Measuring non-school fiscal imbalances of New England municipalities

By Katharine Bradbury, Senior Economist, and Bo Zhao, Economist

FEDERAL RESERVE BANK OF BOSTON ™

New England Public Policy Center
at the Federal Reserve Bank of Boston

Municipalities in New England are facing long-term structural fiscal imbalances. Various reports have documented that cities and towns have had a hard time raising sufficient local revenue to meet increasing demands for spending, and some communities are experiencing greater distress than others. To address such issues, states often use local aid—a mechanism by which funds are collected statewide and distributed among cities and towns.

Several Massachusetts reports suggest that because state aid has been reduced, fiscal imbalances have particularly hurt municipal (non-school) services.[1] These reports recommend increasing municipal aid and distributing the additional funds through a new formula that would address the local non-school fiscal imbalances. A recent Federal Reserve Bank of Boston working paper (NEPPC WP No. 06-3/Research WP No. 06-19) develops a new measure of such fiscal imbalances for Massachusetts cities and towns.[2] This measure, which aims to more accurately reflect the current realities and constraints of local governments, creates a yardstick for appropriate comparisons across communities. This methodology may also be applicable to other states that are facing demands for new municipal aid distributions.

Local fiscal imbalances can be measured by comparing the costs of providing local public services with the ability of local governments to raise revenue from local resources, which is known as local revenue capacity. The difference between costs and revenue capacity—the fiscal "gap"—can provide the basis for a new formula that channels more aid to communities with larger gaps. To avoid creating incentives for distorted responses to aid allocations, measures of costs and revenue capacity should be based upon characteristics that local governments cannot influence directly.

Non-school costs

Local jurisdictions differ in the per capita costs that they must incur to provide a standard quality and quantity of municipal services at average efficiency. These cost differences are attributable to local social and economic characteristics or circumstances that are outside the control of local government. For example, a community with a heavier concentration of jobs has to spend more on services for commuters and employers, such as traffic lights, snow plowing, road maintenance, and police protection.

These costs are different from the actual spending by a municipality. While local governments can to some extent choose how much to spend, they cannot choose their costs that depend upon uncontrollable local characteristics. In practice, most state aid formulas either completely ignore costs or use an extremely simple or *ad hoc* measure, often population alone (or, in the case of school aid, enrollment) to represent cost variations.

Following earlier studies of Massachusetts, Nebraska, and Minnesota, NEPPC WP No. 06-3 used a statistical approach to measure cost differences across cities and towns in Massachusetts. While it explored an extensive list of uncontrollable local characteristics, only those characteristics strongly related to per capita spending were retained in calculating costs. To insure

comparability across communities, the paper considered spending for a consistent set of non-school local services provided by all cities and towns. To isolate and identify only costs that local governments cannot control, it also took into account and removed other reasons for inter-local spending differences, such as different choices made by local officials and residents about service quality, and institutional differences, such as regional versus local school districts. The analysis indicated that Massachusetts communities with greater densities, larger populations, more jobs per capita, and higher poverty and unemployment rates incur higher costs per capita to provide a standard bundle of municipal services. Based on these estimated relationships, a cost measure was calculated to reflect the degree to which higher values of the cost factors raise the per capita cost of providing municipal services.

Table 1 demonstrates how different local characteristics translate into cost differences. It displays values of the cost factors and measured costs for five example cities and towns, which are labeled "prototype communities"—large city, rural town, job-center suburb, higher-income residential suburb, and resort town. These prototypes are constructed based on data for several actual cities and towns that exemplify each descriptive label. The large city, job-center suburb, and resort town prototypes face higher costs, with above-average values for several cost factors. By contrast, costs are considerably lower in the rural town and higher-income residential suburb prototypes, which feature lower density, less poverty, and fewer jobs/commuters.

One can adapt this measurement approach to other states, incorporating knowledge of specific state-local institutions into a similar statistical investigation of the relationships between municipal spending and a range of uncontrollable local characteristics. The critical element of the approach is identifying potential cost factors, while taking into account and removing the influence of spending differences across municipalities that are not due to uncontrollable characteristics (for example, differences due to quality choices and to varying service responsibilities between state and local governments and among localities). The key cost factors and estimated relationships are likely to vary across states, depending upon differing municipal responsibilities and other institutional arrangements, as well as the physical and socio-economic environment in which local services are produced.

Non-school local revenue capacity

Municipalities differ in their local revenue capacity, that is, their ability to raise revenues from local resources. Revenue capacity is different from the amount of actual revenues raised by a municipality; while local governments can to some degree choose how much revenue they raise, they cannot choose their underlying revenue capacity.[3] In the 1960s, the Advisory Commission on Intergovernmental Relations developed an approach, commonly referred to as the "Representative Revenue System" (RRS), to estimate revenue capacity as the amount of revenue that would be raised from each tax base if it were to be taxed at a standard rate. Therefore, this measure of revenue capacity depends only on the size of the tax base, not on the actual tax rate. It has been adopted in various aid formulas, including the Massachusetts lottery aid formula and

Table 1: Per capita non-school costs of prototype Massachusetts communities

	Average community	Large city prototype	Rural town prototype	Job-center suburb prototype	Higher-income residential suburb prototype	Resort town prototype
Value of cost factors:						
Population density (000s per square mile)	1.26	8.00	0.08	1.50	0.90	0.24
Population size (in logarithm)	9.00	11.50	7.50	10.20	9.00	8.60
Percent of population in poverty, 1999	6.00	18.90	5.00	3.70	2.60	6.50
Unemployment rate (percent)	2.61	4.30	2.70	1.80	1.20	2.60
Jobs by place of work per resident, 2000–02	0.37	0.35	0.20	1.00	0.22	0.53
Non-school cost	**$799**	**$1,224**	**$682**	**$918**	**$657**	**$813**

Source: NEPPC Working Paper 06-3 / Research Department Working Paper 06-19, 2006. See the working paper for more details of the calculations.
Note: Data year is 2000 unless otherwise indicated.

Table 2: Per capita non-school local revenue capacity of prototype Massachusetts communities

	Average community	Large city prototype	Rural town prototype	Job-center suburb prototype	Higher-income residential suburb prototype	Resort town prototype
Value of property tax capacity factors:						
Per capita residential and open space property value	$78,786	$23,400	$50,500	$70,500	$145,500	$250,000
Per capita income, 1999	$27,233	$17,100	$22,900	$35,000	$54,000	$28,300
Per capita non-residential property value	$17,211	$6,400	$8,100	$30,000	$6,000	$26,500
Property tax capacity	$1,212	$460	$794	$1,403	$1,915	$2,493
Other local revenue capacity	$115	$55	$96	$140	$140	$225
Capacity dedicated to non-municipal purposes	$650	$250	$525	$915	$1,100	$825
Non-school local revenue capacity	$677	$265	$365	$628	$955	$1,893

Source: NEPPC Working Paper 06-3 / Research Department Working Paper 06-19, 2006. See the working paper for more details of the calculations.

Notes: Data year is 2000 unless otherwise indicated.
Other local revenue capacity includes ability to raise revenue from motor vehicle excise, hotel-motel excise, urban redevelopment excise, local share of racing taxes, and state government payment in lieu of taxes for state-owned land. The capacity dedicated to non-municipal purposes include the net minimum required local contribution for schools, county taxes, charges for regional transit and regional planning authorities, and state assessments for air pollution and mosquito control.

the Connecticut Supplemental Aid formula, both of which allocate per capita aid inversely to the size of the per capita property tax base.

However, the RRS approach ignores one significant revenue constraint now faced by municipalities in many states—local tax limitations. RRS assumes that all communities can tap their property tax bases to the same degree, but this assumption does not hold when local tax limitations effectively constrain communities to varying degrees. Three of the six New England states (Maine, Massachusetts, and Rhode Island) have imposed some form of local property tax limit.

NEPPC WP No. 06-3 is the first attempt to account for the constraints of a local tax limitation in measuring revenue capacity. Analysis of Massachusetts data found that local governments in higher-income communities have a greater ability to tap into their residential property tax base and are thus less constrained by the local property tax limitation (Proposition 2½). Based on the estimated Massachusetts relationships, a measure of residential property tax capacity was calculated to reflect how a higher per capita residential property tax base and a higher per capita income together increase the ability of a local government to raise revenue from local residential property.

In addition to residential property, municipal governments can raise revenues from non-residential property and limited other (non-property-tax) local sources, such as the motor vehicle excise tax and the hotel-motel excise tax. The analysis in Massachusetts also indicated that the RRS approach is appropriate for measuring non-residential property tax capacity and other local revenue capacity in proportion to those tax bases. Moreover, because not all local revenue capacity is available for general municipal purposes, the capacity that is dedicated to non-municipal purposes should be excluded in calculating non-school local revenue capacity. Two typical reductions are required contributions for public schools set by the state government and payments for services provided by other public organizations (for example, regional transit). As for other elements of measured capacity, it is important that these capacity reductions reflect required—not locally chosen—amounts.

Per capita non-school local revenue capacity varies widely among Massachusetts cities and towns. As shown in Table 2, the large city and rural town prototypes have very limited revenue capacity, while the three other prototypes have higher capacity, even considering

Table 3: Per capita non-school cost-capacity gap of prototype Massachusetts communities

	Average community	Large city prototype	Rural town prototype	Job-center suburb prototype	Higher-income residential suburb prototype	Resort town prototype
Non-school cost	$799	$1,224	$682	$918	$657	$813
Non-school capacity	$677	$265	$365	$628	$955	$1,893
Non-school cost-capacity gap	$122	$959	$317	$290	-$298	-$1,080

Source: NEPPC Working Paper 06-3 / Research Department Working Paper 06-19, 2006. See the working paper for more details of the calculations.

Note: Data year is 2000 unless otherwise indicated.

their greater revenue responsibility for schools.

This approach to measuring local revenue capacity can be adapted to other states if some principles are followed. First, an appropriate capacity measure should reflect the resources that municipal governments can tap *and* the constraints on tapping such resources (such as tax limitations), but not local government choices or behaviors. Second, the measure should take into account state-specific situations and institutions, such as what tax bases localities are allowed to tax. Measures of local revenue capacity are likely to differ across states because of institutional differences or different relationships among the capacity factors, even with similar institutions.

Non-school fiscal gaps and options for allocating aid

To calculate the per capita gap for each community, per capita local revenue capacity is subtracted from per capita costs. The relative size of a community's gap represents the degree of mismatch between its costs for a standard bundle of municipal services and its ability to raise revenue from local sources for municipal purposes. Communities with larger gaps have a greater need for aid.

As Table 3 shows, substantial inter-local differences in the size of the per capita non-school gap exist across Massachusetts cities and towns. Its distribution ranges from large negative gaps—as shown for the resort town prototype, which has very large capacity—to sub-

stantial positive gaps, as shown for the large city prototype, with high costs and low capacity.

There are several options for policy makers to allocate aid on the basis of the cost and capacity measures described above. One option is to distribute aid to communities in proportion to their cost-capacity gaps. This approach targets the neediest cities and towns by channeling more aid to communities with larger mismatches between their service costs and their ability to raise local revenue. Other options include allocating aid in proportion to costs, or inversely to local revenue capacity, or taking an average or the larger of the aid amounts from these two options. Policy makers should decide which approach is appropriate based on the circumstances of their individual state and their policy needs.

Endnotes

[1] For example, see Municipal Finance Task Force, *Local Communities at Risk: Revisiting the Fiscal Partnership Between the Commonwealth and Cities and Towns,* 2005; and Barry Bluestone, Alan Clayton-Matthews, and David Soule, *Revenue Sharing and the Future of Massachusetts Economy, 2006.*

[2] Katharine Bradbury and Bo Zhao. "Measuring Disparities in Non-School Costs and Revenue Capacity among Massachusetts Cities and Towns." Federal Reserve Bank of Boston NEPPC WP No. 06-3/Research WP No. 06-19, 2006.

[3] In the long run, cities and towns could have some influence on the size of their tax bases through economic development strategies. But many big-city mayors and small-town selectmen would probably argue that quite a few aspects of local revenue-raising ability remain outside their control even in the long run, and most do in the short run.