Local Government Fiscal Viability

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I. Introduction

This report presents an analysis of local government fiscal viability in Georgia. The report presents three indices -- a fiscal capacity index, an expenditure need index, and a fiscal viability measure -- for each county in Georgia, and the fiscal capacity index for selected cities in Georgia. The following three sections contain a discussion of each of the three indices. The Section V contains a description of how the indices were constructed.

II. Analysis of the Fiscal Capacity Index

An index of fiscal capacity measures the relative ability of jurisdictions to raise revenue. In particular, the index of fiscal capacity represents the revenue per capita that would be raised by a given revenue structure (i.e., all jurisdictions use the same taxes and same rates) expressed as a percent of the state average revenue per capita. We constructed such an index for each county in Georgia and for selected cities, where the revenue sources in the index include property tax, sales tax, business licenses (now called the occupational tax), charges (user fees), and miscellaneous tax and charges. Section V contains a full discussion of how the index was constructed.

Table 1 presents the fiscal capacity index with the counties listed alphabetically, while Table 2 lists the counties ranked by the value of the index. To illustrate, the fiscal capacity index of 135 for Appling county means that for the given revenue structure and rates, the revenue per capita that would be raised in Appling County is 35 percent more than the state average revenue. Likewise, the index value of 64 for Atkinson county means that the per capita revenue that would be raised in that county would be 64 percent of the state average, or 36 percent less than the state average. A county with an index of 50, for example, would have to impose tax rates

that are twice as high as a county with an ability to raise revenue equal to the state average in order to generate revenue per capita equal to the state average. The index is not related to the revenue that counties actually collect, since that is dependent upon the county's choice of revenue sources and rates.

The wide variation in the index, the index ranges from 31 to 250, implies that there is substantial variation in fiscal capacity across Georgia. Excluding the highest and lowest five counties, the index still ranges from 53 to 128. Only 23 counties have an index value greater than 100.[1] The geographic distribution of the index is seen in the map.

[1] The reason why so few counties have an index greater than 100 is that counties with above average revenue per capita have large populations, thus "pulling up" the state wide average that is used as the denominator in constructing the index. We could have used the average of county per capita revenue as the denominator. That would change the value of the index for each county but would not change the ranking.

The value of the index for any county is related to the magnitude of the bases for each of the individual revenue sources. To see this relationship we broke out the fiscal capacity index into separate indices for property tax, sales tax, and other revenue. These are shown in Table 3. Each of these indices shows the per capita revenue that would be generated from the tax relative to the average for the state.[2] These indices allow us to identify whether a specific tax is responsible for a large or small fiscal capacity index. There are several points to be made. First, in general the property tax index is more highly correlated with the fiscal capacity index than are the other two indices. This is due to the relatively greater importance of the property tax in the fiscal capacity index. Second, while many counties have similar values for each of the three revenue sources, there are many counties for which one of the indices is either much higher or lower than the other two indices. There are 87 counties for which one of the three individual tax indices is more than 20 percent larger or smaller than its fiscal capacity index. Third, there are three counties with very large values for the property tax index, i.e., Burke, Monroe, and Rabun, and one county, Chattachoochee, with a very low value. (A large portion of Chattachoochee County is occupied by the U.S. Department of Defense.) Fourth, there is much less variation in the value of the other revenue index than in the property tax index and the sales tax index.

We have tried to explore reasons for the variations in the fiscal capacity index beyond the obvious relationship between the values of the fiscal capacity index and the revenue bases. The value of the index is positively related to per capita income; the simple correlation coefficient

[2]Since we are using same tax rates for all counties, we would get the same value of the tax specific indices if we used tax base per capita.

between the index and per capita income is 0.47. It is also related to the population of the county; the simple correlation coefficient between the index and population is 0.37.

Large values of the fiscal capacity index are associated with smaller counties in which significant power plants are located and with counties that are in urban areas or have large cities. The counties with the highest and fifth highest fiscal capacity index, i.e., Burke and Appling, are home to Plant Vogel and Plant Hatch, respectively. The counties with the second and fourth highest fiscal capacity, Monroe and Rabun, have electrical power generation facilities, as do Heard, Putman, and Floyd.[3] Not unexpectedly, these counties, with the exception of Floyd, have very high value of the property tax index. However, not all counties with power plants have a high fiscal capacity index. Other counties with high values of the index include many of the urban counties since they tend to have greater sales per capita, higher assessed property per capita, and higher per capita incomes. Twelve of the 16 counties without power plants but with a fiscal capacity index greater than 100 are in metropolitan areas or have a large city. However, being in a metropolitan area or having a large city does not necessarily yield a high fiscal capacity index. While a greater percent of the counties in the southern part of the state have low values of the index, both low and high values are found throughout the state.

We were able to calculate the value of the fiscal capacity index for 41 cities for which sufficient data were available to construct a fiscal capacity index; data limitations prevented us from constructing one for all cities. Table 4 presents the values of the index for these cities, as well as for the counties in which they are located. In general, the value of the index for the city is

[3]Other counties with electrical power generation facilities are: Bartow, Bibb, Butts, Baldwin, Carroll, Cobb, Coweta, Dougherty, Glynn, Hancock, Harris, Muscogee, and Stephens.

similar to the value for the county, but there are exceptions. For 28 of the 41 cities the index for the city is greater than the index for the county. The cities included are not representative of Georgia cities in general since the cities listed in Table 4 are larger and are more likely to be in urbanized counties. Note that the values of the index for the counties are generally larger than those found in Table 1 and that there is less variability.

III. Expenditure Need Index

An index of expenditure need measures the expenditures per capita that a jurisdiction must make in order to provide a given set of public services, expressed relative to the state average. Differences between jurisdictions in needed expenditures result, in part, from differences in costs and service environment. Because of differences across the state in the wages that industry pays, there will be differences in the wages that local governments will have to pay to hire employees. This will lead to differences in the level of expenditures necessary to provide a given level of public service. Differences in needed expenditures also result from differences in the service environment. For example, in order to provide fire services of a given quality, expenditures will have to reflect differences in density of housing, its age, and the amount of commercial and industrial property. Differences in expenditures also are the result of differences in wealth and tastes or preferences. The measure of expenditure need should capture differences in expenditures due to differences in costs and service environment but not differences due to differences in wealth and tastes. Once per capita expenditure need is calculated for each jurisdiction the value is divided by per capita state wide expenditure need. Section V discusses how the index was constructed.

As with the fiscal capacity index, expenditures needed are not directly related to actual expenditures that a jurisdiction makes. Instead, the expenditure need should reflect the level of expenditures required to provide a given set of public services at a given level of quality. The index we have constructed is based on municipal-type services and does not include education or certain services that are usually provided only by county governments. An expenditure need index was calculated for each county in Georgia; note that the assumption underlying the construction of the index is that the services are provided uniformly throughout the county. Data limitations prevented us from estimating an expenditure need index for any of the cities.

The construction of an expenditure need index is much more difficult than the construction of a fiscal capacity index because there is no agreement as to what constitutes a difference in need and no good measures of the relationship between the level of need and the expenditures that are required. While the basic approach we have used is sound, and based on previous research, one should not take the specific values reported too literally.[4]

Table 5 presents the expenditure need index with the counties listed alphabetically, while Table 6 lists the counties ranked by the value of the index. The interpretation of the expenditure need index is equivalent to that for the fiscal capacity index. The value of 99 for Appling County implies that it would need to spend only 99 percent of the state average to provide the given set of public services. The value of 106 for Atkinson County implies that it would have to spend 106 percent of the state average to provide the given set of public services.

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[4]For a discussion of the expenditure need index, see Robert W. Rafuse, Jr., *Representative Expenditures: Addressing the Neglected Dimension of Fiscal Capacity*, Washington, D.C.: Advisory Commission on Intergovernmental Relations, December, 1990 and Helen F. Ladd and John Yinger, *America's Ailing Cities: Fiscal Health and the Design of Urban*

The range of values of the index, from 72 to 155, is much smaller than for the fiscal capacity index. For example, 113 counties have values of the index in the range of 90 to 110. The geographic distribution of the index is seen in the map.

Differences in the values of the index across counties will be related to difference in wages and the factors that measure service environment (see the Appendix for a list of the variables that measure the service environment). Many of these factors are associated with more urbanized areas, and thus counties with higher values of the expenditure need index are generally counties in urban areas.

The fiscal capacity index and expenditure need index are positively correlated. However, the relationship is weak. The simple correlation coefficient is only 0.19. This means that in Georgia there is little correlation between fiscal capacity and expenditure need.

IV. Viability Measure

The relationship between the fiscal capacity index and the expenditure need index is captured by the viability measure. The viability measure combines the two indices into a measure that equals the excess of fiscal capacity over expenditure need expressed as a percent of expenditure need. Table 7 presents the viability measure with the counties listed alphabetically, while Table 8 lists the counties ranked by the value of the index. The geographic distribution of the index is seen in the map.

Positive values mean that fiscal capacity exceeds expenditure need, while a negative sign

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Policy, Baltimore: The Johns Hopkins University Press, 1989.

means that expenditures need exceeds fiscal capacity. A value of zero means that fiscal capacity equals expenditure need. Consider a county with a fiscal capacity index equal to 80 and an expenditure need index equal to 80, which yields a viability measure of zero. With the assumed revenue structure this county would generate revenue equal to 80 percent of the state average. But the expenditure need index of 80 implies that it only needs revenue equal to 80 of the state average in order to provide a level of public service equal to the state average.

For Appling County, a value of 36 percent means that its fiscal capacity exceeds its expenditure need by 36 percent. For Atkinson County, the value of -40 percent means that its expenditure needs exceed its fiscal capacity by 40 percent. Since local governments must balance their budgets each year, a jurisdiction with a positive viability measure can have either lower tax rates or a higher level of service than a county with a viability measure of zero. Likewise, a jurisdiction with a negative viability measure must have either higher tax rates or a lower level of service than a county with a viability measure of zero.

The range of values for the viability index is from -56 percent to 154 percent. The small correlation between the fiscal capacity index and the expenditure need index (simple correlation coefficient equal to 0.19) is seen in the values of the viability measure. Only thirty-one counties have a viability measure between -10 percent and +10 percent, and only 46 counties have values between -20 percent and +20 percent. Thus, in more than 70 percent of the counties, fiscal capacity and expenditure need differ by more than 20 percent, and of these counties all but seven have negative values of the measure. Our measures of fiscal capacity and expenditure need imply that there is a substantial imbalance across counties between the ability to raise revenue and the expenditures that are needed to provide services.

The indices were constructed so that for the state average expenditure need equals average fiscal capacity. Thus, the viability measure measures the relative fiscal advantage or disadvantage. However, we can use actual per capita to provide an indication of the value of the viability measure in dollar terms. Non-education local government expenditures per capita in Georgia in 1994-95 were about $1,125.[5] Thus, a county with a viability measure of -20 percent and an expenditure need index of 100 must raise an additional $224 per capita in order to finance the average level of public services. A county with a viability measure of -20 percent and an expenditure need index of 80 must raise an additional $180 per capita in order to finance the average level of public services.

We have attempted to determine what factors might explain differences in the viability measure across counties. The variation in the viability measure is more closely related to the variation in the fiscal capacity index than in the expenditure need index since the variation in the fiscal capacity index is much greater. In addition, the viability index is related to income per capita; the correlation coefficient is 0.33, implying that there are several other explanations for the differences. However, we have been unable to identify other significant factors beyond those used in constructing the fiscal capacity index and the expenditure need index that might explain differences in the value of the viability measure.

[5] In 1990-91, non-education local government expenditures per capita in Georgia were $925. Assuming a 5 percent annual increase, it follows that non-education local government expenditures per capita in Georgia in 1994-95 would be $1,125.

V. How the Indices Were Constructed

The purpose of this section is to explain in more detail how the two indices were constructed.

Fiscal Capacity Index

An index of fiscal capacity measures the relative ability of jurisdictions to raise revenue. In order to compare the relative revenue raising ability of jurisdictions, we must estimate the revenue that each jurisdiction (or geographic area) would raise if each used the same revenue sources and imposed the same rates. Thus, the first step in the construction of the index of fiscal capacity is the specification of what revenue sources to be included.

The revenue sources included in the analysis are called the "representative revenue structure." While the specification of the representative revenue structure is arbitrary, we focus on the revenue sources of county and municipal governments since those are the governments we are interested in. In particular, we specify a representative revenue structure that captures most of the revenue sources that county and municipal governments in Georgia can use. We do not consider intergovernmental transfers, i.e., grants, or revenue from the operation of utilities, e.g., water and sewer systems and electrical utilities. The revenue sources in our representative revenue structure consist of

- property taxes,
- sales taxes,
- business license (now called the occupational tax),
- charges,
- other tax revenue.

Other tax revenue consists of revenue from numerous taxes, including insurance premium taxes, franchise taxes, and taxes on liquor.

The second step is to select the rates for each revenue source. The rates for each revenue source were chosen so that in general the total state wide revenue for each revenue source is approximately equal to the actual state wide revenue collected from that source. Since we are not concerned with school districts or with special districts, e.g., hospital authorities and public transit authorities, we excluded their revenue in determining the rates to be used.

For the property tax we set the millage rate so as to approximate the total state wide revenue for non-school purposes. The implied millage rate is 15.46.

For the sales tax, we assume a 1 percent rate, i.e., a local option sales tax (LOST). Many jurisdictions impose an additional 1 percent sales tax (SPLOST). But since the SPLOST is used for special purposes, i.e., infrastructure, and not general operating purposes, we used only the 1 percent sales tax rate.

For the occupation tax, we first reviewed the structure of the existing occupational taxes as of 1994. Many jurisdictions do not impose such a tax, and among those that do there is substantial variation across the state in what is taxed (employees versus gross receipts) and the rates imposed. The basis for selecting the rate structure was a recent survey regarding the use of the occupation tax conducted by the Association County Commissioners of Georgia.[6] This survey showed that most counties that have an occupation tax base the tax on employment and have a fixed filing fee per business or a high rate for the first employee. Based on the survey we selected a charge of $50 per establishment and $10 per employee. Employees in agriculture and

government were excluded from the calculations.

Charges include revenue from such sources as fees for use of golf and tennis courts, sales of maps and documents, fees for solid waste collection and disposal, rental charges for the use of facilities, etc. We assume that charges are related to personal income. Based on reported state wide revenue from charges and state wide aggregate personal income, we selected a "rate" of 0.672 percent of total personal income.

Given the large number of taxes included under other tax revenue, there was no way to determine a specific base for each of these taxes. Instead, we assume that the revenues from these sources were related to aggregate personal income. Given the relationship between state wide revenue from other taxes and total personal income, a "rate" of 0.35 percent of total personal income was selected.

From a variety of sources we determined the value of the base for each of the revenue sources for each county in Georgia (see Appendix). Note that the base refers to the base for the entire county. Applying the rates we selected to each revenue source yields the estimated revenue that would be generated from each revenue source in the representative revenue structure within each county. These amounts were summed for each county, converted to per capita terms and then divided by the state per capita revenue. The state per capita revenue was calculated by dividing total revenue for all counties by state population.

The result of these calculations is an index that allows comparison across counties of their revenue raising ability. Note that the revenue is not related to the revenue that any county

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[6]We thank John Keys for making this survey available.

actually collects, since that is dependent upon the county's choice of revenue sources and rates.

It should be noted that the index depends upon the revenue sources included in the representative revenue structure and the rates chosen. We did experiment by altering the rates by small amounts and found that the ranking of counties did not change very much. However, making large changes in the rates would likely change the values of the index by large amounts since some counties have relatively high sales tax bases while others have relatively high property tax bases.

There are a couple of things to note regarding the construction of the fiscal capacity index for the cities. First, a change in revenue structure for the cities was made for the sales tax. For the sales tax, we assumed that the county-level revenue would be allocated to the cities in proportion to the city's share of population. Second, we had to rely on other data sources to estimate some of the revenue bases (see Appendix for a discussion). Third, we did not have 1994 population for the cities, so we had to use 1990 population. If cities grew, use of 1990 population will overstate the value of the fiscal capacity index. However, judging by past growth rates, the population of most of the cities would not have changed by more than a couple of percentage points.

The following table illustrates how the fiscal capacity index was calculated using Appling County as an example.

Revenue Source	Base	Rate	Revenue
Property Tax	$595,475,000	15.46 mills	$9,206044

Sales Tax	$194,823,200	1 percent	$1,948,232
Occupation Tax			
Establishment	328 establishments	$50 per establishment	$16,400
Employee	4,696 employees	$10 per employee	$46,960
Charges	$212,976,000	0.672 percent	$1,431,198
Other Revenue	$212,976,000	0.350 percent	$745,417
Total Revenue			$13,394,250
Revenue per Capita			$831.94
Divide by State Average			831.94/613.94 =
Fiscal Capacity Index			135

Expenditure Need Index

Construction of an expenditure need index is more complicated than a fiscal capacity index since there is no easy way to measure need the same way that we can measure a tax base. We begin by selecting a set of public services to consider. We selected the following services: fire, police (including sheriffs), local courts and jail, library, parks and recreation, roads and bridges, and administrative services. These are municipal-type services. The principal services that are not included are human services and courts such as superior court, probate court and

juvenile court. A large percent of the expenditures on the excluded services are financed by grants from state and federal sources and thus were excluded from consideration.

We assume that public expenditures per capita within a jurisdiction are a function of available resources, tastes or preferences, cost of inputs, and the service environment. It is generally recognized that the level of public expenditures is a positive function of income, which is one measure of available resources. Public expenditures also vary with the preferences of the residents. Numerous studies have found, for example, that public expenditures vary with the education level of the residents. The level of expenditure also varies with the wages that have to be paid and the cost of materials that have to be purchased. Finally, expenditures vary with the environment in which the services are to be provided. For example, expenditures on road maintenance will depend upon the number of miles of road within the jurisdiction; expenditures on police will depend upon the crime rate; and expenditures on fire protection will depend upon the types, density, and age of buildings that have to be protected.

For each of the public services we first aggregated local government spending for each service within each county. In other words, we added together the spending by the county government and all municipal governments within the county. (Where the municipal governments are located in more than one county, we put the entire municipality into the county where the majority of the municipal population resided.) We then ran a regression for each service in which the dependent variable was expenditures per capita on that service and the independent variables included variables that measured available resources, preferences, costs, and service environment, where the specific service environment variables differed by type of service.

For administrative overhead, instead of running a regression, we assumed that expenditures on administration equals a constant percent of the other expenditures.

For each service we calculated the actual state wide expenditure per capita. We then used the estimated regression equation to estimate for each service how much the expenditure per capita within each county would differ from the state wide average as a result of differences in cost and the service environment. We then summed the resulting expenditures across all services for each county and divided by population. The resulting sum for each county was divided by the state wide expenditure per capita on these services to arrive at the index of expenditure need. The Appendix presents the variables that were used in the regression equations and the source of the data that were used.

The following table shows how the predicted expenditure need for police services was calculated using Appling County as an example.

Variable	Regression Coefficient	County Value	State Average	Effect on Expenditure = coefficient*(county value - state average)
Wage	0.048	351	389	-1.867
Commerical Property	0.799	3.522	13.51	-7.989
Industrial Property	0.241	2.129	9.51	-1.785
Density	-0.012	83.697	70.44	-0.161
Crime Rate	116	0.020	0.033	-1.462
% Group Housing	-157	0.011	.026	2.379
% Multi-unit housing	-22.6	0.692	0.703	0.245

Total Effect				-$10.641
State Average				$78.96
Predicted Expenditure Need				$68.32

Appendix

This appendix describes the sources of data used in constructing the two indices.

Fiscal Capacity Index

Actual revenue from each source was obtained from Government Finances: 1990-91, Bureau of the Census. Personal income for 1994 was obtained from the Regional Economic Information System of the Bureau of Economic Analysis.

Sales tax base was constructed from actual LOST or SPLOST receipts (for calender year 1994) by jurisdiction obtained from the Georgia Department of Revenue[7]. For DeKalb County we used the estimate generated in Research Atlanta's report on DeKalb County's recent sales tax proposal.

For the property tax, net assessed value of regular property and net utility property for 1994 for counties was taken from the Georgia Department of Revenue's 1995 Statistical Report (Table 13). The exemptions are the value of the state authorized exemptions, not what local actual governments provide.

[7] We thank D. Langley for providing us with this data.

The number of establishments and number of employees for the occupational tax came from County Business Patterns, 1993.

The following modifications were made in constructing the city fiscal capacity index. First, there is no data source that provides the number of establishment and employment within cities for all industries. The 1992 Censuses of Business do provide city-level data on employment and establishments but only for retail, wholesale, service; for some city 1987 data on manufacturing is available. To determine the base for the occupational tax, we used the Censuses of Business data to determine the percent of the county-level occupational tax revenue that is generated within the city. Second, we only had 1990 Census of Population data on income for the cities. We used the Census of Population data to determine the ratio of city income to county income and applied that ratio to the income-based revenue sources.

Expenditure Need Index

The following table lists the independent variables used in each of the regressions. The values of the dependent variables were taken from the Department of Community Affairs' expenditures data for local governments in Georgia.[8] The second table lists the sources for each independent variable.

[8] We thank Rick Tangum for making this data available.

	Regression Equations					
Independent Variables	**Police**	**Fire**	**Jail/Courts**	**Parks/Rec**	**Roads**	**Library**
Miles of roads per capita*					X	
Percent roads unpaved*					X	
Total index crimes*	X		X			
Total arrests - index crimes*			X			
Population*				X		
Population density*	X	X		X	X	X
% over 65 years	X	X	X	X	X	X
% black	X	X	X	X	X	X
% urban	X	X	X	X	X	X
% in group housing	X					
Median household income	X	X	X	X	X	X
% who work in county		X				
% with college degree	X	X	X	X	X	X
% poor	X	X	X	X	X	X
% owner occupied housing		X				
% housing over 20 yrs of age		X				

% multi unit housing	X	X				
Median house value	X	X	X	X	X	X
% commercial value	X	X	X	X	X	X
% industrial value	X	X	X	X	X	X
Manufacturing wage rate**	X	X	X	X	X	X

* represent service environment variables

** represents the cost variable

Independent Variables	**Source**
Miles of roads	GA County Guide
Total index crimes	GA County Guide
Total arrests for index crimes	GA County Guide
Population	Census of Population
Population density	Census of Population
% over 65 years	Census of Population
% black	Census of Population
% urban	Census of Population
% farm	Census of Population
% in group housing	Census of Population
Median household income	Census of Population
% who work in county	Census of Population
% with college degree	Census of Population
% poor	Census of Population
% owner occupied housing	Census of Population

% housing over 20 yrs of age	Census of Population
% multi unit housing	Census of Population
Median house value	Census of Population
% commercial value[9]	Property tax digest file
% industrial value	Property tax digest file
Manufacturing wage rate	Department of Labor

[9]We thank Larry Griggers for making the property tax digest data available.