Reforming Municipal Aid in Massachusetts

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A formula that incorporates municipal gaps among communities can provide a more rational, transparent system for distributing municipal aid. The formula can achieve its goals without disrupting local policies or redistribution of current aid.

Local governments in Massachusetts are responsible for providing fire and police safety, emergency medical services, road maintenance, and many other municipal services. These services are essential to the local economy for individuals and businesses alike, and also play an important role in sustaining the state’s economic competitiveness. State government in Massachusetts distributes unrestricted aid with an express goal of helping to equalize the ability of cities and towns to provide these services. However, many local officials are concerned that the state is not targeting this aid effectively to communities that need it most, and have therefore called for municipal aid reform.

This article explores the concerns of local officials and suggests an approach for reforming municipal aid. We identify a measure of the need for municipal aid — the “municipal gap” — based on factors outside the control of local officials. We then use the municipal gap to evaluate the state’s distribution of Unrestricted General Government Aid relative to need for aid in fiscal year (FY) 2011. Furthermore, we suggest a gap-based approach to allocating municipal aid more rationally and more transparently—and without redistributing current aid.

How Can We Measure Need for Municipal Aid?
A recent publication from the Federal Reserve Bank of Boston constructs the municipal gap, a measure of a community’s relative need for municipal aid. The municipal gap is the difference between the costs of providing basic municipal services (“municipal costs”) and the ability of a city or town to raise revenue locally to pay for those services (“municipal capacity”). Municipal costs and capacity are not actual local spending and revenues, but are based instead on local economic and social characteristics outside the control of local officials. Our approach avoids rewarding wasteful spending and punishing efficient management.

We used a statistical approach to explore an extensive list of local characteristics that may affect per capita costs of municipal services provided by all cities and towns. Our analysis finds four robust cost factors: population density, the poverty rate, the unemployment rate, and the number of per capita jobs in the municipality. There are many reasons why these factors contribute to municipal costs. For example, residents of a community with a higher poverty rate may not be able to afford the maintenance and
safety modernizations to homes that residents of a higher-income community can, raising the risk of fire and break-ins. The number of per capita jobs measures the number of commuters coming into the municipality on a regular basis. These commuters require municipal services, such as well-maintained roads and police and fire protection, and thus increase a community’s municipal costs.

Municipal capacity is driven primarily by the ability to raise local property taxes. Through a statistical analysis of Massachusetts data, we find that that ability is affected by both taxable residential and nonresidential property values, as well as the personal income of local residents. In addition to property tax capacity, we include other local revenue sources in the measure of municipal capacity, such as motor vehicle excise, local hotel/motel excise, urban redevelopment excise, local share of racing taxes, and state government payments in lieu of taxes for state-owned land. However, we must subtract state-required local contributions to public schools and other required assessments or charges for regional planning agencies, and regional transit, etc. from municipal capacity, since those moneys are not available to fund municipal services.

Different types of communities fare differently according to the measure of municipal costs and capacity. To illustrate this, we construct five prototype communities based on some actual Massachusetts cities and towns: large city, rural town, job-center suburb, higher-income residential suburb, and resort town. With respect to municipal costs, the large city prototype has the highest per capita municipal costs, due to higher population density, poverty rates, and unemployment rates. The higher-income residential suburb prototype, however, experiences much lower per capita municipal costs, because those types of communities tend to have lower poverty rates and unemployment rates, and are also home to fewer jobs per capita (Table 1).

In terms of municipal capacity, the rural town prototype suffers from lower municipal capacity than other communities, since it has lower taxable property values and income per capita. This drives the rural town prototype to have a per capita municipal capacity over 40 percent smaller than the average Massachusetts community. On the other hand, a prototypical resort town enjoys a per capita municipal capacity almost four times larger than the average Massachusetts community. Because of the large difference in municipal costs and capacity across communities, Massachusetts cities and towns face a wide range of municipal gaps. As Figure 1 shows, large city and rural town prototypes have higher municipal gaps than other types of cities and towns. This

Table 1. Municipal Cost Factors of Prototype Massachusetts Communities (FY 2007)

<table>
<thead>
<tr>
<th>COST FACTORS</th>
<th>Population Density (thousands per square mile)</th>
<th>Poverty Rate (%)</th>
<th>Unemployment Rate (%)</th>
<th>Jobs per Capita</th>
<th>Municipal Costs ($ per Capita)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large City</td>
<td>8.84</td>
<td>22.82</td>
<td>6.87</td>
<td>0.35</td>
<td>1,921.39</td>
</tr>
<tr>
<td>Rural Town</td>
<td>0.08</td>
<td>5.39</td>
<td>4.68</td>
<td>0.29</td>
<td>1,135.96</td>
</tr>
<tr>
<td>Job-Center Suburb</td>
<td>1.55</td>
<td>3.84</td>
<td>3.54</td>
<td>0.99</td>
<td>1,245.32</td>
</tr>
<tr>
<td>Higher-Income Residential Suburb</td>
<td>1.42</td>
<td>2.84</td>
<td>2.60</td>
<td>0.21</td>
<td>933.67</td>
</tr>
<tr>
<td>Resort Town</td>
<td>0.25</td>
<td>7.16</td>
<td>5.32</td>
<td>0.54</td>
<td>1,296.72</td>
</tr>
<tr>
<td>Average MA Community</td>
<td>4.02</td>
<td>9.93</td>
<td>4.90</td>
<td>0.49</td>
<td>1,410.86</td>
</tr>
</tbody>
</table>

Note: Per capita municipal costs = 28.0 x population density + 19.8 x poverty rate + 81.0 x unemployment rate + 272 x jobs per capita + 570.2. The Large City prototype is based on Lawrence, Lowell, Lynn, New Bedford, Springfield, and Somerville. The Resort Town prototype is based on Eastham, Edgartown, Nantucket, Orleans, Stockbridge, and Williamstown. The Job-Center Suburb prototype is based on Andover, Braintree, Canton, Natick, and Westborough. The Rural Town prototype is based on Ashby, Ashfield, Blandford, Clarksburg, Huntington, Lanesborough, Oakham, and Whately. The Higher-Income Residential Suburb prototype is based on Belmont, Carlisle, Dover, Lincoln, and Wayland. The average MA community is defined as a hypothetical community experiencing the weighted average among 351 Massachusetts cities and towns (weighted by population size) for municipal cost and revenue capacity factors.
Table 2. Municipal Capacity Factors of Prototype Massachusetts Communities
(dollars per capita, FY 2007)

<table>
<thead>
<tr>
<th></th>
<th>Taxable Residential Property Value</th>
<th>Taxable Nonresidential Property Value</th>
<th>Income</th>
<th>Property Tax Capacity</th>
<th>Other Local Revenue Capacity</th>
<th>Required Reductions in Capacity</th>
<th>Municipal Revenue Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large City</td>
<td>62,526.93</td>
<td>10,841.84</td>
<td>16,372.30</td>
<td>704.05</td>
<td>69.07</td>
<td>311.69</td>
<td>461.43</td>
</tr>
<tr>
<td>Rural Town</td>
<td>99,425.94</td>
<td>11,874.37</td>
<td>23,656.71</td>
<td>1,022.68</td>
<td>126.94</td>
<td>696.32</td>
<td>453.29</td>
</tr>
<tr>
<td>Job-Center Suburb</td>
<td>147,735.92</td>
<td>47,778.98</td>
<td>45,762.15</td>
<td>2,019.94</td>
<td>162.01</td>
<td>1,192.55</td>
<td>989.41</td>
</tr>
<tr>
<td>Higher-Income Residential Suburb</td>
<td>283,207.24</td>
<td>8,715.80</td>
<td>123,235.25</td>
<td>3,144.90</td>
<td>166.95</td>
<td>1,476.37</td>
<td>1,835.47</td>
</tr>
<tr>
<td>Resort Town</td>
<td>805,425.12</td>
<td>61,880.11</td>
<td>35,629.81</td>
<td>4,657.66</td>
<td>296.16</td>
<td>1,063.26</td>
<td>3,890.56</td>
</tr>
<tr>
<td>Average MA Community</td>
<td>128,549.00</td>
<td>23,314.87</td>
<td>33,240.16</td>
<td>1,457.51</td>
<td>124.64</td>
<td>784.32</td>
<td>797.84</td>
</tr>
</tbody>
</table>

Note: Municipal revenue capacity = property tax capacity + other local revenue capacity - required reductions in capacity. Property tax capacity = 0.0142 x (taxable residential property value)^2/3 x (income)^1/3 + 0.0126 x taxable nonresidential property value (all in per capita terms). The sources for other local revenue capacity include motor vehicle excise, local hotel/motel excise, urban redevelopment excise, local share of racing taxes, and state government payments in lieu of taxes for state-owned land. Required reductions in capacity include net minimum required local contribution for schools; county taxes; assessments or charges for MBTA, regional transit, Boston Metro transit, and regional planning authorities; and state assessments for air pollution control and mosquito control.

City prototypes are described in Table 1.

shows that they have a greater need for municipal aid to provide local municipal services to their residents, businesses, commuters, and visitors. Higher-income residential suburb and resort town prototypes, in contrast, have lower per capita municipal gaps. In fact, their municipal capacities more than offset their municipal costs, resulting in a negative gap. However, these negative gap measures do not imply that these communities do not need municipal aid. Instead, they suggest that those municipalities need less aid than some other types of communities.

Does the Current Distribution of Municipal Aid Closely Relate to Municipal Gaps?
An examination of the distribution of municipal aid in Massachusetts in FY 2011 reveals that municipal aid does not directly correspond to differences in the municipal gap across communities (Figure 2). Communities receiving similar aid payments often face different municipal gaps. For instance, one community with a per capita gap close to $1,200 and another with a per capita gap of just over $300 both receive $150 in per capita aid in FY 2011.
Communities with the same municipal gap also receive different amounts of municipal aid in FY 2011. Consider Cambridge and Worcester. Cambridge has a much lower municipal gap than Worcester ($273 versus $1,290 per capita) and yet receives nearly the same amount of aid ($167 versus $193 per capita). The lack of a close relationship between municipal aid and municipal gaps suggests the need for a more rational and transparent formula for distributing aid.

Building a Gap-Based Formula

Because the municipal gap indicates a community’s relative need for state assistance, a formula that incorporates that measure can better target municipal aid. Such a formula would provide a vehicle for distributing higher levels of aid to cities and towns with greater gaps. However, a politically viable reform would not redistribute current funding. To avoid disrupting local budgets, policymakers could use a gap-based formula to distribute only new funds added to the municipal aid pool, while preserving the amount of aid that communities already receive. In other words, current aid would be held harmless — a practice commonly used to distribute other forms of aid. With the hold-harmless guarantee, no community would lose aid.

To determine how to distribute aid according to a gap-based formula, policymakers have three tools at their disposal: the new aid pool, the portion of the new aid pool to be distributed as minimum new aid, and the baseline gap. (See “Fine-Tuning the Gap-Based Formula.”) By using these three tools effectively, policymakers can significantly improve the distribution of municipal aid in a relatively short time period.

To demonstrate this, we run a 10-year simulation of municipal aid from FY 2012 to FY 2021. In this simulation, state government holds existing aid harmless and uses the sum of existing aid and new aid to fill a portion of the municipal gap each year. We assume that total unrestricted municipal aid rises 5% each year. That means some $944 million of total municipal aid is available in FY 2012, including $45 million in the new aid pool. Municipal aid totals $1.47 billion in FY 2021, compared with $1.31 billion at the pre-recession peak in FY 2008. (The figures are not adjusted for inflation.)

We also assume that state government reserves 10% of the new aid pool for minimum aid, leaving 90% of new aid to be distributed as equalizing aid based on municipal gaps. We set the baseline gap at slightly more than $50 per capita in FY 2012 — higher than the gaps of one-fifth of all Massachusetts communities. We then reduce the baseline gap slightly each year to allow more cities and towns to receive equalizing aid over time.

The results of this simulation show that the overall distribution of aid becomes much more closely related to municipal gaps within a few years (Figure 3). Over time, distributing increases in local aid according to a gap-based formula for need will equalize aid across communities in the state. Communities with the greatest need will receive the largest share of aid.

* 40 communities with gaps lower than -$400 have been omitted.
** The capacity to raise funds minus municipal costs of providing basic services.

Figure 2. The distribution of municipal aid in Massachusetts does not relate closely to the municipal gap.

Municipal Aid and Municipal Gap in Massachusetts Cities and Towns* (per capita, FY 2011)
Implementing a gap-based formula would require careful attention from policymakers. They must consider three key policy factors:

The **new aid pool** determines how much new aid the gap-based formula will distribute. A larger new aid pool would help the state achieve the equalization goal faster than a smaller new aid pool.

The state can reserve a portion of the **new aid pool** for minimum new aid, which policymakers would distribute equally among all municipalities on a per capita basis. They would allocate the remaining balance as equalizing aid, based on municipal gaps. Establishing a minimum level of new aid would ensure that every city and town receives at least a small increase in municipal aid each year, regardless of the size of the municipal gap. Setting the level of minimum new aid higher would obviously lower the amount available for equalizing aid, so equalization would take longer to achieve. Setting the minimum level of new aid lower could mean that communities with lower gaps would face budget difficulties, although cities and towns with larger gaps would receive higher levels of aid.

The **baseline gap** is a threshold that policymakers would set on the municipal gap. Communities with a municipal gap smaller than the baseline gap would receive only minimum new aid. To make the baseline gap more meaningful in practice, policymakers could link it to a specified percentile of the gap distribution. Setting a lower baseline gap would allow more cities and towns to receive equalizing aid, but the amount of equalizing aid per city or town would decline. Setting a higher baseline gap, in contrast, would accelerate equalization among communities with the largest gaps, but more cities and towns would receive only minimum new aid per capita.
A growing number of communities receive equalizing aid over time. In FY 2012, 95 of 351 Massachusetts communities receive equalizing aid. That allows municipal aid to have an immediate equalizing impact on communities that have relatively large gaps but have received relatively small amounts of municipal aid. The number of communities receiving equalizing aid rises to 223 in FY 2016, and to 284 in FY 2021. That extends the benefits of equalizing aid to a broader range of communities.

The pattern of increasing equalization is particularly strong among the ten largest cities, which have some of the largest gaps, and which are home to roughly a quarter of the state population. As Figure 2 shows, the relationship between municipal aid and the municipal gap in these cities in FY 2011 is weak at best. However, by the end of FY 2021, almost all of the ten largest cities receive aid in direct proportion to their gaps.

Obviously, these results are sensitive to the policy parameters specified in the formula. For instance, given the state’s difficult fiscal situation, a 5% growth rate in municipal aid may not be feasible in the near term. If municipal aid grows more slowly, the relationship between municipal aid and the municipal gap will strengthen more gradually, and changes to the aid distribution may not be apparent after the early years of implementation.

Although Massachusetts policymakers have many high-priority objectives, now is a good time to reform municipal aid. The economic downturn has forced the state to cut municipal aid 31.6% since FY 2008. While this has put many cities and towns in a difficult fiscal bind, it does offer an opportunity for reform. Because the current aid pool is smaller, the state needs fewer new funds to significantly affect the distribution of municipal aid. As the economy continues to recover, state revenues are likely to rise, allowing the aid pool to grow naturally. By focusing on reform now, policymakers can agree on the approach to distributing municipal aid before the recovery spurs substantially higher state revenues.

**Conclusion**

Massachusetts needs a more rational, workable, and transparent system for distributing municipal aid. Many communities in the state have large municipal gaps caused by factors beyond their control, and the current distribution of municipal aid does not closely relate to those gaps.

Our simulation shows that a gap-based formula can significantly improve the distribution of municipal aid in a relatively short time period, despite limited resources. Such a formula does so without considering local policies or redistributing current aid. Implementing such a gap-based formula would provide Massachusetts with the tools it needs to alleviate the fiscal challenges its communities face, and help equalize the ability to provide municipal services across cities and towns.

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Endnotes

1.) State government in Massachusetts distributes restricted school aid through a separate initiative, the Chapter 70 program, which is outside the purview of this article.


4.) Aid formulas can rely on other approaches to hold harmless. For more information on those, see Bo Zhao and Katharine Bradbury, “Designing State Aid Formulas,” *Journal of Policy Analysis and Management* 28, no.2(2009): 278-295.