next step of this analysis was to verify that there is still a meaningful and statistically significant difference between resort and non-resort municipalities.

Once resorts were omitted from the analysis, the answer is a resounding <u>YES</u>. The average costs per capita for Deciles 1 and 2 drop to $1,557 and $1,500, respectively, and the remaining 506 municipalities show no significant differences between any population groups (see Appendix B, Table 2). Moreover, removing resorts from the dataset lowers the statewide average cost per capita by nearly $500, from $2,012 to $1,549. Perhaps most surprisingly, but still in line with Caprio and Pfeiffer's results, the highest-population municipalities (Decile 10) now have the highest average cost per capita ($1,612), which seems to roundly reject the "folk hypothesis" and the notion that "bigger equals more cost-efficient." For a visual comparison of the average cost per capita by population decile both including and excluding resort municipalities, see Appendix B, Figure 1.

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[1] Unlike Caprio and Pfeiffer's report, this study did not analyze "Per Capita Cost of Government by DFG Educational Classification," "Difference in Per Capita Cost of Municipal Government by Municipal Character," or "Average Cost per Capita by State Police Coverage."

[2] As of January 1, 2022, following the consolidation of Pine Valley into Pine Hill, New Jersey has only 564 municipalities. Because this analysis examines data from FY2021, the research team included Pine Valley in the total sample. However, Pine Valley was ultimately omitted from the final replication analysis due to insufficient data.

The next step of this analysis was to collect a variety of budgetary, financial, taxation, housing, zoning, and demographic data for all New Jersey municipalities, then to **separate and compare resort and non-resort municipalities to examine statistical differences between the two groups**. Several related variables were used only to perform calculations and were omitted from the analyses and results. The research team omitted several of Caprio and Pfeiffer's original variables[3] because these data could not readily be retrieved and/or calculated, but also added several new variables[4] to the analysis to both partially compensate for this loss and to explore additional potential drivers of cost per capita. **The analysis examined a total of 33 variables, including cost per capita and population.**

A total of seventeen municipalities (3% of all municipalities) were omitted from this portion of the analysis (see Appendix B, Table 3). Once again, four of these municipalities have populations under 100 people and their costs per capita are high enough to distort the final results. The remaining thirteen municipalities did not publicly provide sufficient revenue and taxation data to perform the calculations necessary to determine their values for the variables in question; three of these municipalities are categorized as resorts. Despite these missing observations—most notably the state capital, Trenton—the research team was confident that the omitted municipalities were diverse enough with regard to several factors (cost per capita, population, resort status, geography, municipal character, socioeconomics, etc.) that the remaining sample (n = 548, 97% of all municipalities) remained representative of the state as a whole. Municipalities were not grouped by population decile for this portion of the analysis, only by "resort" or "non-resort" status.

The research team then conducted a series of t-tests to search for statistically significant differences between resorts and non-resorts across these 33 variables (see Appendix B, Table 4). **As in the previous stage of this analysis, <u>the two groups are far more different than they are similar.</u> Of note:**

- Resorts have an average cost per capita over four times greater than that of non-resorts ($6,450 vs. $1,545); the difference is roughly the same when accounting for fire districts ($6,466 vs. $1,565).

- Resorts hold 12.4% more value in their residential parcels than non-resorts. Residential parcels in resorts are worth nearly twice as much as those in non-resorts, and resorts are over 400 times more valuable per square mile than non-resorts.

- Year-round resort residents tend to be older and whiter than non-resort residents.

- **"Debt as a % of total appropriations"** and **"land area"** differed significantly in Caprio and Pfeiffer's study, but not in this analysis.

- **"Average annual residential taxes paid"** and **"population density"** differed significantly in this analysis, but not in Caprio and Pfeiffer's study.

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[3] Percent appropriations in cap; base cost per $100 of value; general crime rate; major crime rate; diversity index; mean household income; cost per capita including fire districts

[4] Fire districts; percentage of land value in apartment parcels; percent multiracial; percent change in population (2010–2020)

Finally, the research team sorted all non-resort municipalities (excluding those with populations under 100) by their cost per capita to determine the "Top 15,"[5] the municipalities with the highest costs per capita in the state (see Appendix B, Table 5). Their cost per capita increased by an average of 40.3% between 2011 and 2021 (after adjusting for inflation), and 80% (12/15) of these were on Caprio and Pfeiffer's list of highest cost per capita municipalities a decade ago. Interestingly, these municipalities vary greatly in geography (though all but two are located in North and Central Jersey), municipal character, and socioeconomic status, perhaps implying that universal drivers of and solutions for New Jersey's high cost of municipal government are not easily determined. Of note, Lower Alloways Township in rural Salem County registers the highest cost per capita statewide ($5,391). Finally, for what it is worth, boroughs comprise 60% (9/15) of the "Top 15" and 52% of the "Top 100" (not listed in this report), yet only 39% of New Jersey municipalities are categorized as this form of government. Future research may uncover whether the "boroughitis" phenomenon of the late 19th century has had lingering effects on the modern-day cost per capita of providing government services in these smaller localities, and if the form and type of government municipalities maintain under the Faulkner Act has any bearing on their cost efficiency.

Out of curiosity, the research team also determined the "Bottom 15" (see Appendix B, Table 6), which Caprio and Pfeiffer did not present in their report. These municipalities are primarily rural, and most are located in South Jersey (13/15), with 80% (12/15) located in just three counties (Burlington, Cumberland, and Salem). Between 2011 and 2021, their average cost per capita increased by a greater amount than the Top 15 after adjusting for inflation (49.2%), which suggests that no municipalities are immune to the rising cost of government services. These municipalities demonstrate that it is indeed possible to maintain a low cost per capita for residents, but there are likely a variety of contributors that allow them to minimize their cost of providing government services. For example, as Caprio and Pfeiffer noted, many of these rural municipalities rely on State Police coverage rather than maintaining their own more expensive local police departments. Further research is required to discern which specific factors influence their low cost per capita and to examine if higher-cost municipalities can realistically adopt any of these practices without sacrificing their current levels of government services.

The research team can conclude that resorts and non-resorts indeed still differ significantly, and that population is not a reliable predictor of cost per capita. As Caprio and Pfeiffer reported a decade ago, "size may not be the issue" and the argument for consolidating municipalities remains weak and difficult to justify in most cases. Consolidation is further complicated by factors not explored in this analysis, including up-front merger costs; shifting property tax burdens between merging municipalities; municipal political leanings; local officials' potential loss of power following the merger of two municipal governments; and the notion that individual municipalities possess (and could thus stand to lose) a unique "character" that qualitatively differentiates them from their neighbors.

In the years following the elimination of the federal SALT deduction, how might New Jersey's state, county, and local government officials help alleviate residents' outsized property tax burdens? If consolidation is off the table, might New Jersey municipalities engage in a less extreme form of cooperation? In the following section, the research team will examine the presence, nature, and impact on the cost per capita of interlocal shared service agreements between municipalities.

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[5] Although Caprio and Pfeiffer's report highlighted 29 non-resort municipalities with a cost per capita greater than $2,000, the rising cost of providing municipal services in New Jersey means an updated list using that same benchmark—or even a higher benchmark of $3,000—would be much longer. Additionally, their list does not appear to include a handful of municipalities that meet the $2,000 threshold.

SHARED SERVICES: FINDINGS

To capture the current status of shared services among New Jersey municipalities, revenue and appropriation data for FY2021 were collected from FY2022 budgets in each municipality. **Broadly, 63% of New Jersey municipalities have at least one shared service agreement in place.** Municipalities with shared service agreement reported an average revenue from shared services in FY2021 of $645,805 with a median of $191,530. Among the municipalities that had shared service agreements, the average appropriation reported in FY2021 was $621,695 with a median of $190,600.

In examining the types of shared service agreements among all municipalities, we were able to categorize each agreement into 18 different categories outlined in Figures 1 and 2 below. The data shows that the bulk of New Jersey shared service agreements come from just five main categories: *Municipal Courts, EMS/Fire, Police in Schools, Regular Police,* **and** *Education*. In terms of revenue, *Education* accounts for the largest portion at 28.3% of shared service agreements. The category *EMS/Fire* accounts for the greatest share of appropriations at 18% of total shared services.

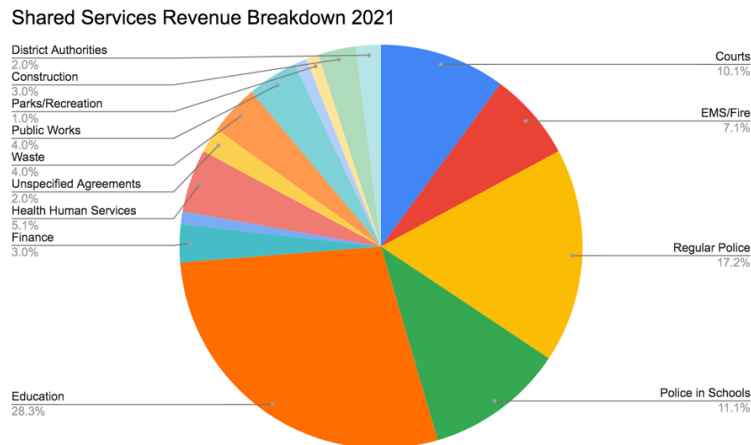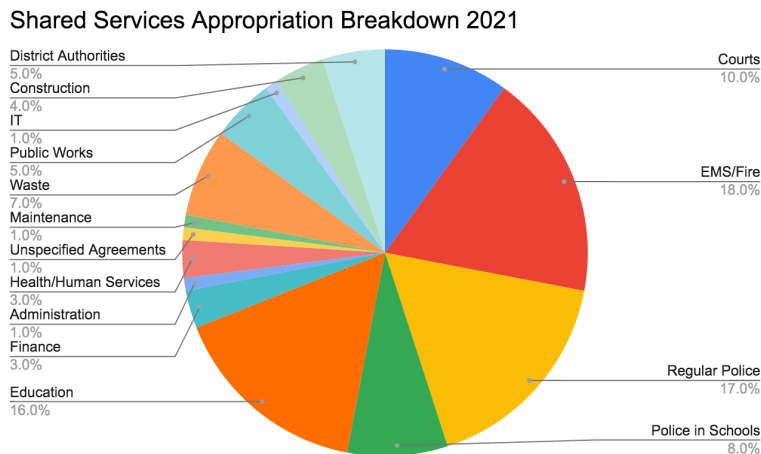## Figure 1: Categorical Share of Shared Service Revenues

Figure 2. Categorical Share of Shared Services Appropriations

The research team was interested in a possible relationship between municipal shared services and municipal cost per capita because **we view sharing services as a less extreme version of consolidating municipalities.** The team collected data on what type of services municipals shared and how much the municipalities spent on shared services in FY2021. The findings are as follows:

Question 1: **Is cost per capita affected by a municipality sharing services?**

For this analysis, the team considered whether a municipality shares services and their respective appropriations and revenues for shared services as three binary independent variables. The percentage of appropriations for shared services as a share of the total appropriations was also considered. From these initial tests, the team concluded that **it was likely that shared services do not have a statistically significant impact on cost per capita** but considered the data from a few other perspectives to create a complete picture. Results are shown in Table 1 of Appendix C.

Question 2: **Do any of the shared service categorical variables have an impact on cost per capita?**

Each shared service category is populated by the dollar amount each municipality spent on that service in FY2021. When considering all of the revenue and appropriations variables together, **only planning and zoning revenue; finance and tax appropriations; and parks and recreation appropriations were significant**. Significant results are shown in Table 2 of Appendix C.

Question 3: **Are there differences in shared services spending by population size?**

As Table 2 shows, not all of the variables are statistically significant, and of those that are significant, their strength is nothing of note. The R^2 values show that these models are not capturing the entire picture in terms of what plays a role in cost. Because no more useful information could be gleaned from this route, the team posited that a better approach might be looking at the correlation between the variables considered in Question 1 and cost per capita when broken down by decile. Deciles range from the smallest (Decile 1) to the largest (Decile 10). Table 3 of Appendix C shows that shared services impact cost per capita in the smallest and largest municipalities. Only statistically significant deciles are reported.

Question 4: **Does sharing a large amount of services impact cost per capita?**

The analysis in the past three questions led the research team to conclude that **shared services are not a driving influence behind cost per capita for all municipalities**. However, this also led to the question: **Are they a significant influence for those municipalities that share a large number of services**? These "super sharers" are defined as municipalities where the appropriations for shared services represented 10% or more of overall appropriations. There are 36 "super-sharer" municipalities in total. First, we looked at if population influenced whether or not a municipality would be a "super sharer." Results for this analysis are shown in Table 4 of Appendix C. **Results are significant, but the team does not consider the effect of population on shared services to be greatly impactful.** We then considered whether the percentage of appropriations spent on shared service was correlated to cost per capita for the "super sharers." Results of this analysis are shown in Table 5 of Appendix C. **There was no significant correlation between the percentage of appropriations spent on shared services and cost per capita when only considering "super sharers."**

CONCLUSIONS

After gathering data on shared services from each municipal budget across the state, the research team found that over 60% of all shared services came from just five categories. These categories were ***Courts***, ***EMS/Fire***, ***Regular Police***, ***Police in Schools***, and ***Education***. By conducting statistical tests between shared services and cost per capita, this research suggests no statistically significant and meaningful relationship between these two variables. From these results, we can conclude that neither consolidation nor sharing services yields cost savings for New Jersey municipalities.

RECOMMENDATIONS

Existing literature and conducting our quantitative study into the relationship between municipal shared services and cost per capita allows the research team to propose several recommendations for future research and policy.

First, a comprehensive study seeking to understand the biggest cost drivers in municipal budgets should be conducted. Because school budgets typically demand a municipality's largest share of total appropriations, part of this study should include a thorough examination of education expenses as a driver of total cost per capita. As we have determined, it is understood that shared services are not one of the drivers of cost savings or burdens for municipalities, so future research should aim to understand what is. A greater understanding of what other factors play a role in determining cost per capita can help inform future budgetary decisions for municipalities. To that effect, it is worth exploring the practices employed by the municipalities with the lowest cost per capita statewide, particularly the role of State Police coverage—which supplants the need to maintain local police departments in vast rural areas—in minimizing their per capita expenditures. It may also be prudent to examine whether the type and form of government that municipalities maintain under the Faulkner Act has any significant bearing on their cost efficiency.

Second, implementing a universal nomenclature for budgetary items should be considered. This would help future researchers understand what municipalities are spending money on and where those funds are going. Additionally, it increases transparency between municipal government and residents.

Third, a longitudinal study of shared services should be considered to understand how municipal costs change over time and what role sharing services play. Such a study could also include a more qualitative approach that aims to understand resident attitudes toward sharing services and consolidation.

Finally, with any of the recommended studies and other adjacent research, equity assessments need to be conducted to understand the varying demographics and landscapes within the state. New Jersey is one of the happiest and wealthiest states with the best public schools in the country. With a plethora of municipalities from which to choose, ample transportation corridors, easy access to two major cities, and a wide variety of recreation options, it is an ideal place in which to work, live, play, and raise a family. Nevertheless, there are still pockets of extreme poverty and economic decay around the state, and the high cost of living presents major affordability issues for many. Lowering property taxes is not simply a matter of alleviating financial burdens for current residents; it would also ensure that anyone of any background, occupation, and socioeconomic level who wants to live here can afford to do so.

REFERENCES

Austin M Aldag, Mildred E Warner, Germà Bel. "It Depends on What You Share: The Elusive Cost Savings" from Service Sharing, Journal of Public Administration Research and Theory, Volume 30, Issue 2, April 2020, Pages 275–289, https://doi.org/10.1093/jopart/muz023

Caprio, Raphael J., Pfeiffer, Marc H., "Size May Not Be the Issue: An Analysis of the Cost of Local Government and Municipal Size in New Jersey", Bloustein Local Government Research Center, Issue Paper #1, November 2014

Drew, J, McQuestin, D, Dollery, BE. Good to share? The pecuniary implications of moving to shared service production for local government services. Public Admin. 2019; 97: 132– 146. https://doi-org.proxy.libraries.rutgers.edu/10.1111/padm.12575

Maarten A. Allers & J.A. de Greef (2018) Intermunicipal cooperation, public spending and service levels, Local Government Studies, 44:1, 127-150, DOI: 10.1080/03003930.2017.1380630

McQuestin, D, Drew, J. Is a problem shared a problem halved? Shared services and municipal efficiency. Aust J Pub Admin. 2019; 78: 265– 280. https://doi-org.proxy.libraries.rutgers.edu/10.1111/1467-8500.12349

Partnerships. CMAP. (n.d.). Retrieved April 25, 2023, from https://www.cmap.illinois.gov/2050/governance/partnerships

State of New Jersey Department of Community Affairs, Division of Local Government Services. 2021 Abstract of Line Item Ratables.

State of New Jersey Department of Community Affairs, Division of Local Government Services. 2021 Property Tax Information.

State of New Jersey Department of Community Affairs, Division of Local Government Services. 2023 User Friendly Budget Database.

State of New Jersey Department of Law & Public Safety, Office of the Attorney General. New Jersey State Police, 2016 Uniform Crime Report, Section 8 (Resort Municipalities).

State of New Jersey Department of State. U.S. Census Bureau 2020 Census Pub.L. 94-171 Redistricting Data.

State of New Jersey Department of the Treasury, Division of Taxation. 2021 General Tax Rates.

U.S. Census Bureau. (2022). *2017-2021 American Community Survey (ACS)*. Retrieved from https://rutgers-policymap-com.proxy.libraries.rutgers.edu/newmaps#/

APPENDICES

A. STUDY LIMITATIONS

The study performed on shared services in New Jersey municipalities has some potential limitations. One of these limitations was the lack of availability of FY2022 municipal budgets. While some municipalities uploaded adopted FY2022 budgets to their websites, some only had budgets up to FY2021. To address this issue, the most recent budget available was used for all municipalities to capture the most recent data on shared services in the state. A related limitation was that some municipalities only had their FY2022 User-Friendly Budget available, which provides the total revenue and appropriations for shared services and does not include an itemized list.

Another limitation of the study is that the research team only used municipal budgets to examine local spending. To get a better picture of influences on cost per capita, future analyses should consider total municipal appropriations, including separate utility budgets and especially school budgets.

The last limitation of the study is the lack of universal nomenclature in the line items of the budgets the team examined. Since there were multiple names used for similar spending items, the research team's initial list of shared services had 252 categories. The team synthesized each line item into 18 categories outlined in Figures 1 and 2 (page 9).

B. REPLICATION OF THE ORIGINAL STUDY: TABLES AND FIGURES

Table 1: t-tests (Upper Right) and Analyses of Variance (Lower Left), Each Population Group Against All Other Population Groups (All Municipalities)

Means (upper right) / Variances (lower left)	(1) Up to 1,665	(2) 1,666-3,005	(3) 3,006-4,606	(4) 4,607-6,218	(5) 6,219-8,434	(6) 8,435-11,079	(7) 11,080-15,409	(8) 15,410-23,690	(9) 23,691-40,921	(10) 40,922-311,549
Decile Average Cost per Capita	$4,532	$2,194	$1,960	$1,841	$1,594	$1,558	$1,661	$1,574	$1,595	$1,606
(1) Up to 1,665		YES	YES	YES	YES	YES	YES	YES	YES	YES
(2) 1,666-3,005	NO		NO	NO	YES	YES	NO	YES	YES	YES
(3) 3,006-4,606	NO	NO		NO	NO	NO	NO	NO	NO	NO
(4) 4,607-6,218	NO	NO	NO		NO	NO	NO	NO	NO	NO
(5) 6,219-8,434	NO	NO	NO	NO		NO	NO	NO	NO	NO
(6) 8,435-11,079	NO	NO	YES	NO	NO		NO	NO	NO	NO
(7) 11,080-15,409	YES	NO	NO	NO	NO	NO		NO	NO	NO
(8) 15,410-23,690	NO	NO	NO	YES	NO	NO	NO		NO	NO
(9) 23,691-40,921	NO	NO	NO	NO	NO	NO	NO	NO		NO
(10) 40,922-311,549	NO	NO	NO	NO	NO	NO	NO	NO	NO	

Notes: (1) Green YES indicates significance at 0.05 or better at the expected level; (2) Yellow YES indicates significance at 0.1 or better at the expected level.

Table 2: t-tests (Upper Right) and Analyses of Variance (Lower Left), Each Population Group Against All Other Population Groups (Resorts Excluded)

Means (upper right) Variances (lower left)	(1) Up to 1,977	(2) 1,978-3,627	(3) 3,006-5,335	(4) 5,336-7,204	(5) 7,205-9,052	(6) 9,053-12,133	(7) 12,134-17,064	(8) 17,065-25,326	(9) 25,327-43,738	(10) 43,739-311,549
Decile Average Cost per Capita	$1,557	$1,500	$1,518	$1,579	$1,513	$1,556	$1,515	$1,589	$1,555	$1,612
(1) Up to 1,977		NO	NO	NO	NO	NO	NO	NO	NO	NO
(2) 1,978-3,627	NO		NO	NO	NO	NO	NO	NO	NO	NO
(3) 3,006-5,335	NO	NO		NO	NO	NO	NO	NO	NO	NO
(4) 5,336-7,204	INVERSE	NO	NO		NO	NO	NO	NO	NO	NO
(5) 7,205-9,052	NO	INVERSE	NO	NO		NO	NO	NO	NO	NO
(6) 89,053-12,133	NO	NO	NO	NO	NO		NO	NO	NO	NO
(7) 12,134-17,064	NO	NO	NO	YES	NO	NO		NO	NO	NO
(8) 17,065-25,326	NO	NO	NO	NO	NO	NO	NO		NO	NO
(9) 25,327-43,738	NO	NO	NO	NO	NO	NO	NO	NO		NO
(10) 43,739-311,549	NO	NO	NO	NO	NO	NO	NO	NO	NO	

Notes: (1) Green YES indicates significance at 0.05 or better at the expected level; (2) Yellow INVERSE indicates significance at 0.1 or better at the expected level, but also where the smaller population size group has a lower average cost per capita than the larger municipal population group, i.e., the opposite of what would be expected according to the "folk hypothesis."

Figure 1: Comparison of Average Municipal Cost per Capita by Population Group (Both With and Without Resorts)
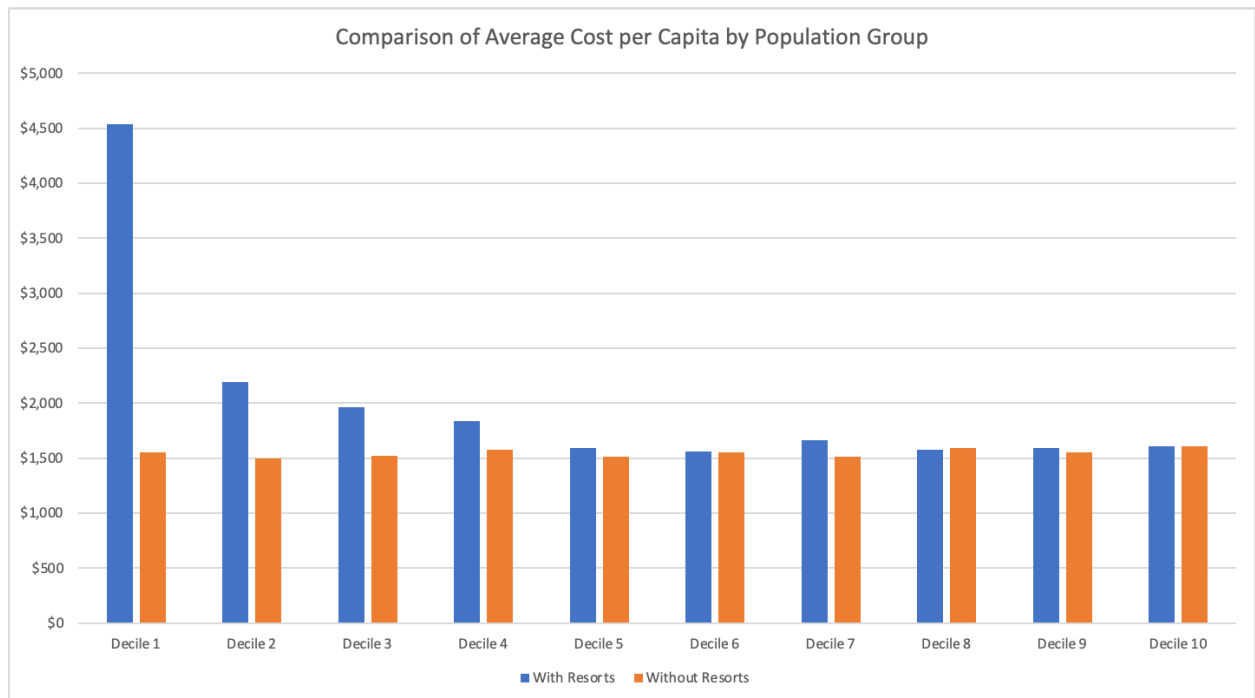
Table 3: Municipalities Omitted from Comparison of Resorts and Non-Resorts

	Municipality	County	Resort?	Cost per Capita	Population
Low-Population (<100) Municipalities					
	Teterboro	Bergen	N	$99,968	61
*Also insufficient data	Pine Valley*	Camden	N	$0	21
	Tavistock	Camden	N	$18,461	9
	Walpack	Sussex	N	$17,467	7
Insufficient Data					
	Harrington Park	Bergen	N	$1,629	4,741
	Waterford	Camden	N	$1,181	10,421
	Irvington	Essex	N	$2,297	61,176
	Elk Township	Gloucester	N	$1,289	4,424
	Pitman	Gloucester	N	$1,137	8,780
	Trenton	Mercer	N	$2,577	90,871
	Bradley Beach	Monmouth	Y	$2,423	4,282
	Lake Como (South Belmar)	Monmouth	Y	$2,302	1,697
	Washington	Morris	N	$2,501	18,197
	Bay Head	Ocean	Y	$6,779	930
	Bloomingdale	Passaic	N	$1,676	7,777
	Totowa	Passaic	N	$1,926	11,065
	Bound Brook	Somerset	N	$1,468	11,988

Table 4: Comparison of Resorts and Non-Resorts

	Non-Resorts (496)	Resorts (52)	t-test significance (2-tailed)
Cost per capita	$1,545	$6,450	0.000
Fire districts	$520,319	$196,360	0.012
Cost per capita + fire districts – RUT	$1,565	$6,466	0.000
Equalization ratio	0.74	0.51	0.000
Effective tax rate	2.78	1.55	0.000
Municipal property tax levy as % of total tax levy	27.0%	35.4%	0.000
Average annual residential taxes paid	$9,465	$7,482	0.000
Property tax levy as % of total revenue	55.6%	51.1%	0.118
Local revenue as a % of total revenue	14.1%	21.5%	0.001
Fund balance (surplus) as a % of total revenue	11.3%	11.1%	0.776
State aid as a % of total revenue	8.3%	4.6%	0.001
Delinquent tax payments as a % of total revenue	3.1%	1.8%	0.000
Reserve for Uncollected Taxes (RUT) as a % of total appropriations	6.9%	4.7%	0.000
Debt as a % of total appropriations	11.3%	13.0%	0.226
Debt per capita	$170.10	$821.30	0.000
Land area in square miles	13.4	10.6	0.299
Total land value	$1,985,297,727	$2,536,270,644	0.162
Value per square mile	$3,497,737	$1,523,550,996	0.000
Average residential property value	$355,997	$628,170	0.001
% of property value in residential parcels	76.0%	88.4%	0.000
% of property value in apartment parcels	3.6%	0.9%	0.000
Ratio of housing units to residential & apartment parcels	2.60	1.13	0.146
Vacancy rate	6.1%	49.3%	0.000
2020 population	17,598	6,234	0.000
Population density per square mile	4,790	2,166	0.000
% change in population (2010–2020)	3.1%	-1.6%	0.001
Median household income	$107,372	$95,178	0.007
% children	26.5%	17.5%	0.000
% White	68.1%	87.0%	0.000
% Black	8.0%	2.6%	0.000
% Hispanic/Latino	15.3%	7.6%	0.000
% Asian	7.6%	1.4%	0.000
% Multiracial	8.8%	5.5%	0.000

Notes: (1) Variables (left-most column) highlighted in green were not included in Caprio and Pfeiffer's ("C&P's") original study; (2) significance levels (right-most column) highlighted in green were significant in this analysis but not in C&P's original study; (3) significance levels highlighted in orange were significant in C&P's original study but not in this analysis; (4) significance levels highlighted in blue were significant in both studies.

Table 5: "Top 15" – Municipalities with the Highest Cost per Capita

	Municipality	County	Population	Cost per Capita	% Change in Cost Per Capita (2011–2021)
1	Lower Alloways Creek	Salem	1,717	$5,391	21.3%
2	Saddle River	Bergen	3,372	$4,164	23.2%
3	Moonachie	Bergen	3,133	$3,956	36.9%
4	South Hackensack	Bergen	2,701	$3,930	22.7%
5	Englewood Cliffs	Bergen	5,342	$3,840	59.4%
6	Carlstadt	Bergen	6,372	$3,736	36.6%
7	Alpine	Bergen	1,762	$3,569	18.6%
8	Cranbury	Middlesex	3,842	$3,522	66.2%
9	Far Hills	Somerset	924	$3,442	31.8%
10	Asbury Park	Monmouth	15,188	$3,348	29.3%
11	Camden	Camden	71,791	$3,247	44.9%
12	Interlaken	Monmouth	828	$3,165	95.8%
13	Chester Borough	Morris	1,681	$3,030	15.2%
14	Essex Fells	Essex	2,244	$3,024	62.9%
15	Fairfield	Essex	7,872	$2,942	28.9%

Note: Municipalities highlighted in blue were included in C&P's list of "Non-Resort Higher Cost per Capita Municipalities."

Table 6: "Bottom 15" – Municipalities with the Lowest Cost per Capita

	Municipality	County	Population	Cost per Capita	% Change in Cost Per Capita (2011–2021)
1	New Hanover	Burlington	6,367	$419	51.3%
2	Pittsgrove Township	Salem	8,777	$510	40.3%
3	North Hanover	Burlington	7,963	$517	31.5%
4	Shamong	Burlington	6,460	$519	41.1%
5	Upper Pittsgrove	Salem	3,432	$540	49.2%
6	Alloway	Salem	3,283	$541	30.4%
7	Plumsted	Ocean	8,072	$555	51.3%
8	Wantage	Sussex	10,811	$584	45.7%
9	Union	Hunterdon	6,507	$590	47.0%
10	Deerfield	Cumberland	3,136	$591	25.8%
11	Hopewell	Cumberland	4,391	$592	86.8%
12	Chesterfield	Burlington	9,422	$601	63.7%
13	Fairfield	Cumberland	5,546	$613	75.5%
14	Quinton	Salem	2,580	$635	33.4%
15	Maurice River	Cumberland	6,218	$636	65.8%

C. SHARED SERVICES: TABLES

Table 1: Question 1 - Impact of Shared Services as a Binary Independent Variable (YES/NO) on Cost Per Capita

Independent Variable	Variable weight	Significance	R-squared
Shared Services (Binary)	69.65	0.735	0.000
Appropriations for Shared Services (Binary)	263.2	0.186	0.003
Revenue from Shared Services (Binary)	-164.3	0.413	0.001
Appropriations for Shared Services as a Percent	7.096	0.726	0.000

Table 2: Question 2 – Impact of Shared Services Spending Categories by Cost Per Capita

Independent Variable	Variable weight	Significance	R-squared
All Shared Service Variables			
Planning and Zoning Revenue	0.042	0.080 .	0.095
Finance and Tax Appropriations	0.015	0.019*	
Parks and Recreation Appropriations	0.059	0.000685 ***	
Shared Service Appropriation Variables			
Police (excluding in schools) Appropriations	0.002	0.009 **	0.068
Finance and Tax Appropriations	0.012	0.035 *	
Parks and Recreation Appropriations	0.061	0.000319 ***	
Shared Service Revenue Variables			
Planning and Zoning Revenue	0.047	0.003**	0.043
Police (excluding in schools) Revenue	0.002	0.045*	

Table 3: Question 3 - Impact of Shared Services and Shared Service Appropriations as a Binary Independent Variable (YES/NO) on Cost Per Capita by Population Decile

Independent Variable	Variable weight	Significance	R-squared
Shared Services Binary Variable			
Decile 1	3217	0.0368*	0.0877
Decile 10	-554.7	0.0649 .	0.06923
Appropriations for Shared Services Binary Variable			
Decile 1	3457	0.0239*	0.1018
Decile 8	-342.0	0.0275*	0.09532
Revenue for Shared Services Binary Variable			
Decile 1	4077	0.0523 .	0.07622
Decile 10	-508.1	0.0875 .	0.0596
Appropriations for Shared Services as a Percent			
No deciles had significant correlations for this variable.			

Table 4: Question 4 - Shared Services Appropriations by Population

Independent Variable	Dependent Variable	Variable weight	Significance	R-squared
2021 Population	Appropriations of Shared Services as a Percent	0.00012158	0.0769 .	0.08917

Table 5: Question 4 - Percent of appropriations by cost per capita, "Super sharers" only

Independent Variable	Dependent Variable	Variable weight	Significance	R2
No significant correlation.				