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# Fiscal Conditions in Selected Metropolitan Areas

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## Introduction

The growth and prosperity of metropolitan areas are key to the economic growth of the nation. Recent research has emphasized the important role that metropolitan areas play in driving economic growth. The density that characterizes economic activity in metropolitan areas where businesses can have to have easy, frequent, and inexpensive contact with both customers and suppliers. Dense labor markets increase the adaptability of firms to changes in demand, and increase the quality of the matching process between firm needs and labor skills. Spillovers of knowledge from one industry to another are facilitated by the ease of contact. These *agglomeration* economies, generated by densities of population, firms, and infrastructure result in reduced costs of doing business, which more than offset metropolitan area congestion costs (Ciconne and Hall, 1996). Dense concentrations of economic activity and population also lower the costs of particular types of consumption, e.g. for art and culture. Moreover, Haughwout and Inman (2000) provide evidence that markets reward these types of activities, with higher rates of growth in cities with high concentrations of cultural activities.

The prosperity of cities and urban areas is not however preordained. A necessary condition for the economic prosperity of urban areas is the existence of effective fiscal institutions that allow the efficient and equitable provision of a wide array of public services. Cities require large amounts of public infrastructure in the form of mass transit, sewer and water systems, streets and street lights, sidewalks, schools, court houses, police and fire stations and equipment, parks, child-care and senior citizen centers. Capital infrastructure, however, is but one input in a complex production process. High quality public services also require a well-trained public labor force and a skilled set of managers. A local government that is unable to provide effective public safety (police and fire protection), a well-operating sanitation system,

efficient refuse removal, high quality environmental standards, high quality schools, ample parks, recreation facilities, and cultural amenities is at risk of losing households and firms to alternative locations.

Local governments within metropolitan areas operate in a highly competitive environment. They must compete for both residents and businesses who are able to help finance public services. Especially in urban areas, local governments are required (generally by state statute) to provide a wide range of services. The costs of these services are heavily influenced by the characteristics of the environment in which governments operate. It is substantially more costly to provide adequate educational services, health and social services, and a safe and secure environment in a jurisdiction with substantial numbers of poor and people for whom English is not their native language. Within metropolitan areas, some jurisdictions are able to offer better fiscal terms to prospective households and business than other jurisdictions. Though inner ring suburbs may not enjoy this advantage, the typical suburban jurisdiction still has substantial fiscal advantages over central cities that face above average costs of providing services and below average fiscal capacities. The fiscal advantages enjoyed by some suburbs are reinforced and preserved by extensive powers of zoning and land-use control, which allow these jurisdictions to regulate population density and maximize their fiscal base, while at the same time keeping down the costs of providing services by restricting access to the poor and to minorities and recent immigrants.[1] The resulting differences in the fiscal conditions of local governments within

[1]Having a large number of small jurisdictions within a single metropolitan area does have the potential advantages of allowing households to choose a community that provides their preferred level of public services and exerting pressure on individual jurisdictions to provide public services as efficiently as possible. However, to the extent that the fiscal advantages of suburbanization result in the poor and minorities being more heavily concentrated in central cities than they otherwise would be, and higher income households to be more concentrated in suburban jurisdictions, these potential advantages of fiscal competition come at the cost of weakening the relative fiscal

metropolitan areas are generally referred to as *fiscal disparities*.

Fiscal disparities are a summary measure of the functioning of fiscal institutions in a metropolitan area. Our longer range goal is to investigate the interrelation between fiscal disparities and economic performance. This paper presents the initial steps in our effort to better understand the current fiscal condition of local governments within metropolitan areas, and to establish the extent to which fiscal disparities exist within a sample of U.S. metropolitan areas. Our primary focus is to determine the extent to which *fiscal institutions* within a metropolitan area – taxing authority, mandates, expenditure responsibilities, intergovernmental grants-in-aid, regional governance – contribute to the fiscal health of local governments within metropolitan areas.

**Literature Review**

We attempt in this paper to build upon a long tradition of empirical measurement of metropolitan area fiscal disparities. The starting point was an important book by Alan Campbell and Seymour Sachs (1967) that focuses on the differences between the fiscal conditions of central cities and their suburbs. Building on this work, a number of authors wrote papers that compared the fiscal condition of central cities to the average fiscal condition of local governments in the suburban ring of metropolitan areas. Most of these studies measured fiscal disparities within metropolitan areas by comparing measures of spending, tax rates, and other characteristics of central cities to the same variables in the suburbs (Sachs and Callahan, 1973; Advisory

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condition of cities and increasing fiscal disparities within metropolitan areas. In a recent paper, Bayer and McMillan (2005) argue that sorting. on the basis of race combined with the small number of high-SES blacks in many cities contributes to the concentration of poor minorities in cites. Dawkins (2005) and Woo (2006) both find that a greater number of jurisdictions is associated with a higher degree of racial segregation, and more concentration of minorities in the central cities.

Commission on Intergovernmental Relations, 1984; Bahl, Martinez-Vazquez, and Sjoquist, 1992; and Bahl, 1994). The general conclusion of this literature was that central cities in the U.S. are typically in considerably weaker fiscal health than their surrounding suburbs. In a recent book, Orfield (2002) develops a measure of the fiscal conditions of local governments in the nation's 25 largest metropolitan areas. Although, he also finds that most central cities are in weaker fiscal health than their suburbs, he pays particular attention to the variation in fiscal conditions among local governments in the suburban portion of metropolitan areas. He finds that in many metropolitan areas, by his measures, the fiscal condition of a number of suburban communities is as weaker, if not weaker, than the fiscal health of the central city. In a recent study of fiscal capacity six metropolitan areas, Bell et al. (2005), though they find the greatest disparities to be among suburban jurisdictions, show that the center city still lags behind the suburbs as a whole in this key component of fiscal disparities.

Our goal is to identify the fiscal disparities that exist within metropolitan areas by measuring the fiscal condition of all local governments within a metropolitan areas, using a conceptually well grounded measure of fiscal health. Much of the existing literature on metropolitan fiscal disparities has relied on a set of correlates of fiscal health. Several authors have acknowledged that the appropriate way to measure the fiscal condition of local governments is to compare the fiscal needs of each government to the sum of their capacity to raise revenue and their actual receipt of intergovernmental grants. However, they also point out the daunting nature of the data requirements to fully implement this approach.

We define the *structural* fiscal condition of any given local government as the gap between its *expenditure need* and the *revenue-raising capacity,* where expenditure need is a

measure of the amount of money needed to provide the services for which the local government is responsible and the revenue-raising capacity is the amount of tax revenue each jurisdiction can raise at a uniform tax rate plus and the amount of revenue the government receives in exogenous intergovernmental grants. This gap is generally referred to as a *need-capacity* or fiscal gap.

While there have been several recent detailed studies of variation in fiscal capacity within metropolitan areas, only one study, by Rafuse and Marks (Rafuse, 1991) has attempted to estimate need-capacity gaps, for a sample of 40 municipalities within the Chicago metropolitan area. Orfield (2002) argues that ideally one should measure the fiscal condition of metropolitan area local governments by calculating need-capacity gaps, he did not attempt to estimate expenditure needs because of "data limitations." Bradbury et al. (1984) and Ladd, Reschovsky, and Yinger (1992) calculated fiscal gaps for a sample of local governments in Massachusetts and Minnesota, respectively. Ladd and Yinger (1991) did similar calculations for the central cities of the nation's largest metropolitan areas, and Shah (1996) calculated fiscal gaps for Canadian provinces. Tannenwald (1997) has calculated what he calls "fiscal comfort" indices for U.S. states.

**The Measurement of Expenditure Needs and Revenue-Raising Capacity**

In this section, we discuss briefly, a set of methodological issues involved in calculating the fiscal condition of local governments within metropolitan areas. Expenditure needs can be expected to vary across local government jurisdictions for two major reasons. First, expenditure assignments or public service responsibilities may not be the same for all local governments within a metropolitan area. It is quite common for the responsibility for public safety to rest with county or regional ,government in the outlying and more rural portions of metropolitan areas. On

the other hand, local governments serving a more urban population are often required, sometimes by state statute, to provide a much broader range of public services. Second, even when service responsibilities are identical, expenditure needs of local governments may differ because the minimum amount of money needed to provide a standard level of public services varies across local governments for reasons that are outside of the control of the local governments. In other words, the *cost* of providing municipal public services may differ across local governments within a metropolitan area.

Factors that reflect differences in costs include the various characteristics of a jurisdiction that cannot be controlled by local government officials and which reflect the environment that these governments face as they try to provide residents with their desired mix of public services. Cost factors are likely to include the demographic and social composition of a community. For example, if it is the responsibility of a local government to see that none of its residents, especially those with limited incomes, go without access to basic health care, then costs will be higher in jurisdictions with heavy concentrations of low-income and/or elderly residents. Physical characteristics of a jurisdiction can also influence costs. Thus, for example, the provision of adequate fire protection will be more costly in communities where the housing stock is old, development patterns are dense, and/or primary building materials are flammable, i.e. wood as opposed to stone construction. For public services that are subject to substantial economies of scale, community size will be a relevant cost factor.

The major methodological challenge in estimating expenditure needs of local governments is to disentangle data on actual spending into that portion attributable to the costs of the service, sometimes referred to as “cost disabilities”, that portion attributable to local preferences

or policies about levels of service provision, and the portion due to inefficiencies. One approach that has been used in the case of education and health care is to estimate *cost functions.* These empirically-estimated functions trace the relationships between expenditures (either per capita or per student), measures of outcome, such as gains in student academic performance, and a set of characteristics of each local government (including characteristics of its residents).[2]

Without good data on public sector outputs it is not possible to directly estimate cost functions. An alternative statistical approach is to estimate *reduced form expenditure equations* in an attempt to identify cost factors and determine the expenditure needs of local governments. Like a cost function, the dependent variable in an expenditure equation is per capita expenditures on a particular local government public service or group of public services. In a typical expenditure equation, however, the independent variables do not include measures of public sector output.[3] One potential problem with using expenditure functions to measure the costs of local government services is that it may be difficult to isolate variables that have an impact on costs from variables that indicate differences in public good preferences or demands. Fortunately, in most cases it is possible to identify variables in an expenditure function as being only or predominantly cost factors or demand factors.

After successfully estimating either a cost or expenditure function for local government

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[2]A standard approach in estimating public-sector cost functions is to specify a first-stage regression that attempts to explain the variation across local governments in public sector output as a function of a series of variables that help explain differences in preferences for local public services by local residents and/or decision makers. Typically, these equations include measures of the income or tax base and the tax-price facing the median or decisive voter in each community, plus other indicators of local preferences such as the occupations or education levels of local residents. The first stage predicted values of the public service outputs are then included as controls in a second stage cost estimation equation.

[3]Because, this specification does not include any public good output measure, simultaneity is not a problem, and hence the expenditure equation can be estimated using ordinary least squares.

services, the estimated coefficients could be used to construct a *cost index* which summarize in a single number for each local government, the amount of money needed to provide a given standard or level of public service **relative** to the amount of money needed to provide the same public services in a local government with average costs.

There exists a quite extensive literature on the measurement of the revenue-raising (or fiscal) capacity of local governments. The foundation for all local government fiscal capacity measures is the economic base of each local government. In our larger project, we will attempt to employ the two most commonly used approaches: the *representative tax system* and the *total taxable resources* approach.

In addition to their capacity to raise their own revenue, fiscal capacity can be augmented through the receipt of grants-in-aid from higher-level governments. Our measures of revenue-raising capacity will take into account both the amount of intergovernmental grants received and the form in which they are delivered. As part of our evaluation of the influence of intergovernmental finance on the fiscal condition of urban governments, we plan to assess the responsiveness of intergovernmental grants to changes in fiscal needs of local governments. We will also evaluate the extent to which grants reduce fiscal disparities among local governments within metropolitan areas. In general, grants are most successful in reducing fiscal disparities when they are allocated in a way that accounts for differences among local governments in both fiscal capacity and expenditure needs. For example, Guy Gilbert and Alain Guengant (2003) demonstrate that both the choice and the weighting of the cost factors in the French system of local government grants bear limited relationship to the factors and weights revealed by an econometric analysis of local government costs.

**Descriptive Analysis of Central City Suburban Disparities in Six Metropolitan Areas**

To begin our analysis, we have selected seven U.S. cities and their metropolitan areas. The cities are Atlanta, Cleveland, Milwaukee, New York City, Philadelphia, Pittsburgh, and San Antonio. These cities were selected partly because they provide a variety of fiscal arrangements and institutions, partly because of the authors' specialized knowledge of two of the cities, Milwaukee and New York City, and partly based on geographic diversity.

A basic measure of economic health is population. Jurisdictions experiencing substantial population loss are likely to be experiencing considerable economic difficulties. Moreover, given the fact that migration rates are greater among the young and those with more education, significant out-migration or low rates of in-migration are likely to be associated with a decline in human capital (Kondrzycki, 2001). Cities that are losing population, particularly relative to their suburbs, are also like to be facing serious fiscal problems. As discussed below, cities that are losing population have significantly higher per capita current expenditures.

Figures 1 and 2 show the rates of population change between 1970 and 2000 for center city and rest of metropolitan area for the six cities. Several points stands out. First, with the exception of Atlanta, population growth has been slow in all of the older metropolitan areas. Second, with the exception of New York City, there has been a sharp decline in the center city population of all of the cities. Both Pittsburgh and Cleveland lost over 35 percent of their population between 1970 and 2000. Third, population growth has been at least slightly positive in all of the non-central city areas, with the exception of Cleveland. Atlanta stands out in the imbalance in growth between its center city - with over a 15 percent decline - and the rest of its metropolitan area, with growth of over 200 percent in the 30 year period.

**Figure 1**
**Percentage Change in City Populations from 1970-2000**

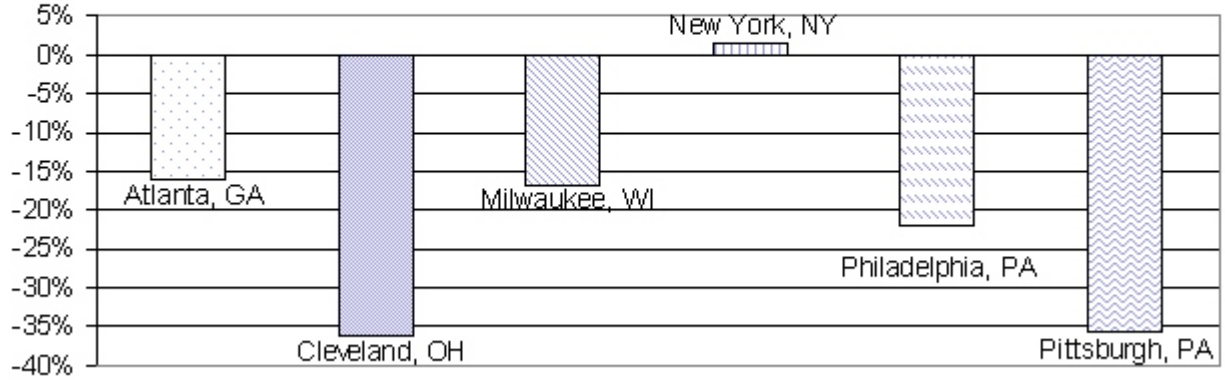
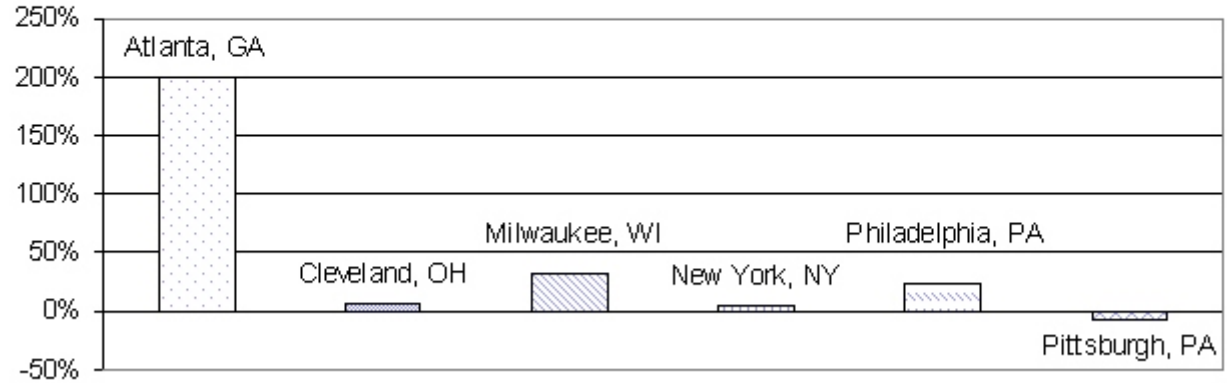



**Figure 2**
**Percentage Change in Suburban Populations from 1970-2000**



Breaking down the 1970 to 2000 period into ten year intervals, the sharpest rates of population decline for the older center cities occur between 1970 and 1980. As shown in Figure 3, population approximately stabilized between 1990 and 2000 for all of these cities, except for New York, which grew by about 10 percent, from 7.3 to 8 million. Data through 2004 for show continued population growth in New York City, and some decline in Cleveland. Atlanta, which showed in an exaggerated way the classic pattern of center city losses and suburban gains in population through 1990, grew by about seven percent between 1990 and 2000, and growth has continued but at a slower rate since then (U.S. Census Bureau, 2004).

A second indicator of both economic and fiscal health is the rates of poverty. Controlling for fiscal capacity, a number of studies have found that poverty rates are an important cost factor, even in those cities for which most direct redistributional expenditures are financed at the state level (Ladd and Yinger, 1991; Pack, 1995). The two panels of Figure 4 show central city and rest of metropolitan area poverty rates, for 1989 and 1999. It is of course well known that poverty rates in central cities far exceed the rates in the suburbs. In 2000, the national data indicated that the average poverty rate inside all central cities was 16.1 percent, while the suburban rate was 7.8 percent. As shown in the figure, however, both the absolute poverty rates and the city-suburb disparities in our sample metropolitan areas are striking. Only in Pittsburgh in 1989 does the center-city suburban ratio of poverty rates, about twice as high, approach that of the center city/rest of metropolitan area ratio for the nation as a whole, and in that case only because poverty rates in suburban Pittsburgh are substantially higher than rates in the other suburban areas in our sample.

We also collected basic data on San Antonio, and there, despite high and equally rapid

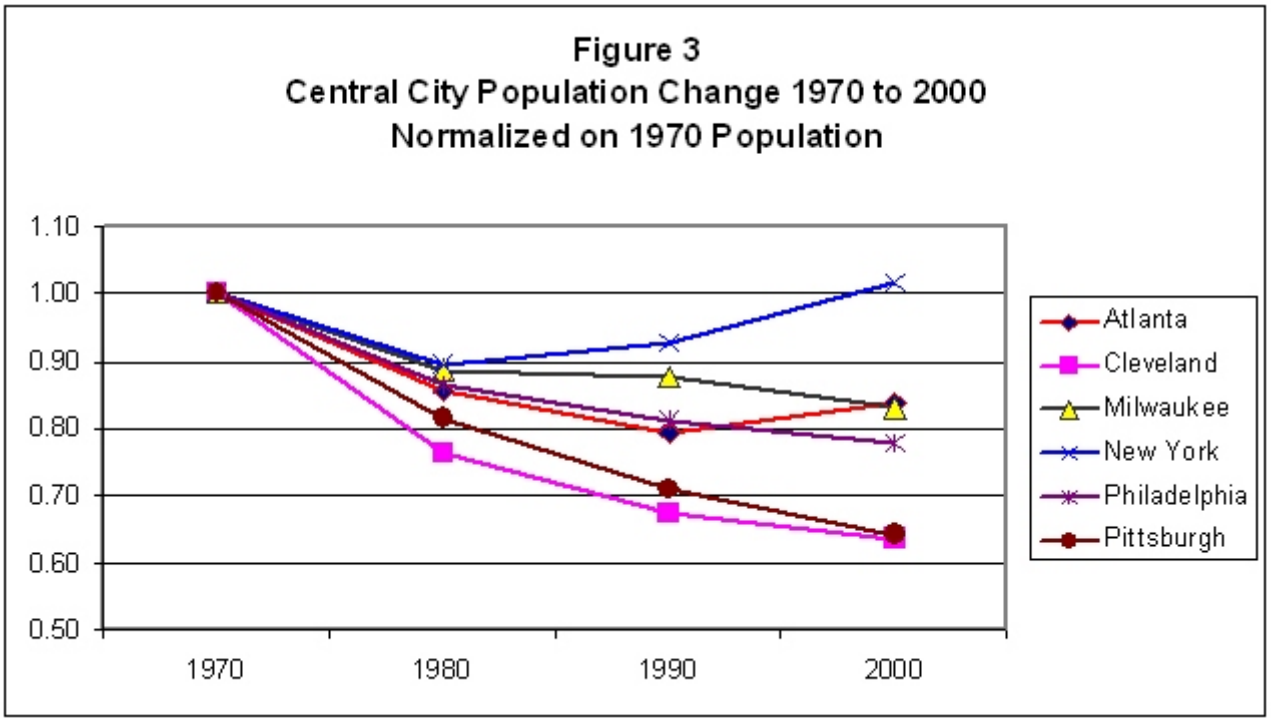


Figure 3
Central City Population Change 1970 to 2000
Normalized on 1970 Population
1.10
1.00
0.90
0.80
0.70
0.60
0.50
1970
1980
1990
2000
Atlanta
Cleveland
Milwaukee
New York
Philadelphia
Pittsburgh

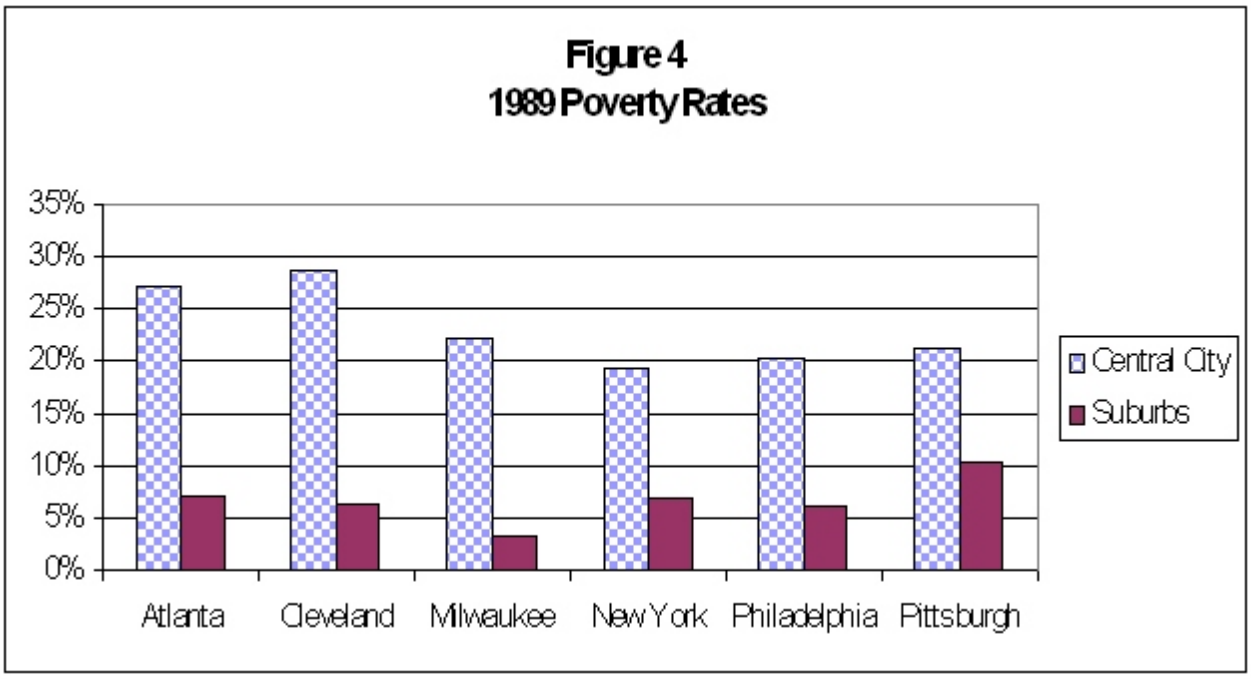
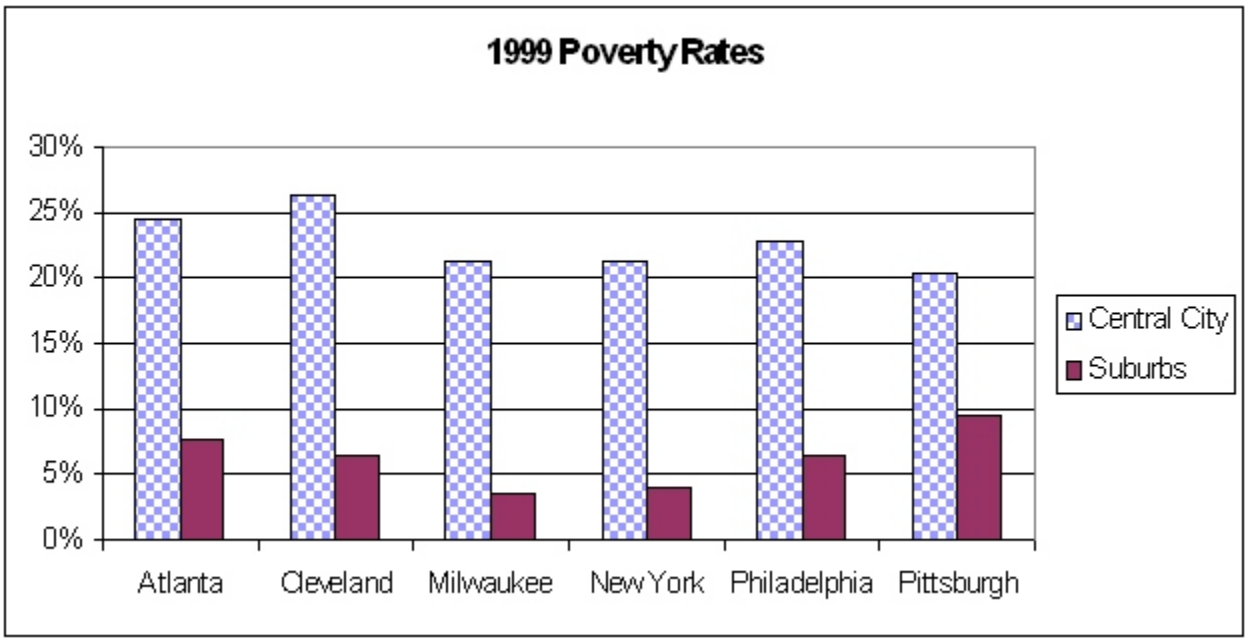


Figure 4
1989 Poverty Rates
35%
30%
25%
20%
15%
10%
5%
0%
Atlanta
Cleveland
Milwaukee
New York
Philadelphia
Pittsburgh
Central City
Suburbs


1999 Poverty Rates
30%
25%
20%
15%
10%
5%
0%
Atlanta
Cleveland
Milwaukee
New York
Philadelphia
Pittsburgh
Central City
Suburbs

rates of growth in population in both center city and suburb, the center city poverty rate of 20 percent is also more than double that of the suburbs**.** By 1999 poverty rates had declined in four of the center cities - Atlanta, Cleveland, Milwaukee, and Pittsburgh - and risen in New York and Philadelphia. For all six cities, however, the ratio of center city to suburban poverty rates had increased. The average ratio of center city to suburban poverty rates went from 3.87 in 1989 to 4.09 in 1999. The persistence and even growth of these very large poverty differentials, across metropolitan areas with different patterns of population and income growth, are quite striking. Nationally, poverty rates fell between 1999 and 2001, and then began to rise again.[4] With metropolitan areas, poverty rates rose between 2000 and 2003. Although over this period the poverty rate in the suburbs grew somewhat more quickly in the suburbs than inside central cities, in 2003 the city-suburb difference remained large, with the central city rate at 17.5 percent and the suburban rate at 9.1 percent (DeNavis-Walt, et al., 2004).[5] Over and above the high central city poverty rates as a basic indicator of individual economic distress, the increasing differential between center cities and their suburbs suggests that, despite a widely heralded renaissance in at least some American cities, economic and fiscal disparities continue to increase in many metropolitan areas.

**Aggregate Calculation of Fiscal Disparities for Six Metropolitan Areas**

To make aggregate estimates of fiscal disparities, we use median household income as a proxy for fiscal capacity, and simulate costs using results from research by Ladd (1992) on the

[4] A recent report on New York City (Levitan, 2005) discusses the rise in rates to over 20 percent in 2004.

[5] Because of changes in the definition of metropolitan areas, the Census Bureau is not going to release any poverty data by place of residence for 2004.

relation between the rate of population growth and density on current expenditures, and Ladd and Yinger (1991) . Household income is of course only one component of the total taxable resources in a jurisdiction. In particular, it would be desirable to include a measure of property values, but we lacked the requisite data. The Ladd study of cost factors is particularly useful for our purposes because the unit of observation is the county, with estimates are based on current expenditures by localities aggregated up to the county level. Her sample is 247 large county - areas in the U.S. in 1985.

To compute relative fiscal capacity of city and suburb, we simply take the ratios of Center City to metropolitan area and Non Center City to metropolitan area of median HH income.

$$\text{REL FC}_{CC} = \text{MED INC}_{CC}/\text{MED INC}_{metro} \; ; \; \text{REL FC}_{Sub} = \text{MED INC}_{Sub}/\text{MED INC}_{metro}$$

To get an approximation of expenditure needs, we use a very limited cost relationship, based on poverty rates, rates of population change, density, and, for the central city only, the ratio of central city population to the metropolitan area population. As a measure of workload, we use the ratio of public school enrollments to population. Ladd finds that population growth has a negative effect on per capita current expenditures (though a positive effect on capital expenditures), density has a generally positive effect, poverty rates the expected positive effect, and school enrollments a positive effect. In their study of the fiscal health of cities, Ladd and Yinger find that the smaller the share of the metropolitan population residing in the central city, the greater are current expenditures. This result reflects the use of central city services by non-residents, and the costs imposed by commuters. Both the population growth and density effects are estimated as linear splines, so the coefficients vary depending on density and population growth rates.

The "cost" relationships are

$$Cost_{CC} = .12 \text{ (ln pov rate)} + .21 \text{ (ln enrollment per capita)} + \text{DENSITY} * \text{(Den coeff)} + \Delta\text{Pop} * (\Delta \text{ Pop coeff}) - 0.0022 \text{ (CC Pop/Metro Pop)}$$

$$Cost_{Sub} = .12 \text{ (ln pov rate)} + .21 \text{ (ln enrollment per capita)} + \text{DENSITY} * \text{(Den coeff)} + \Delta\text{Pop} * (\Delta \text{ Pop coeff})$$

Indexes are calculated as $Cost_{metro}/Cost_{CC}$ and $Cost_{metro}/Cost_{Sub}$. We note that because the included factors explain only a fraction of the variation in expenditures and costs, they are only indicative of variation in expenditure need.

Results from the fiscal capacity calculations are shown in Table 1. Except for New York, measured fiscal capacity in the center city is 25 percent or more below that for the entire metropolitan area. While there was a slight improvement in relative fiscal capacity of the center city in Atlanta and Cleveland between 1990 and 2000, in the other cities relative fiscal capacity deteriorated.

New York stands out from the other cities in that it's fiscal capacity is much closer to that of the suburbs. Chernick (1998) compared fiscal capacities in New York City to those of neighboring jurisdictions, using both the income with exporting method and a restricted Representative Tax System (RTS) measure. He found weak fiscal capacity in the city, relative to most suburban jurisdictions. Using a RTS measure based on property values, Luu (2005) also found that New York City's fiscal capacity declined relative to its suburbs for the period 1995 to 2000. The buoyant growth in New York City real estate values since 2001 has probably improved fiscal capacity in the city relative to the suburbs since 2001 (Chernick and Haughwout, 2006). As we discuss below, when we measure fiscal capacity in Atlanta using property values,

the fiscal capacity in the City of Atlanta exceeds that of all but 14 of the 59 suburban jurisdictions in our sample.

Table 2 shows the calculated "cost" indices. Again with the exception of New York, the "cost" indexes are over twice as high for the center city than for the metropolitan area as a whole. Cleveland, because of its high poverty rate and sharp rate of population decline, stands out as having the highest index value costs relative to the metropolitan area and the suburbs, over four times as large as the suburban areas.

We stress that because of the incomplete nature of the estimated cost relationships, a central city "cost" index of two or more does not imply that the city must spend over twice as much as its suburban area to achieve the same level of output. Hence, what is most useful about the cost indexes is how they have changed between 1990 and 2000. Our calculations show that relative cost conditions for the central city deteriorated (costs rose) between 1990 and 2000 in Cleveland, Philadelphia, Pittsburgh, and Milwaukee. Costs fell in Atlanta relative to the metropolitan area, and stayed the same in New York City.

To summarize, of the six metropolitan areas examined in this paper, both fiscal capacity and expenditure need, appear to be considerably weaker in the city than in the rest of the metropolitan area. In general, fiscal conditions deteriorated in the central city between 1990 and 2000. The exception is New York City, which benefits from its large population share in the metropolitan area and its continuing robustness as a location for economic activity. Both our cost and fiscal capacity indexes are incomplete, and we do not take into account intergovernmental aid, which may act to offset the high level of fiscal disparities. However, to the extent that these fiscal disparities are not offset by intergovernmental aid or other policies such as state

**Table 1**

**Fiscal Capacity Relative to Metropolitan Average**

| | Atlanta* | | Cleveland | | Milwaukee | |
|---|---|---|---|---|---|---|
| | Central City | Suburbs | Central City | Suburbs | Central City | Suburbs |
| 1989 | 0.648 | 1.065 | 0.582 | 1.132 | 0.731 | 1.210 |
| 1999 | 0.692 | 1.043 | 0.612 | 1.111 | 0.702 | 1.197 |
| | | | | | | |
| | New York* | | Philadelphia | | Pittsburgh | |
| | Central City | Suburbs | Central City | Suburbs | Central City | Suburbs |
| 1989 | 0.984 | 1.039 | 0.690 | 1.128 | 0.782 | 1.040 |
| 1999 | 0.954 | 1.111 | 0.639 | 1.132 | 0.767 | 1.042 |

*Median Household Income Data for 1989 for both Atlanta and New York is in 1989 dollars, all other values are in 1999 dollars.

**Table 2**

**Central City and Suburban "Costs" Relative to Metropolitan Average**

| | Atlanta | | Cleveland | | Milwaukee | |
|---|---|---|---|---|---|---|
| | Central City | Suburbs | Central City | Suburbs | Central City | Suburbs |
| 1990 | 4.589 | 0.817 | 3.198 | 0.812 | 2.989 | 0.720 |
| 2000 | 2.293 | 0.898 | 4.168 | 0.834 | 3.646 | 0.702 |
| | | | | | | |
| | New York | | Philadelphia | | Pittsburgh | |
| | Central City | Suburbs | Central City | Suburbs | Central City | Suburbs |
| 1990 | 1.073 | 0.725 | 2.440 | 0.830 | 2.324 | 0.962 |
| 2000 | 1.078 | 0.670 | 2.837 | 0.821 | 2.574 | 0.961 |

financing of redistributional programs, the weak condition of the central city is likely to have continuing negative economic consequences for these metropolitan areas.

**Calculation of the Fiscal Conditions of Municipalities in the Atlanta Metropolitan Area**

In this section, we present a preliminary analysis of the fiscal condition of municipal governments within the Atlanta metropolitan area. We include in our list of suburban municipalities all but three of the 62 incorporated municipalities within the 10 county region as defined by the Atlanta Regional Commission. Because of data and time constraints, we focus here entirely on municipal government functions, ignoring the fiscal impacts of both of the overlapping school districts and county governments.

For each municipal government, we propose to calculate need capacity gaps by developing estimates of both expenditure needs and revenue-raising capacity. Following the discussion earlier in the paper, we define the expenditure need of local government i ($EN_i$) as $EN_i = \sum SR_{ij}*S_j*CI_{ij}$ , where $SR_{ij}$ is a dummy variable indicating whether municipality i is responsible for providing public service j, $S_j$ is a measure of a "standard" level of public service j within the Atlanta metropolitan area, and $CI_{ij}$ is value in municipality i of a cost index for public service j. Because public sector outcome measures are generally not available, for the purposes of this analysis we define $S_j$ as the median level of per capita spending on public service j among the 60 Atlanta area municipalities included in our analysis.

Using fiscal data for 2004 from the Georgia Department of Community Affairs, we divide municipal spending into seven categories: public safety (which includes both police and fire services), administration, courts, highways, parks, recreation, and libraries (classified as "leisure services," community development (which includes building inspection and regulation), and a

residual category.

Our approach is to identify cost factors through the process of estimating expenditure equations for several important expenditure functions. Each expenditure equation was estimated over the sample of jurisdictions that provided each public service. We used per capita spending data by functional area to determine whether a particular municipality had service responsibilities in that area. In general, if a municipality spent $5 or more on any function, it was considered as being responsible for providing services in that public service category. In this paper we present expenditure functions for three categories of spending which on average account for about 70 percent of municipal government spending. They include public safety, administration, and courts. The regression results are presented in Table 3.

The public safety regression includes three cost factors, the percent of population that is foreign born, the log of population, and the percentage of housing units built prior to 1939. Percent foreign born is significant with a negative sign at the 10 percent level, while the percent of old housing is positively significant at the 1 percent level. In contrast to a number of other metropolitan areas, in the Atlanta area the central city has a below average proportion of foreign born residents compared to a number of suburban jurisdictions. Further work will be needed to understand the inverse relationship between the location of birth and public safety costs. It is not surprising that public safety costs, and particular costs associated with fire protection, are higher in jurisdictions with a concentration of older housing. Older wiring and the absence of fire-retardant building material associated with older housing will most likely increase the probability of fires. In all three regressions, we use two “control” variables to reflect differences in public spending demand across jurisdictions: the log of property values per capita to reflect the fact that

## Table 3

## Expenditure Regression Results, Atlanta Metropolitan Area, 2004

**Log of Public Safety Expenditures Per Capita**

| Independent Variables | Regression Coefficients | t-statistics |
|---|---|---|
| percent foreign born | -0.874 | -1.71** |
| natural log of population | 0.066 | 1.36 |
| percentage of housing built prior to 1939 | 0.024 | 2.68* |
| percent residential property value | -2.261 | -6.41* |
| log of property value per capita | 0.172 | 1.39 |
| constant | 4.068 | 2.69* |
| Adjusted R-Squared | 0.497 | |

**Log of Administration Expenditures Per Capita**

| Independent Variables | Regression Coefficients | t-statistics |
|---|---|---|
| poverty rate | 2.777 | 2.06* |
| natural log of population | -0.140 | -2.37* |
| percentage of housing built prior to 1939 | 0.012 | 1.21 |
| percent residential property value | -0.574 | -1.30 |
| log of property value per capita | 0.308 | 2.15* |
| constant | 2.496 | 1.43 |
| Adjusted R-squared | 0.213 | |

**Log of Courts Expenditures Per Capita**

| Independent Variables | Regression Coefficients | t-statistics |
|---|---|---|
| poverty rate | 4.867 | 2.45* |
| natural log of population | -0.132 | -1.68** |
| percent residential property value | 0.487 | 0.75 |
| log of property value per capita | 0.663 | 2.62 |
| constant | -4.155 | -1.30 |
| Adjusted R-squared | 0.158 | |

*statistically significant at the 5% level
**statistically significant at the 10% level

the major source of local government funding is the property tax, and residential property values as a share of total property value. This variable, which is statistically significant with the expected negative sign, provides one measure of the tax-price faced by the typical resident.[6]

Given that core administrative, governance, and court functions must be carried out by every local government, one would expect economies of scale with respect to these functions. Indeed, we find a statistically significant negative sign for population in both the administration and court expenditure regressions. As found in previous studies, the poverty rate is positively related to spending. This probably reflects higher crime rates in poor areas and additional demands placed on local government by the presence of low-income families.

The next step is to use the regression coefficient for each of the three expenditure categories to calculate a cost index for that category of spending. We start by calculating for each municipal government hypothetical spending, where the calculation involves multiplying the regression coefficients by the metropolitan average values for the control variables and by each municipality's actual value for each cost factor. To create an index, each municipality's hypothetical spending level is divided by hypothetical spending for a municipality with average values for the cost factors.[7] The cost index for public safety has a range from 0.58 to 1.82. This means that in Chamblee, the municipality with the lowest public safety costs, public safety costs are about 40 percent below the Atlanta metropolitan area average, while in Decatur, the city with the highest public safety costs, costs are about 80 percent above average. For administrative

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[6]In principle, we should also control for the receipt of exogenous grants-in-aid from the state or federal governments. Data problems prevented us from doing so in this draft of the paper.

[7]The resulting indices are normalized so that they have an average value of one.

functions, costs are lowest in Roswell and highest in Lithonia, where they are more than twice average costs per person. We found a similar range of per capita court costs, with interestingly, City of Chamblee have the next to highest per capita costs.

The final step in calculating each municipality's expenditure need is to determine the set of functions for which it provides public services, and then to multiply median per capita spending in the Atlanta area with the municipality's cost index value. For the functions for which we have not calculated cost indices, we use median spending in the area. For these functions, the implicit assumption is that per capita costs do not vary across metropolitan area municipalities. According to our calculations, expenditure needs vary from $124 in Lovejoy and $212 in Sugar Hill to $778 in Ball Ground and $775 in Decatur.

As a measure of fiscal capacity, we calculated the property tax revenue each municipality would raise by levying a tax of 5 mills. With a 5 mill tax, the metropolitan area fiscal capacity equals $497 per capita, an amount identical to the average expenditure need within the metropolitan area. Fiscal capacity ranges from a little over $2,000 in Braselton to a mere $115 in Waleska.

The final step in measuring the fiscal condition of local governments is to calculate the difference between each municipality's expenditure need and revenue-raising capacity. By design, these fiscal gaps average about zero. However, the fiscal conditions of municipalities within the Atlanta metropolitan area vary tremendously. In other words, the fiscal disparities within the metropolitan area are quite large. The place in the weakest fiscal health is Lithonia (fiscal gap equal to $475). On the other extreme, Grayson and Braselton are in relatively strong fiscal health, with gaps equal to -$775 and -$1,472 respectively.

Table 4 summarizes fiscal conditions of Atlanta-area municipalities by population size, and Table 5 provides a summary by median household income. In each table, the results for the City of Atlanta are listed separately. Atlanta has both expenditure needs and fiscal capacity that are above average for the region. Its fiscal gap equals $135. Thus, according to our calculations, 18 of the 59 suburban municipalities are actually in weaker fiscal condition than the central city. The data in tables 4 and 5 also demonstrate that fiscal health tends to be weakest in very small municipalities, and not surprisingly, in those places with the lowest median household incomes.

It should be emphasized that the results presented in this section are very tentative. To date we have not included data on intergovernmental grants in our analysis, either as control variables in our expenditure regressions or as contributing to the fiscal health of local governments by reducing the size of their of need-capacity gaps. We have also not included in our analysis the impact on fiscal conditions of the financing of public education and various county functions. The capacity of municipal governments to raise revenue is obviously influenced by the need of residents and businesses within the metropolitan area to also contribute to the financing of public education and public services provided by county governments.

**Conclusions**

This paper provides a preliminary investigation of metropolitan area fiscal disparities. Fiscal disparities are important in terms of equity because they provide an indicator of differences in the quality and cost of public services in metropolitan areas. They are also important in terms of locational efficiency, in that they provide a measure of the incentives for fiscal mobility. However, fiscal-disparity based mobility is likely to be inefficient, because it is not based on matching of preferences for public goods with the offered bundles, or on differences in produc-

tive efficiency across jurisdictions, but rather on exogenously determined differences in the fiscal environment. Fiscal disparities between the center city and suburban areas are of particular importance, because they indicate whether the metropolitan public economy helps to promote or act to impede the realization of the economies of agglomeration economies which are crucial to the growth of metropolitan areas.

We provide an aggregate analysis for six metropolitan areas: Atlanta, Cleveland, Pittsburgh, Philadelphia, Milwaukee, and New York, and more detailed estimates of fiscal disparities between municipalities in the Atlanta metropolitan area. The aggregate analysis is based on census data on household income, population change, poverty rates, and school enrollments, and draws on previous research to translate differences in these variables into income based estimates of fiscal capacity and very partial estimates of differences in expenditure needs. The Atlanta analysis uses property values as a measure of fiscal capacity, and estimates expenditure need for general administration, public safety, and courts, functions which make up about 70 percent of municipal government spending.

The aggregate analysis suggests that there are substantial fiscal disparities between center city and suburb in most of the metropolitan areas considered. In all but New York, the public sectors suffer in comparison to their suburbs from low income levels, slow or negative population growth, and extremely high rates of poverty. Our tentative conclusion is that central city-suburban fiscal disparities appear to have increased in the 1990s, despite a booming national economy in the latter half of the decade. However, we must emphasize the tentative nature of this conclusion, as our analysis is based on a very partial and incomplete measures of both fiscal capacity and costs, and does not yet take into account the role of intergovernmental grants.

The detailed analysis of Atlanta suggests a more nuanced picture than the aggregate analysis, with the greatest variation in fiscal conditions occurring among suburban jurisdictions. The city of Atlanta has both expenditure needs and fiscal capacity that are above average for the region, with a fiscal gap - the difference between expenditure needs and fiscal capacity - of $135 per capita. Eighteen of the 59 suburban municipalities are actually in weaker fiscal condition than the central city. However, we again emphasize the tentative nature of these conclusions, in that we have not yet been able to incorporated school financing or intergovernmental aid into our calculations.

The hypothesis which underlies this research is that fiscal conditions - as measured by the degree of fiscal disparities - are both a consequence of economic development and an important causal factor in that development. Our goal of better measurement of fiscal disparities, for a larger sample of metropolitan areas, will allow us not only to assess the role of various fiscal institutions - mandates, intergovernmental aid, tax and expenditure assignment rules, regional governments and special districts - in determining fiscal health, but also to improve our understanding of the simultaneous relationship between metropolitan growth and fiscal conditions.

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