Abstract

Updated estimates of various measures of central city-suburban fiscal disparities are presented for 1987, along with previously published ACIR estimates for selected years. The estimates show that central city-suburban fiscal disparities have not changed dramatically over the past 30 years. Cross-sectional regressions estimated for four different years suggest that the explanations for the existence of fiscal disparities have not changed over time.

CENTRAL CITY-SUBURBAN FISCAL DISPARITIES

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In a pioneering empirical analysis of the fiscal problems of cities, Campbell and Sacks (1967) documented that in 1962, central city governments in a representative sample of 36 metropolitan areas spent more, raised more taxes per capita, imposed higher tax rates, and received less state aid per capita than did their surrounding suburban local governments. Campbell and Sacks argued that cities were overburdened by congestion, a heavy concentration of poor families, and suburban commuters. Their study prompted a large literature on metropolitan fiscal disparities.

Later analyses sharpened the concept of fiscal disparities and improved on the measurement, but the empirical work continued to point to the same conclusion—fiscal disparities were tipped in favor of the suburbs. By the mid-1980s, however, interest in the subject had waned on both the scholarly and policy fronts. The federal government quit producing its biennial volumes showing consolidated local government finances and employment in

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large metropolitan areas, the ACIR has not issued a fiscal disparities compilation since 1984, and there have been few fiscal disparities studies since Bradbury et al.[1] in 1984. Neither has there been a rush to create new state aid programs to compensate for central city overburden, and the metropolitan government route to reducing disparities has pretty much become a matter for the history books.

What happened to cause this decline in interest in fiscal disparities? In particular, did fiscal disparities narrow considerably in the late 1980s? We seek an answer to this question. More explicitly, in this article we discuss the concept of fiscal disparities and its measurement, provide updated estimates of fiscal disparities, and attempt to explain the changing pattern of fiscal disparities over the last two decades.

THE CONCEPT, MEASUREMENT, AND CAUSES OF FISCAL DISPARITIES

THE CONCEPT OF FISCAL DISPARITIES

To define fiscal disparities, let us assume that metropolitan areas are fragmented into n nonoverlapping local governments, and that neither tax exporting nor suburban exploitation take place. We define a resource-requirements gap, d_{ij}, for the ith jurisdiction in the jth metropolitan area as $d_{ij} = R_{ij} + F_{ij} + S_{ij} - N_{ij}$, where R_{ij} represents revenues raised from own sources by the ith jurisdiction in the jth metropolitan area from a uniform tax effort, F_{ij} is federal aid, S_{ij} is state aid, and N_{ij} represents expenditures required to produce a "standard" package of local public services, which is defined in terms of units of equal quality, not dollars. All values are expressed in per capita terms.

Variations across metropolitan areas in the value d_i for central cities describe the relative fiscal problems of urban areas, whereas variations in d_i across local governments within a metropolitan area measure the fiscal disparities problem. Fiscal disparities in this sense refer to fiscal disadvantages. Fiscal disadvantages arise because, after controlling for intergovernmental aid, some jurisdictions have to exert a higher tax effort to provide a standard package of services, or provide less service at a uniform tax effort. Fiscal disadvantages can be the result of differences in the cost of provision or in revenue bases.

The idea of a needs-resources gap has long been recognized (Campbell and Sacks 1967 and Bradbury et al. 1984).[2] Bradbury et al. pay special allocation to cost differences due to "environmental factors" outside the control of the local government. The strength of this definition of fiscal disparities is that it is more true to the idea of measuring differences in the need for assistance (e.g., for equalizing intergovernmental aid). Measuring this concept of fiscal disparities requires estimation of the cost of providing a standard package of services, and an unambiguous measurement of tax effort. Often, however, the correct cost determinants of public services are very difficult to identify. Costs, for example, are sensitive to the composition of the community, and they may vary with the type or range of services provided, and therefore with voters' preferences.

Perhaps for these reasons, most studies of fiscal disparities start by examining ex post fiscal disparities – that is, relative differences in per capita expenditures, taxes, and aid. No attempt is made to adjust the initial baseline measure of disparities for differences in need, tax effort, or preferences for public versus private goods. Most of these studies then turn to an explanation of these city-suburb differences, usually focusing on needs, resources, and environmental differences. Campbell and Sacks (1967), Sacks and Callahan (1973), and the Advisory Commission on Intergovernmental Relations (ACIR 1984) are all in this tradition.

This study is in the same tradition, and it adopts differences in per capita expenditures as the basic measure of fiscal disparity. Our interest is in both measuring and explaining city-suburb differences in fiscal disparity over the last two decades.

THE MEASUREMENT OF FISCAL DISPARITY

On the face of it, measuring city-suburb fiscal disparities as the ratio of city and suburban per capita expenditures seems straightforward. One starts with a ratio in which the numerator is per capita expenditures (or taxes) of all local governments that are coterminous with the central city area, and the denominator is per capita expenditures of all local governments that are coterminous with the outside central city area.[3] In fact, the problems of estimating this ratio are formidable, and there is no easy or wholly satisfactory way to resolve these measurement problems.[4]

The first problem is how to allocate the expenditure and taxes of local governments (counties, independent school districts, and other special districts) that are only partly coterminous with the central city. Previous studies, as well as this study, have attempted to identify the service area of each special district by relying on firsthand information and secondary sources, and allocating these areawide amounts on the basis of population in the central city and outside central city areas. This does not seem a wholly realistic assumption, but for want of a better alternative, it is made here.[5]

The second issue is the appropriate level of aggregation of the outside central city area. The tradition begun by Campbell and Sacks was to measure a disparity between the fiscal activity of all local governments in the central city and that of all local governments in the outside central city area. There are drawbacks to this approach. The outside central city area is far from homogenous and contains both rich and poor suburbs as well as a rural fringe. Moreover, as noted by MacManus (1978), neither the "central city" nor the "suburbs" are fiscal decision-making units. Nevertheless, we use the aggregate measure in this study because the alternative of estimating the fiscal behavior in the area served by each suburban jurisdiction is simply not feasible.

Third, there is the assignment problem, that is, the fact that the state-local division of responsibility for certain functions differs from state to state. However, because we are primarily concerned with city-suburb fiscal differences and with changes in these differences over time, our measure should not be biased by the assignment problem.[6]

CAUSES OF FISCAL DISPARITIES

Before we present the updated estimates of central city-suburban fiscal disparities and how these disparities have changed over the last two decades, we review briefly how earlier studies have explained trends in fiscal disparities.

Within the empirical tradition of "determinant studies," Campbell and Sacks (1967) explored the variations in per capita local government expenditures and taxes by estimating separate regression equations for the central city and outside central city areas. They found that higher-income cities and suburbs spent and taxed at significantly higher rates, and that more state and federal aid stimulated higher levels of expenditures. Interestingly, Campbell and Sacks, as well as several others (e.g., MacManus 1978), did not try to explain the disparities in these determinants between cities and suburbs. The more contemporary analysis by Bradbury et al. (1984) used a median-voter model similar to Borcherding and Deacon's (1972), except that in addition to the cost of the factors of production, the size of the public service budget depends on "environmental" cost differences outside the control of local officials. Their results show that one should expect a higher level of expenditures in central cities because costs are greater, and thus fiscal disparities are directly associated with cost disparities. In a recent paper, Schwab and Oates (1990) argue that the composition of the community should be included in the production function and that the composition of the community affects the cost of production. The cost of production, therefore, may not be entirely separable from the preferences of taxpayers. Furthermore, decentralized choice will not necessarily lead to an efficient outcome, in which case the introduction of equalizing intergovernmental grants on efficiency grounds will be justified.[7]

Costs of production and expenditure levels also are affected by economies of scale, crowding, and production inefficiencies. The first two factors were considered by Borcherding and Deacon (1972) and Bergstrom and Goodman (1973), and the third has been studied in several recent papers, such as Davis and Hayes (1991). Because it seems likely that local governments do not produce efficiently, and that the degree of inefficiency varies between city and suburb (e.g., cities may have to deal with more powerful public employee unions), this would also be a factor associated with fiscal disparities.

The exploitation hypothesis literature is the one most closely linked to the issue of fiscal disparities. Sacks and Callahan (1973) pointed out that commuters generate additional costs to the central city simply through the journey to work or shop. Brazer (1959) argued that public service requirements are (indirectly) higher in the central city because of the behavior of suburban governments and residents. For example, because of fiscal zoning and discriminatory patterns in housing and labor markets, the central city faces a concentration of socioeconomic groups that places heavy demands on central city governments. Several of the earlier determinant studies claimed to have found empirical support for the exploitation hypothesis. Brazer (1959), Hawley (1959), Campbell and Sacks (1967), and Kee (1965) all found that the smaller the central city population relative to the population of the SMSA, the higher the city's per capita expenditure. Hawley (1959) showed that expenditures per capita in the central city were more closely related to the population outside the central city than to the population within the city, and Kee (1965) sharpened this estimate by controlling for differences across states in allocations of service responsibility between state and local governments. Other researchers, including Neenan (1970), found support for the exploitation hypothesis using case studies of individual cities.

However, it is also possible that the association between higher central city expenditures and suburban population is only a part of the story and does not imply exploitation. If commuters are net contributors to the local budget, local governments may decide to provide services to attract industry and hence commuters. In the spirit of this hypothesis, Neenan's (1970) conclusion for Detroit was challenged by Auld and Cook (1972) and Ramsey (1972).

TABLE 1: Average Values of Fiscal Disparities for a Common Sample of MSAs

	Central Cities/Suburbs Fiscal Disparities				
	1957	1970	1977	1981	1987
Per capita expenditures					
Total	1.32	1.39	1.47	1.40	1.51
Education	0.77	0.86	0.95	0.90	0.91
Noneducation	2.07	2.13	2.04	1.87	2.17
Per capita taxes[a]	1.59	1.42	1.32	1.31	1.25
Per capita federal and state aid[a]					
Total	0.99	1.36	1.69	1.64	1.53
Per capita income[a]		0.91	0.87	0.83	0.82
Employment to population ratio[a]			2.05	1.79	1.60
State and federal aid as a percentage of per capita income[a]		1.58	2.06	2.12	1.98
CC per capita income[b]		3,222	5,836	7,816	11,260
OCC per capita income[b]		3,579	6,672	8,488	13,868
CC employment to population ratio[c]		0.48	0.48	0.55	0.44
OCC employment to population ratio[c]		0.24	0.24	0.28	0.27
CC state and federal per capita aid relative to income[c]		0.05	0.09	0.11	0.08
OCC state and federal per capita aid relative to income[c]		0.04	0.05	0.05	0.04

SOURCES: ACIR (1984), Bureau of the Census, and the Wharton Urban Decentralization Project Database.
a. These variables are measured as the ratio of central city to outside central city.
b. These variables are expressed in current dollars.
c. These variables correspond either to the central cities (CC) or the area in the MSA other than the central city (OCC).

UPDATED ESTIMATES OF FISCAL DISPARITIES

Our first task is to update to 1987 the measure of fiscal disparities between the central cities and their suburbs. Because we want to use the historical perspective offered by the ACIR studies, we computed disparities for 1987 for the 35 MSAs included in these earlier ACIR studies.[8] The results of this fiscal disparities calculation for 35 MSAs are presented in Table 1 along with the ACIR values for previous years. For 1987, the expenditure disparity between city and suburb was 1.51 (i.e., cities spent \$1.51 per capita for every \$1 spent by suburban governments), and it is much higher for noneducation expenditures. Suburban governments, by contrast, maintain an advantage in per capita spending for education. Although the pattern is not markedly different from that in past years, there is a trend of increasing disparities.

On the financing side, per capita taxes are about 25% higher in cities than in the suburbs, but over the past three decades there has been a decline in per capita tax revenue for the central city relative to the suburbs. However, the tax burden in the central city has increased relative to the suburbs. This may be a consequence of the slower growth in income in the central city and the pressures on the expenditure budget brought by the increasing concentration of needy families in the central city.[9]

To what extent has the federal and state aid system been structured to reduce these disparities? In 1977, central cities received $1.69 in state and federal aid for every $1 received by suburban governments. By 1987, this advantage had fallen to $1.53. This change is due to the phasing out of the big urban federal aid programs, and to the fact that state governments have not offset this decline.

Surprisingly, this story about city and suburban fiscal disparities holds across all regions, though there is some variation in disparity, as shown in Table 2. Disparities in total expenditure per capita are more pronounced for the northeastern and midwestern MSAs than for those in the south and west. Disparities in total expenditure per capita between the central city and the suburbs in 1987 are 35% higher in the northeast than in the west. The regional gap in disparities is much more pronounced for noneducation expenditure. Central cities in the northeast spend 70% more for noneducation services vis-à-vis their suburbs than do central cities in the west, whereas cities in the midwest and south spend close to twice as much as do their suburbs.

Although central cities in the four regions have on average higher taxes per capita than their suburbs, the largest disparity takes place in the south, where per capita taxes in the central city are 43% higher than in the suburbs. The smallest disparity is in the midwest, where central cities have only 11% higher per capita taxes than their suburbs. Without exception, central cities also receive higher per capita federal and state aid than their suburbs, with the disparities in aid highest in the east.

DETERMINANTS OF DISPARITIES OVER TIME

This section identifies the main determinants of central city-suburb disparities and studies the impact of these determinants on changes in fiscal disparities over the last two decades. The dependent variable measures the disparity in per capita total expenditures between the central city and the suburbs. The theory of local public finance tells us that metropolitan fiscal disparities between the central city and suburban governments are likely to

TABLE 2: Fiscal Disparities by Region: 1987

	East	Midwest	South	West	Total
Per capita expenditures					
Total	1.73	1.49	1.44	1.28	1.51
Education	0.93	0.91	0.94	0.86	0.91
Noneducation	2.76	2.08	1.98	1.62	2.17
Per capita taxes	1.32	1.11	1.43	1.15	1.25
Per capita federal and state aid	1.87	1.66	1.28	1.04	1.53

List of MSAs and 1987 Per Capita Total Expenditure Disparity

East		Midwest		South		West	
Washington, DC	3.34	Chicago	1.59	Miami	1.19	Los Angeles	1.38
Baltimore	1.49	Indianapolis	1.23	Tampa	1.57	San Diego	0.90
Boston	1.66	Detroit	1.41	Atlanta	2.39	San Francisco	1.32
Newark	1.57	Minneapolis	1.79	Louisville	1.69	Denver	1.32
Buffalo	1.32	Kansas City	1.05	New Orleans	1.12	Portland	1.35
New York	1.91	St. Louis	1.77	Dallas	0.95	Seattle	1.41
Rochester	1.39	Cincinnati	2.14	Houston	1.00		
Philadelphia	1.51	Cleveland	1.31	San Antonio	1.64		
Pittsburgh	1.98	Columbus	1.22				
Providence	1.16	Dayton	1.77				
		Milwaukee	1.17				

TABLE 3: **Regressions for Total Expenditure Per Capita Disparities Between the Central City and OCC: 1970, 1977, 1981, 1987**[a,b]

	1970	*1977*	*1981*	*1987*
CC average family income	0.76	0.71	0.76	0.79
	(2.50)	(2.31)	(2.50)	(2.42)
OCC average family income	−0.51	−0.87	−0.51	0.40
	(1.33)	(1.98)	(1.33)	(0.98)
CC employment to population[c]	0.13	0.26	0.13	0.09
	(1.40)	(2.64)	(1.40)	(0.83)
OCC employment to population[c]	−0.18	−0.03	−0.18	−0.23
	(3.54)	(0.66)	(3.55)	(3.01)
CC per capita aid to average family income	0.44	0.46	0.44	0.36
	(4.48)	(4.74)	(4.49)	(3.61)
OCC per capita aid to average family income	−0.37	−0.48	−0.37	−0.31
	(3.25)	(4.08)	(3.25)	(2.38)
Constant	−2.05	1.55	−1.99	−11.1
	(1.02)	(0.52)	(0.78)	(3.05)
Adjusted R^2	0.65	0.50	0.53	0.51
F statistic	11.41	6.77	7.32	6.88

NOTE: Absolute values of *t* statistics, number of observations: 35 in all four equations.
a. All variables are in logarithms.
b. The dependent variable is the log of the ratio of per capita expenditure in the CC to expenditure per capita in the OCC.
c. The 1970 regression uses values from 1976 for these two variables.

arise from disparities in the capacity to finance, the economic interdependency of the city and the suburbs, environmental factors affecting costs of production, the efficiency with which services are delivered, and the underlying demand for government versus private services.

The regression results presented in Table 3 correspond to a double-log specification that performed consistently better than a linear and semi-log specification. Alternative specifications of the explanatory factors were tried in the regressions. Three groups of explanatory variables, for both central city and suburbs, systematically performed well and were kept in the final run. These variables were per capita income, the employment (establishment-based) to population ratio, and federal and state aid relative to per capita income.[10] Each of the variables was entered separately, for the central city (CC) and the other than the central city (OCC), rather than as ratios to allow for a differential response of the fiscal disparities to the source of change.

Other variables that were tried in the regressions included other demand factors such as population and a cost-of-living index, and proxies for different levels of efficiency for central city and suburban governments, such as the total number of governmental units in the metropolitan area and a dummy variable for whether the central city also was the state capital. The central city and the surrounding governments in each metropolitan area were assumed to draw inputs from the same markets, and thus the prices of labor, capital, and other inputs they faced were assumed to be the same. Among the environmental variables we tried were the relative incidence of violent (and nonviolent) crimes in the central city and outside central city, the relative importance of minority (black) population, the relative importance of elderly (over 65) population, the relative importance of population without a high school diploma, age of housing, and several indices of distress and quality of living. The lack of significance of most of these environmental variables gives support to the conjecture that state and federal aid may be effective in neutralizing the impact of environmental variables on expenditure per capita disparities between the central city and the suburbs.

The results reported in Table 3 for the most part conform to prior expectations about sign, and often they are statistically significant. The ratio of per capita expenditures in the central city to that in the suburbs increases (decreases) with the average family income in the city (suburbs), the ratio of employment to population in the city (suburbs), and the relative importance of state and local aid in the city (suburbs). For some of the years, disparities in per capita expenditures responded differently to city and suburban changes in per capita income and the ratio of employment to population. The response of disparities to changes in intergovernmental aid relative to income was very similar for both central city and suburbs. To interpret the coefficients, note that, for example, a 10% increase in average family income in the central city in 1981 would have increased the CC/OCC ratio for per capita expenditures by 7.1%, whereas an identical increase of 10% in average family income in the suburbs would have decreased the ratio by 5.3%. The net effect of a combined increase in average family income of 10% would have been a net increase in the CC/OCC ratio of 1.8%.

Our main interest in the results in Table 3 is from a historical perspective. The identifiable set of determinants of fiscal disparities has remained basically the same over the period of 17 years covered. In a post-aid world, central city-suburban disparities vary systematically with resources available, either own resources (per capita income) or external resources (aid and services demanded by nonresidents). To judge from the estimated coefficients reported in Table 3, the marginal impacts of relative changes in income, employment, and aid on fiscal disparities have been fairly constant over time.

The overall changes in disparities in per capita total expenditures – the first row of Table 1 – are more related to changes in resources available to central cities and suburbs.

The sample mean values for per capita income, employment to population, and aid are reported in the bottom half of Table 1. The disparity in aid increased in favor of the central cities through 1977 but declined in both 1981 and 1987. The disparities in per capita income have become slightly more pronounced against the central cities over the entire sample period. The advantage in the employment to population ratio held by central cities vis-à-vis the suburbs, with a disparity ratio of 2.05 in 1970, had decreased to 1.60 by 1987.

SUMMARY AND CONCLUSION

This article reviewed the conceptual and measurement problems surrounding the issue of fiscal disparities between the central city and the suburbs, and the explanations given in the literature for the existence of the disparities. We also updated to 1987 the ACIR measurements of central city-suburbs fiscal disparities for 35 large MSAs.

On average, fiscal disparities between central cities and their suburbs in a sample of 35 MSAs do not look much different in 1987 than they did 20 or even 30 years ago. Empirically, we find that a good portion of intermetropolitan variations in fiscal disparities can be consistently explained by differences in the communities' own resources, as proxied by per capita income, by differences in state and federal aid, and by how much of the jurisdiction services are demanded by nonresidents, as proxied by the employment to population ratio. In a post-aid world, differences in socioeconomic characteristics do not appear to play a significant role in explaining central city-suburban fiscal disparities.

NOTES

1. The most notable is Ladd and Yinger's (1989) comprehensive study.
2. The Bradbury et al. paper is really not about fiscal disparities in metropolitan areas but about disparities among communities in Massachusetts. However, because a needs-resources gap is calculated for each community, their approach could be used to measure fiscal disparities within metropolitan areas.

3. We use the terms suburban, suburbs, and outside central city area as interchangeable.

4. The father of metropolitan fiscal disparities measurement is Seymour Sacks. Because we want to explain variations over time, and to produce an updated series consistent with his estimates for 1977 and 1981, we have attempted to follow his methodology in allocating expenditures between central cities and suburbs. He has provided us much useful guidance.

5. An appendix that describes the methodology followed in this article is available from the authors on request.

6. In the case of city-suburb differences, the assignment problem should wash out. In the case of changes in fiscal disparities, the assignment problem arises only if there have been significant changes in the division of responsibility between the state and its local governments. Clearly, some changes have come in the area of state assumption of welfare financing. However, between 1967 and 1987, the direct expenditure share of state governments in total state and local government expenditures rose only from 44.3% to 45.8%. This is at least indirect evidence that there have not been major shifts in the assignment of responsibilities between states and their local governments.

7. The effect of community composition is related to the literature on peer group effects in the production of education.

8. Two cities, Patterson, New Jersey, and San Bernardino, California, in the ACIR (1984) list were omitted because of missing data. The list of MSAs is provided in Table 2.

9. Of course, if the central city can export a greater share of its taxes than can the suburban governments, then this ratio overstates the relative disadvantage of the central city.

10. State and federal aid are to some extent determined by the level of expenditures in the jurisdiction. The simultaneous determination of aid and expenditures requires the use of a two-stage least square (TSLS) estimation. When the equations were estimated using TSLS, the results were very similar to the ordinary least square results reported here.

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