FISCAL DISPARITIES 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. Density of economic activity lowers costs for both customers and suppliers, increases the adaptability of firms to changes in demand, increases the quality of the matching process between firm needs and labor skills, and facilitates spillovers of knowledge from one industry to another. These economies of agglomeration are more than sufficient to offset the greater congestion costs in dense urban areas (Ciconne and Hall, 1996). Cities facilitate specialized consumption, such as art and culture, and cities that specialize in these types of activities have relatively high rates of growth (Haughwout and Inman, 2002).

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, a well-trained public labor force, and a skilled set of managers. A local government that is unable to provide high-quality public services is at economic risk.

Local governments within metropolitan areas operate in a competitive environment for residents and businesses. Service costs 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 concentrations of poverty and nonnative English speakers. As compared to the typical suburban jurisdiction, central cities face higher than average service costs and below average fiscal capacities. The fiscal advantage enjoyed by some suburbs is reinforced by extensive powers of zoning and land-use control, allowing 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 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. This paper is an initial step in our effort 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. In this initial part of our study, we focus on six metropolitan areas, examining differences between the center city and the suburban ring in terms of the major factors that are likely to determine the fiscal health of local governments.

LITERATURE REVIEW

Campbell and Seymour Sachs (1967) were the first to focus on differences in center city and suburban fiscal conditions. Subsequently, a number of studies compared the fiscal condition of central cities to the average fiscal condition of local governments in the suburban ring of metropolitan areas. Fiscal disparities are measured by comparing spending, tax rates, and other characteristics of central cities to the same variables in the suburbs (Sachs and Callahan, 1973; Advisory 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 United States were typically in considerably weaker fiscal health than their surrounding suburbs. More recently, Orfield (2002) finds that in the nation's 25 largest metropolitan areas, most central cities are in weaker fiscal health than their suburbs, but also that in many

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metropolitan areas the fiscal condition of a number of suburban communities is as weak or weaker than the fiscal health of the central city. A similar finding for six metropolitan areas is provided by Atkins et al. (2005).

The *structural* fiscal condition of a local government, or its fiscal gap, is defined as the gap between its *expenditure need* and its *revenue-raising capacity.* Expenditure need is the amount of money needed to provide an average level of those services for which the local government is responsible, while revenue-raising capacity is the amount of tax revenue each jurisdiction can raise at a uniform tax rate, plus intergovernmental aid. While it is widely recognized that this is the appropriate way to measure fiscal health, the daunting nature of the data required to implement this approach have instead led to reliance on a set of correlates of fiscal health (Orfield, 2002).

Rafuse (1991) is the only study that has attempted to estimate need-capacity gaps within a single metropolitan area, using a sample of 40 municipalities in the Chicago area. Bradbury et al. (1984) and Ladd, Reschovsky, and Yinger (1992) calculate fiscal gaps for a sample of local governments in Massachusetts and Minnesota, respectively. Ladd and Yinger (1992) provide similar calculations for the central cities of the nation's largest metropolitan areas, and Shah (1996) calculated fiscal gaps for Canadian provinces. Tannenwald (1998) has calculated what he calls "fiscal comfort" indices for U.S. states. Our study will add to the literature by estimating both expenditure needs and fiscal capacity for all municipalities in a selected sample of metropolitan areas.

THE MEASUREMENT OF EXPENDITURE NEEDS AND REVENUE-RAISING CAPACITY

Expenditure needs can be expected to vary across local government jurisdictions because of differences in public service responsibilities. It is quite common for the responsibility of 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. Expenditure needs of local governments may also 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. Costs will also be higher the greater the number of nonresidents entering a jurisdiction, whether for work, shopping, or recreation.

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, that portion attributable to local preferences regarding levels of service provision, and that 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] If public sector output data are not available, 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. A 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. For example, poverty rates are a cost factor, tending to raise expenditure levels, but high rates of poverty are also likely to imply more constrained fiscal resources.[3] Other variables, for example age of the housing stock, are more likely to influence costs than demand.

The estimated coefficients from an expenditure function can then be used to construct a *cost index*, which summarizes in a single number the amount of money each jurisdiction needs to provide the metropolitan wide standard or average level of public services, **relative** to the amount of money needed to provide the same public services in a local government with average costs.

There is an 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.

Fiscal capacity is also 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, Gilbert and 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

We analyzed six U.S. cities and their metropolitan areas - Atlanta, Cleveland, Milwaukee, New York City, Philadelphia, and Pittsburgh. These cities were selected both for geographic diversity and because they provide a variety of fiscal arrangements and institutions.

One basic measure of economic health is the change in population. Population loss is typically associated with an erosion of the economic base, hence a decline in fiscal capacity. Population loss also implies an increase in per capita costs, due to the high fixed costs for many public services. 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 (Kodrzycki, 2001). Cities that are losing population, particularly relative to their suburbs, are also likely to be facing serious fiscal problems. As discussed later, 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 the center city and the 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 positive in all of the noncentral 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. As shown in Figure 3, the sharpest rates of population decline for the older center cities occur between 1970 and 1980. Except for New York City, which grew by about 10 percent, population stabilized between 1990 and 2000 for all of these cities. Data through 2004 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 7 percent between 1990 and

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

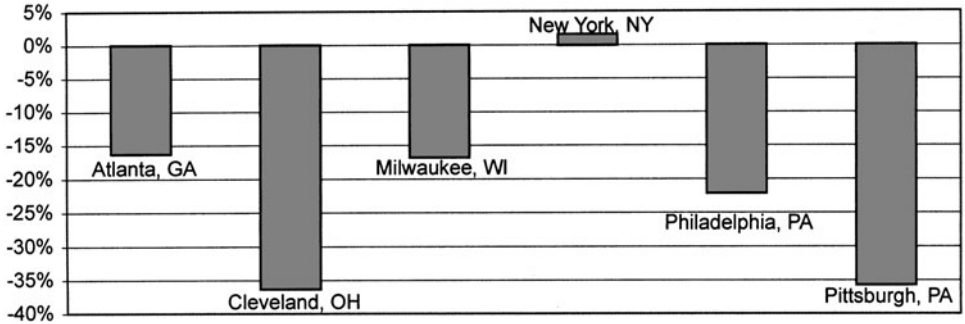


Figure 2: **Percentage Change in Suburban Populations from 1970-2000**

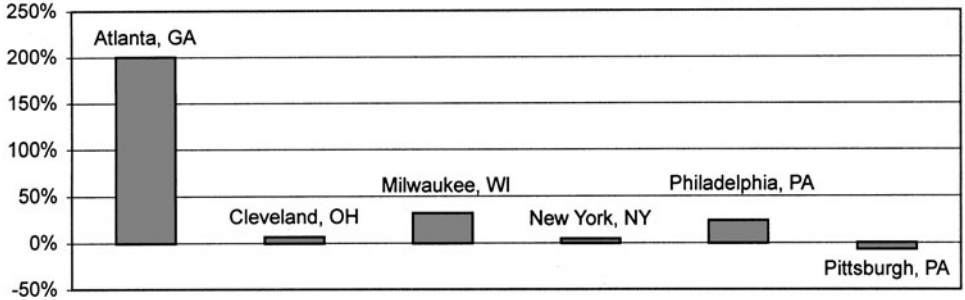
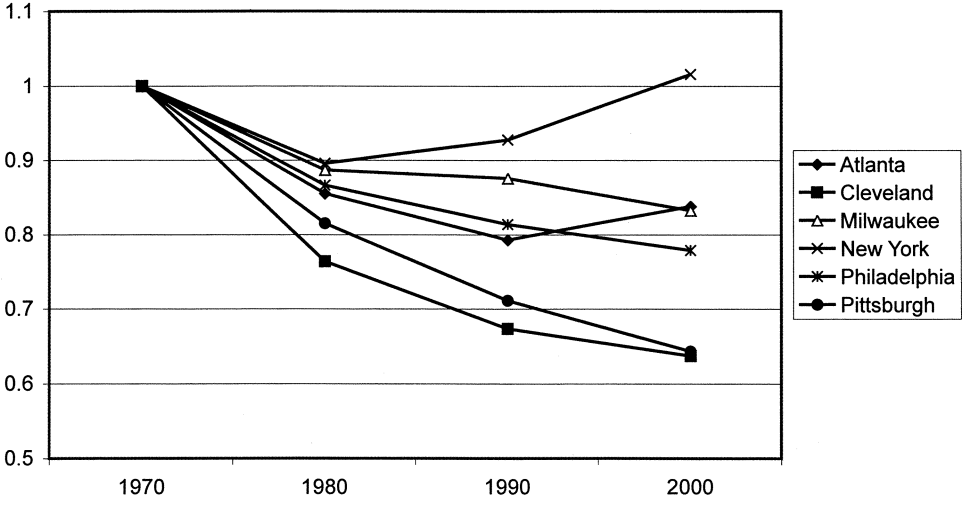


Figure 3: **Central City Population Change 1970 to 2000 Normalized on 1970 Population**



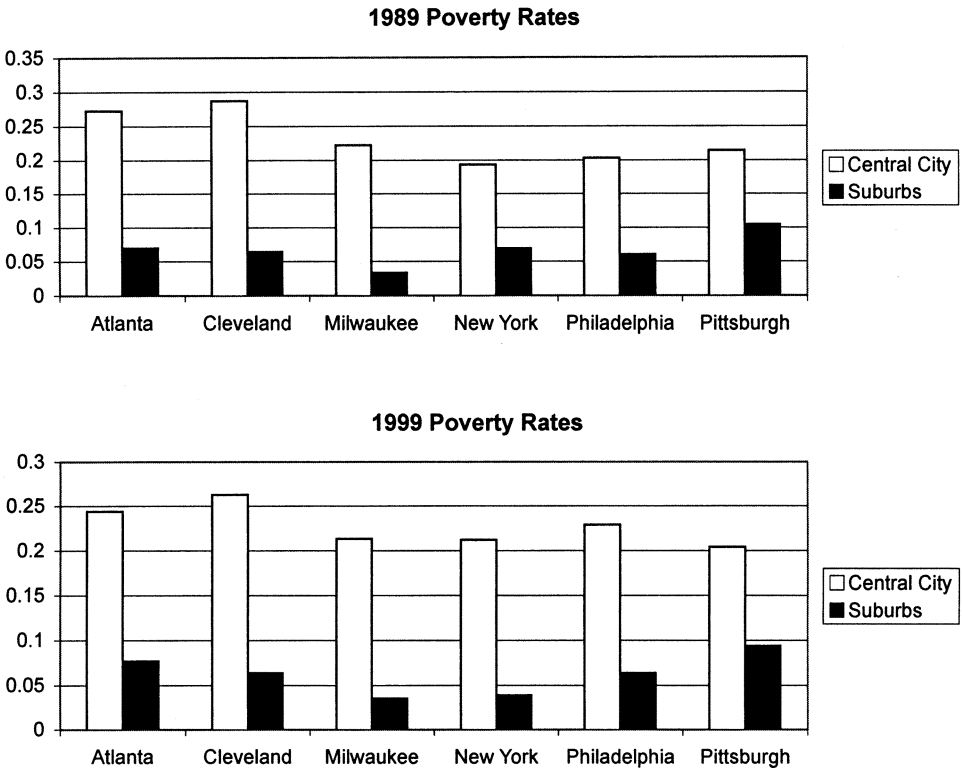
2000, and growth has continued but at a slower rate since then (U.S. Census Bureau, 2004).

A second indicator of both economic and fiscal health is the rate of poverty. Several 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). In 2000, the national average poverty rate for all central cities - 16.1 percent - was about two times the suburban rate. As shown in Figure 4, the difference between the central city and rest of metropolitan area poverty rates in 1989 and 1999 was much higher than the national difference. Only in Pittsburgh in 1989 does the center-city suburban ratio of poverty rates 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 relatively high. Though poverty rates declined in Atlanta, Cleveland, Milwaukee, and Pittsburgh, for all six cities the ratio of center city to suburban poverty rates increased between 1989 and 1999, going from 3.87 to 4.09. The persistence of very large poverty differentials across metropolitan areas with different patterns of population and income growth is striking. National data show poverty rates in metropolitan areas rising between 2000 and 2003, with the suburban-city differential remaining very high (DeNavis-Walt et al., 2004).[4] The wide differential in poverty rates between center cities and their suburbs suggests that, despite a widely heralded renaissance in American cities, economic and fiscal disparities remain substantial 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

Figure 4



research by Ladd (1992) on the relation between the rate of population growth and density on current expenditures, and Ladd and Yinger (1991) on the effects of poverty on expenditure need. We lacked data on property values, so were unable to include the property base in fiscal capacity. For our purposes, the Ladd study of cost factors is particularly useful, because current expenditures by localities are aggregated up to the county level. Her sample is 247 large county areas in the United States 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 household 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 have the expected positive effect, and school enrollments have 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 nonresidents, 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 (ln poverty rate)

+ .21 (ln enrollment per capita)

+ DENSITY * (Density coef.) + Pop * (Pop coef.)

– 0.0022 (CC Pop/Metro Pop)

Cost_{Sub} = .12 (ln poverty rate)

+ .21 (ln enrollment per capita)

+ DENSITY * (Density coef.)

+ Pop * (Pop coef.).

Indexes are calculated as $\text{Cost}_{metro}/\text{Cost}_{CC}$ and $\text{Cost}_{metro}/\text{Cost}_{Sub}$. 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 City, 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 City stands out from the other cities in that it's fiscal capacity is much closer to that of the suburbs. However, Luu (2005) found that New York City's fiscal capacity declined relative to its suburbs for the period 1995 to 2000. The strong growth in New York City real estate values since 2001 has probably improved fiscal capacity in the city relative to the suburbs in the period since 2001 (Chernick and Haughwout, 2006). 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 City, 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

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

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

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. Fiscal-disparity based mobility, however, 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 productive 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 promotes or impedes the realization of the economies of agglomeration economies that 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 City. The 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.

Our 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 City, 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. We must emphasize, however, the tentative nature of this conclusion, as our analysis is based on very partial and incomplete measures of both fiscal capacity and costs, and does not yet take into account the role of intergovernmental grants.

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.

Endnotes

[1] Having a large number of small jurisdictions within a single metropolitan area does have the potential advantage 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 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 are associated with a higher degree of racial segregation, and more concentration of minorities in the central cities.

[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] In the Milwaukee metropolitan area, the correlation between poverty rates and per capita income is -.27, and between poverty rates and equalized assessed value is -.25.

[4] 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.

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