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# Nonmetropolitan Fiscal Indicators: A Review of the Literature

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NONMETROPOLITAN FISCAL INDICATORS: A REVIEW OF THE LITERATURE.  
By Richard J. Reeder, Economic Development Division, Economic  
Research Service, U.S. Department of Agriculture. January 1984.  
ERS Staff Report No. AGES 830908.

ABSTRACT

Fiscal indicators are important to rural development because they identify the nature and severity of local government fiscal stress in nonmetropolitan areas. This report discusses the state of the art of rural fiscal indicators by comparing rural and urban indicator studies. Although they have certain fundamental characteristics in common, rural and urban studies emphasize different types of fiscal difficulties. Substantial data and statistical problems limit rural fiscal indicator research. Nevertheless, rural fiscal studies appear to be catching up to the level of urban fiscal indicator analysis.

Keywords: Rural development, local government, fiscal indicators, rural areas, urban areas, public finance, literature review, fiscal stress.

ACKNOWLEDGMENTS

The author thanks J. Norman Reid for his encouragement, and Patrick J. Sullivan, Thomas F. Stinson, and Beth Walter Honadle for their comments. A. Louise Marshall, Deborah Acors, and Pat Saunders typed the several drafts of this report.

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## PREFACE

Because of growing concerns about the fiscal health of local governments, local fiscal indicators have become the subject of much recent research. This report reviews that research. Although rural research is emphasized, some of the most significant studies covering urban and State government fiscal indicators are discussed to provide perspective.

The Agriculture Department's interest in this topic stems from the Rural Development Act of 1972, which entrusted the Secretary with the responsibility to advise the President and the Congress on policies promoting improved rural living conditions. The Department's rural development strategy calls for strengthening the State and local government role in rural development. If some rural States and localities encounter fiscal difficulty, however, their future rural development efforts may diminish. Because fiscal indicators can be used to identify emerging local government needs and capabilities, rural fiscal indicators could play a role in the design and implementation of Federal rural development policy.

The report has four sections. The first section discusses the various types of fiscal indicators, their development, and their public policy importance. The remaining three sections review the research for three types of indicator analyses: comparative stress, effort and capacity, and fiscal trends. Each section includes a general discussion, including the strengths and weaknesses of the indicator analysis, examples from State and municipal government studies, and applications to nonmetropolitan areas.

## SUMMARY

Theories and measures of rural fiscal well-being are generally not as well developed as those for large cities and States. This is understandable because urban fiscal problems have always attracted much more attention from public finance researchers. Rural fiscal indicators have to catch up with the state of the art of urban indicators.

A chief difficulty encountered in rural fiscal indicator studies is the lack of accurate, timely, and readily available fiscal data for rural local governments. Consequently, rural fiscal studies must either ignore important fiscal indicators or settle for less reliable, proxy measures. Besides the data problem, describing and quantifying overall conditions in rural America is difficult due to the large number and great diversity of small, rural localities.

Despite these problems, rural fiscal studies provide useful insights into the unique problems and processes of rural governments. Nowhere is this more clear than in the literature on interlocal stress comparisons. Most urban stress studies emphasize the importance of such factors as high tax burdens, declining tax bases, aging housing, public infrastructure

maintenance costs, declining manufacturing employment, city-suburb fiscal disparities, and political factors. In contrast, rural stress studies emphasize fiscal problems related to rapid population growth and decline, poverty and public service need, the diseconomies of providing public services in sparsely populated areas, and inadequate financial management and planning capabilities of rural governments.

Fiscal effort, capacity, and trend analyses are among the most promising areas for future rural government research. From the Federal and State policy perspective, effort and capacity indicators are important because they are used to judge the need for Federal and State assistance to local governments. Recent rural fiscal research emphasizes the need to employ comprehensive effort and capacity measures which reflect the unique characteristics of rural governments. Empirical work in this area has just begun, however. Because application of such measures to Federal and State aid programs appears likely in the future, continued progress is anticipated in this field of rural fiscal indicator research.

Fiscal trend indicators are important not only for Federal and State government policies, but also for local government fiscal policy. At the Federal Government level, recent rural research has concentrated on long-term national and regional trends associated with the revival of rural population growth and its general fiscal implications. For State and local governments, however, interest is focused primarily on monitoring medium- and short-term trends for individual local governments. Recent work by the Municipal Finance Officers Association and the International City Management Association has provided governments with a systematic framework for monitoring important financial trends. These new monitoring systems are well suited to the needs of small, rural governments. As rural governments begin experimenting with financial monitoring systems, one can expect that further developments will be made in these systems, and that useful insights will be gained about rural government fiscal processes.

NONMETROPOLITAN FISCAL INDICATORS: A REVIEW OF THE LITERATURE.  
By Richard J. Reeder.

INTRODUCTION

Faced with slow economic growth and high inflation and unemployment, local governments over the last decade have been forced to raise taxes, reduce services, and postpone capital improvements. Structural and demographic factors have added to the fiscal problems of local governments. The Nation's aging central cities have suffered a combination of declining tax bases, rising infrastructure maintenance costs, and high tax burdens. In addition, fiscal concerns affect many growing nonmetropolitan communities whose public sector needs have grown faster than their revenue sources.

The dramatic increase in Federal and State aid to local governments may have temporarily averted severe fiscal crises for many distressed communities in the seventies, but the prospect is not good for a similar solution to local fiscal needs in the eighties. Taxpayers reacting to the high cost of government have united to place new, restrictive tax and expenditure limitations on State and local governments. Substantial cuts in some kinds of Federal aid are also expected. It is widely believed that local governments are overly dependent on intergovernmental aid and will suffer major fiscal difficulties if this aid is withdrawn.

This report examines recent research on fiscal conditions of local governments, with special emphasis on fiscal indicators which have been designed for, or applied to, nonmetropolitan communities. Fiscal indicators are important not only for monitoring local fiscal conditions but also for formulating policies which prevent or remedy fiscal difficulties. Some fiscal indicators, such as local tax effort, have generated a good deal of research because of their use in targeting intergovernmental aid to fiscally distressed communities. The nonmetropolitan focus of this report contrasts with other reviews which have dealt specifically with "urban" stress indicators or have been unconcerned with applications of urban indicators to nonmetropolitan areas (2). <sup>1/</sup> Because nonmetropolitan governments, like urban governments, are susceptible to fiscal stress, there is a need to examine the recent literature on fiscal indicators, including the urban stress literature, to shed light on indicators which are applicable to small towns and rural communities.

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<sup>1/</sup> Underscored numbers in parentheses refer to items in the References Cited section at the end of this report.



Interest in  
Rural Fiscal  
Indicators

Most local fiscal analysis has concentrated on metropolitan areas. This is understandable since metropolitan areas contain three-quarters of the Nation's population. They have experienced many diverse and profound changes over the last 50 years. Metropolitan areas have been most challenging as subjects of analysis, given the magnitude of urban to suburban migration, racial conflicts, pollution, deterioration of urban infrastructure and industrial capacity, and growth of public services and taxes.

Rural areas have recently received much attention from fiscal analysts. The long-term population decline and fiscal retrenchment of rural communities had been long recognized as a serious problem. By the midsixties, the extensive rural poverty and urban-rural inequalities were extensive, and urban fiscal analysts blamed developing urban problems on the migration of rural poverty victims into the cities. Interest in revenue sharing and rural development policies, first advocated as a means of mitigating urban problems, stimulated study of various indicators of socioeconomic and fiscal well-being.

Collection and analysis of fiscal indicator data have been closely related with equalizing intergovernmental aid policies. At the Federal level, General Revenue Sharing (GRS) became a principal Federal policy approach toward aiding localities having general fiscal need. The GRS program stimulated research into measures of overall fiscal need for metropolitan and nonmetropolitan governments. In addition, GRS necessitated the beginning of annual data collection on tax and income levels for all local jurisdictions. A number of States have also created equalizing State-local aid policies designed to assist local governments having fiscal need. An added ingredient at the State level is the role played by the courts; their stands on the constitutionality of unequal educational opportunities arising from urban-rural disparities in fiscal resources have furthered the research on rural fiscal conditions. This has led to the development of various equalization formulas incorporating local fiscal indicators of tax capacity or tax effort.

Since the establishment of the GRS program, congressional support for general fiscal assistance has declined, in favor of new block grant programs to aid jurisdictions experiencing specific kinds of distress. Comprehensive Employment and Training (CETA), Community Development Block Grants (CDBG), Local Public Works (LPW), and Anti-Recession Fiscal Assistance (ARFA) are examples of assistance programs which addressed specific problems using formulas to target funds to jurisdictions with special needs.

The Federal policy shift toward such specific assistance programs has led to better knowledge about socioeconomic and institutional factors affecting nonmetropolitan area fiscal conditions. For example, when ARFA began distributing counter-cyclical aid to local governments, existing unemployment data

for small, nonmetropolitan areas were characterized as little better than random numbers. Improved estimating techniques have been adopted as a consequence and the employment and unemployment concepts applied to nonmetropolitan areas have been thoroughly reviewed (51, p. 95, 41, 42).

The U.S. Department of Agriculture has contributed numerous reports covering such socioeconomic factors as population growth, migration of firms, housing credit, and employment and unemployment. Particularly relevant is a recent study on socioeconomic indicators of rural well-being (50). Also relevant to nonmetropolitan areas is a Department of Housing and Urban Development study related to the CDBG Small Cities Program (65). This HUD study examines community development indicators, such as availability of housing, condition of local government infrastructure and community facilities, and organizational structure of local decisionmaking units. These factors affect the local fiscal process and hence are considered important fiscal indicators.

Additional research on nonmetropolitan fiscal indicators is due to renewed Federal and State interest in financial trends of local governments. Widespread local financial difficulties were experienced during the 1975 recession and recovery period, prompting Federal and State governments to consider ways to monitor local government financial trends so that such difficulties may be detected early. As a result, various analytical methods have been developed to monitor local government fiscal indicators (28, 49). This research is aimed at both large and small cities, so it should increase our knowledge of nonmetropolitan fiscal conditions.

Much of the current interest in rural fiscal indicators stems from the resurgence of economic diversification and demographic growth these areas experienced in the seventies. The growth of manufacturing and service industries in nonmetropolitan areas has made rural America a more important part of the national economy; agriculture is only one of many industries for most nonmetropolitan areas. Tourism and recreation have added an extra dimension to some rural economies. Other nonmetropolitan areas near growing SMSA's (Standard Metropolitan Statistical Areas) have benefited from extensive "ex-urban" development. Another significant economic change was the energy resource boom which gave rise to boomtown conditions in many nonmetropolitan areas. Meanwhile, the demographic shift in the seventies brought into nonmetropolitan areas valuable, young workers and entrepreneurs, adding to the supply of rural labor and human capital. An influx of retirees, many of whom bring their accumulated wealth and stable income source with them, has changed the economies of many rural places. There is a good deal of speculation and controversy over the cause of such shifts, but their effects are dramatic, and efforts to measure and predict them have resulted in increased study of rural government fiscal conditions.

From the policy point of view, this increasing diversity and growth of nonmetropolitan America requires reformulation of rural policy goals and programs. Anti-poverty development programs may need to be increasingly targeted to those areas which still have declining economies and populations. Meanwhile, policymakers may want to treat nonmetropolitan areas now demonstrating economic improvement according to their diverse fiscal needs and development potentials. Such policy reformulation requires comprehensive information on the fiscal conditions of various types of nonmetropolitan governments.

There is a growing consensus that solutions to fiscal and development problems require more State and local policy input and that Federal aid and involvement in local finances will probably decline in relative importance. Facing large budget deficits, Federal officials emphasize self-help policies, such as improved local financial management, and State planning agency involvement in Federal development efforts. Since the New York City fiscal crisis of the midseventies the Federal Government has steadfastly avoided direct intervention in local fiscal crises. The Federal Government has conducted surveys of local fiscal developments in general, and it has funded various studies to improve local data availability and analysis. Most of the studies cited in this review were federally funded and address these issues. Some federally funded studies have been specifically designed to help States and localities to monitor their own developments (28, 29). Improved State and local monitoring and analyzing of local finances would benefit our knowledge of nonmetropolitan fiscal conditions.

Types of Fiscal  
Indicators  
Examined

Fiscal indicators may be separated into three major types: comparative stress, effort and capacity, and fiscal trends. Comparative stress indicators usually concern one or more aspects of fiscal stress. Sometimes they explicitly identify underlying factors responsible for fiscal stress, such as economic, social, or political stress. These stress indicators are used to compare and contrast fiscal conditions among States or localities. They are important not only for their diagnostic, informational value, but also for their use in targeting Federal funds. Unemployment rates, for example, are simple comparative stress indicators used to target public works, employment, and anti-recession assistance. Other comparative stress indicators are more complicated, such as the multi-factor indicators used in distributing Federal community development aid.

The most sophisticated comparative stress studies use fiscal indicators to identify the various sources or causes of fiscal stress, but these studies tend to focus on large- and medium-sized cities. Some recent progress has been made in extending stress comparisons to small cities in rural areas. This paper reviews several urban stress studies which demonstrate the current state of the art for comparative stress analysis and includes a review of recent applications to rural areas.

Effort and capacity measures are closely related: both are usually used to gauge overall fiscal conditions rather than specific aspects of fiscal conditions. They are particularly important for their use in targeting Federal and State revenue sharing funds. Hence, they are considered separately from other fiscal stress measures in this study. Capacity indicators represent a government's potential for raising revenues or providing public goods and services. Effort indicators represent the actual extent to which a community makes use of its available capacity. The most widely recognized fiscal indicator is simple tax effort, local taxes divided by local income, where income represents the capacity measure, and actual taxes represent utilization of capacity.

Fiscal trend indicators add a dynamic dimension to interlocal fiscal stress comparisons. Interlocal comparisons of dynamic fiscal trends may substitute for interlocal static comparisons. Fiscal trend analysis is favored by some analysts because it avoids some of the vexing problems encountered in making static comparisons across communities. Recent work has focused on devising fiscal trend monitoring systems which can be used readily by small units of government in urban and rural areas. Hence, fiscal trend monitoring indicators are considered separately from other fiscal stress indicators in this study.

## COMPARATIVE STRESS

This section is divided into three parts. First, comparative stress is discussed in terms of social, economic, and fiscal factors following a Congressional Budget Office (CBO) report on city needs (13). The second part discusses two studies which attempt to explain fiscal stress comparisons in terms of a model or theory of fiscal stress: Terry Clark's "How Many New Yorks? -New York Fiscal Crisis in Comparative Perspective" (10) and Touche Ross and Company's Urban Fiscal Stress--A Comparative Analysis of 66 U.S. Cities (57). These studies help illuminate relationships between many of the indicators identified in the CBO study. They also reveal the potential pitfalls of simple comparisons. The indicators and analyses developed in the CBO, Clark, and Touche Ross studies concern the fiscal problems of the Nation's cities. The last part of this section discusses nonmetropolitan applications.

### Social, Economic, and Fiscal Indicators

Many of kinds of comparative stress indicators exist, so many that it is useful to classify them. One of the better typologies is found in a Congressional Budget Office (CBO) report by Cuciti (13). While noting that "any classification of urban problems is somewhat arbitrary," Cuciti generates three composite need (or stress) indices--social need, economic need, and fiscal need--for 45 large cities (table 1). Composite indices are computed by averaging several individual indicators of need and normalizing them to have equal importance in the composite measure (13, p. 81).

Table 1--CBO indicators

City	: Social need		: Economic need		: Fiscal need	
	: Score	: Rank	: Score	: Rank	: Score	: Rank
Northeast:						
Albany	NA	NA	59	21	28	28
Boston	45	15	74	8	72	2
Buffalo	61	6	77	5	44	13
Jersey City	48	13	78	3	47	8
Newark	100	1	84	1	65	4
New York	41	21	80	2	67	3
Patterson	NA	NA	72	9	45	12
Philadelphia	49	12	70	12	53	6
Pittsburgh	43	20	71	10	37	18
Rochester	44	19	70	11	36	19
Midwest:						
Akron	37	25	64	17	27	29
Chicago	46	16	76	6	NA	NA
Cincinnati	45	17	65	16	44	14
Cleveland	67	2	78	4	42	16
Columbus	34	26	51	28	28	26
Detroit	62	4	66	15	46	9
Gary	58	8	58	22	31	24
Indianapolis	21	35	37	37	22	32
Kansas City	29	30	56	24	NA	NA
Milwaukee	37	23	64	18	NA	NA
Minneapolis	20	37	62	20	23	31
Oklahoma City	30	29	34	39	NA	NA
St. Louis	64	3	74	7	61	5
South:						
Atlanta	47	14	45	30	NA	NA
Baltimore	55	9	63	19	52	7
Birmingham	51	11	45	31	46	10
Dallas	11	39	35	38	NA	NA
El Paso	NA	NA	30	41	34	21
Houston	21	34	26	43	NA	NA
Louisville	45	18	51	27	35	20
Miami	60	7	42	34	31	23
New Orleans	61	5	53	26	45	11
Norfolk	30	28	40	36	44	15
Tampa	51	10	29	42	29	25
Washington, D.C.	NA	NA	54	25	84	1
West:						
Anaheim	NA	NA	31	40	10	38
Denver	20	36	41	35	33	22
Los Angeles	27	31	57	23	18	34
Phoenix	24	32	16	45	18	33
Sacramento	40	22	43	33	24	30
San Bernardino	NA	NA	49	29	28	27
San Diego	30	27	43	32	17	35
San Jose	37	24	24	44	12	37
San Francisco	22	33	68	13	39	17
Seattle	16	38	66	14	13	36

NA - not available.

Source: (13, p. 53).

Social need. Social need indicators can be viewed as measuring the intrinsic needs of a community: needs for employment, income, housing, food, safety, and so on. Social needs affect fiscal conditions because they give rise to demands for public services or imply weaknesses in city revenue bases. Four indicators were averaged to create the composite measure of social need.

The CBO study identifies two specific indicators of social need: per capita income and unemployment. Cities with high per capita income and low unemployment levels are expected to have relatively plentiful tax bases which ease fiscal strain. Conversely, low income and high unemployment imply tax base deficiency and relatively large demands for social-welfare expenditures which add to fiscal strain.

Two comprehensive measures of social need are included in CBO's composite social need index: the inter-city hardship index and the intra-metropolitan disparity index, both developed by Nathan and Adams (40). The inter-city index combines six individual indicators: per capita income, unemployment rate, poverty, dependent population, education levels, and crowded housing. Cities ranking high on the inter-city index can be expected to suffer from inadequate resource capacity and relatively high demands for public services.

The intra-metropolitan index measures the ratio of a central city's social needs to the needs of its surrounding suburbs. City-suburb ratios for each of the six variables included in the inter-city index are combined to obtain the intra-metropolitan disparity index. Disparity between a city and its suburbs is thought to be associated with migration from cities to suburbs. Many cities which are fiscally hardpressed today have experienced substantial suburbanization in the past. Fiscal problems are exacerbated when a declining city cannot annex the growing tax bases of its suburbs to maintain sufficient tax bases. City-suburb disparities can have a snowball effect if cities faced with declining tax bases rely on tax rate increases to balance their budgets, because tax increases may cause additional individuals and businesses to leave the city for the suburbs. Thus, the presence of suburbs which are better off than the city may restrict the city's policy options for solving its fiscal problems.

Economic need. The CBO indicators of economic need are related to the problems of economic decline. Several of these indicators are expressed as changes over time--including change in population, income, and employment--reflecting the view that economic decline or stagnation is associated with urban fiscal stress. The CBO economic need index includes these change indicators, plus two additional indicators: population density and age of housing stock.

High population density is associated with economic costs of pollution and congestion. Population density also gains

significance from theories which credit increasing demands for low density life styles with the city-suburb migration phenomenon. The age of housing indicator reflects the view that older cities are suffering from structural economic decay and fiscal stress associated with high cost of capital maintenance.

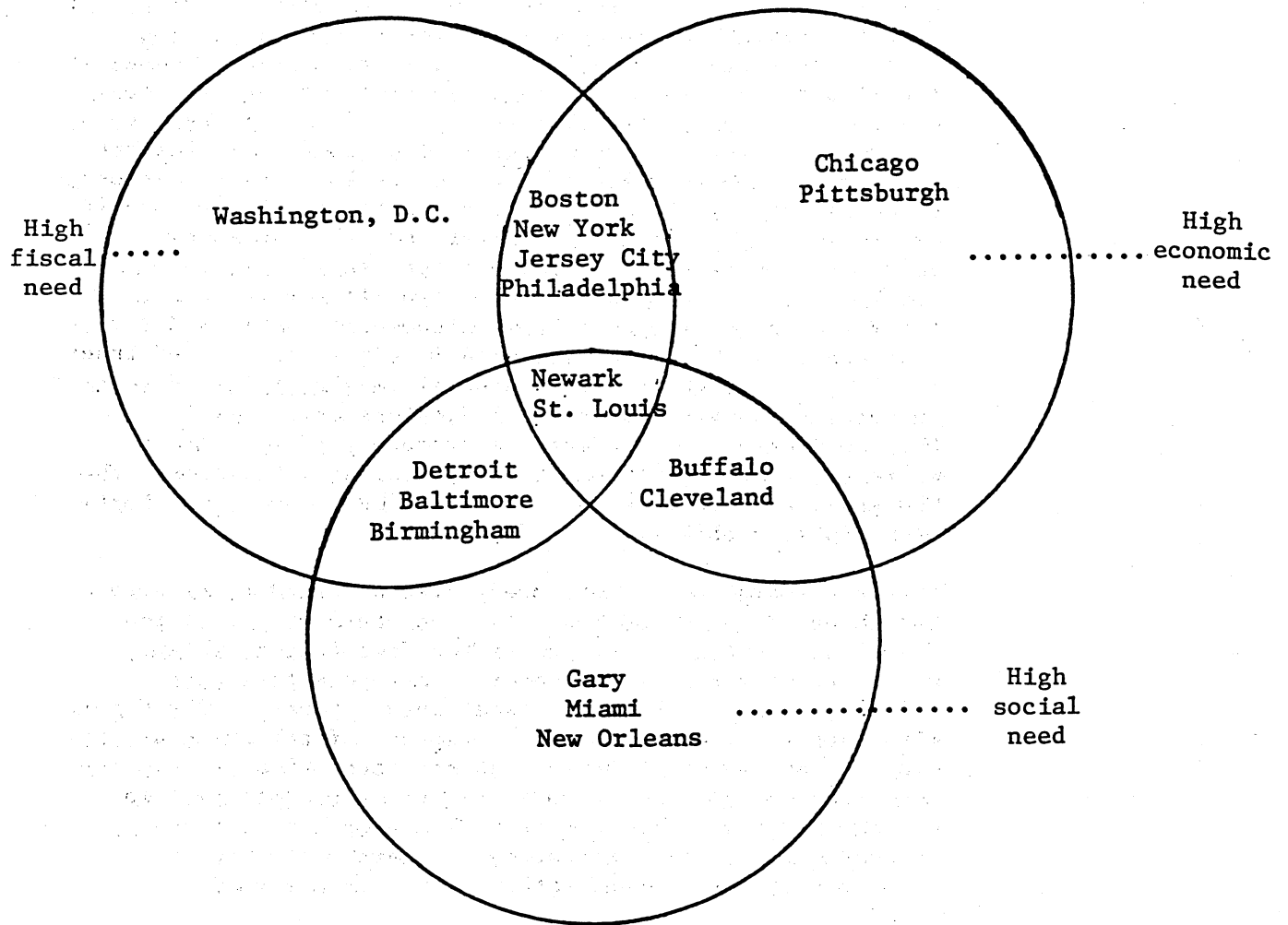
Fiscal need. The CBO study separates fiscal need indicators into two categories--long-term financial imbalances and short-term financial imbalances. The CBO composite index of fiscal need uses four long-term factors: tax effort (taxes divided by income), fiscal capacity (assessed property value per capita), and two HUD measures of community development need. The community need indicators are based on 13 socio-economic factors, similar to those described in the CBO social and economic needs indices, except that the community needs are expressed in relation to per capita income and tax levels. Hence, CBO uses the term "financial imbalance" for a long-term imbalance between community needs and fiscal resources. Although not included in CBO's "composite" index of fiscal need, short-term financial imbalances are discussed in terms of several financial indicators developed by Phillip Dearborn, which measure frequency of government deficits, accumulated budget surpluses, and liquidity. The CBO study also relates tax effort and debt burden to short-term fiscal stability.

Figure 1 shows the 10 most needy cities ranked under each of the three CBO need indices. The long-term nature of the fiscal need index is evident in the fact that Cleveland, which recently suffered a severe short-term financial crisis, is not in the high fiscal need category. The figure also reveals some controversial aspects of the CBO classification. For example, Detroit is not rated high in economic need even though Detroit ranks second on unemployment in the sample of 45 large cities. This apparent discrepancy is caused by the classification of unemployment as an indicator of social need rather than economic need.

Although one may differ with some of the findings, this study provides a good starting point for the study of local government fiscal indicators. Besides developing composite indicators of need, the report provides a good discussion of alternative measures and the data and measurement problems considered in selecting the indicators. The practical value of constructing composite indicators of different types of stress is demonstrated in the second part of the CBO report where various Federal programs are evaluated in relation to the composite indicators of need.

One of the most interesting findings of the CBO study is that almost every city classified as high in long-term fiscal need was also high in economic or social stress. The only exception was Washington, D.C., which ranks high on fiscal stress because it performs both city and State

Figure 1--Overlap between cities with high social, economic, and fiscal need



Source: (13, p. 52).



functions and therefore scores abnormally high on tax effort indicators. Ignoring this exception, one may conclude that, for big cities, long-term fiscal problems are closely related to social and economic factors, especially economic decline. Not all cities suffering from high economic or social stress, however, face high long-term fiscal stress. To understand better this relationship between socioeconomic and fiscal stress, it is necessary to formulate and test theories of fiscal stress and its causes.

### Fiscal Stress Theories

The relationship between socioeconomic factors and fiscal stress lies at the heart of the theory of fiscal stress and its causes. Some studies have emphasized modeling to better understand and interpret comparative fiscal stress indicators. Empirical estimates based on such models are used to isolate avoidable stress from unavoidable stress which is related to socioeconomic conditions beyond the municipality's fiscal control. For policy reasons, this is an important area of fiscal indicator research. Proponents of aid to fiscally distressed governments do not wish to reward those who through mismanagement or excess have brought about their own fiscal problems. This information also directs the attention of local public officials and voters to the sources of their government's fiscal problems and tells them what is avoidable and what is not. Two studies deserve attention here: (10, 57). Both studies rest on the premise that fiscal stress comparisons are only meaningful if one understands the causes of fiscal stress, and the extent to which fiscal stress is determined by underlying economic and social variables.

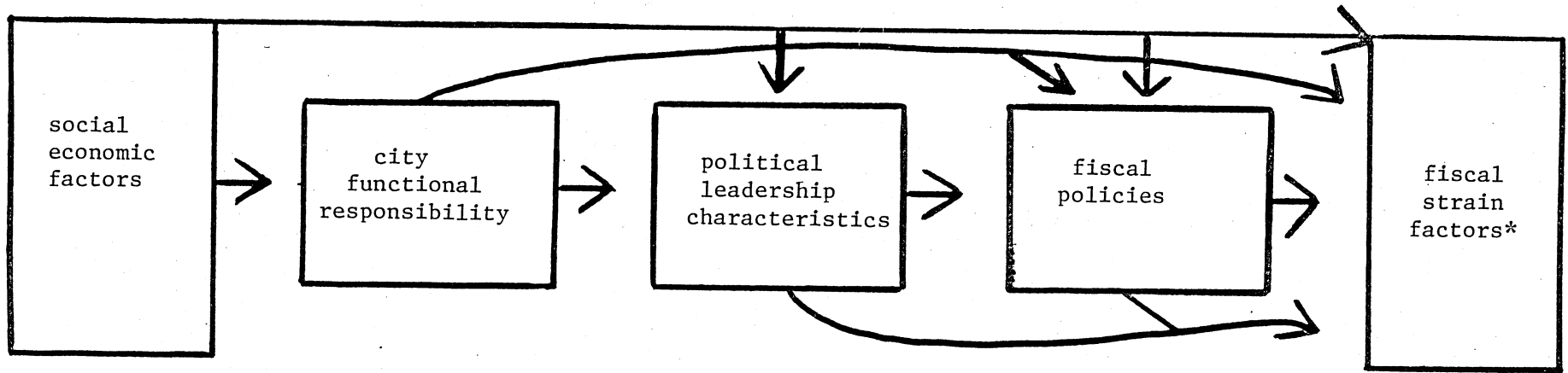
The Clark study (10) uses several highly quantitative methods for comparing fiscal stress among 51 cities. Factor analysis is used to identify four basic indicators of fiscal strain: long-term debt per capita, short-term debt per capita, expenditures per capita, and the ratio of own source revenues to taxable property value. Path analysis is used to demonstrate how various socioeconomic, functional, political, and policy factors interact to create fiscal stress. Regression analysis is employed to measure the relative importance of these factors upon fiscal stress.

One of Clark's contributions to the fiscal stress literature is his specification of political leadership factors. Drawing on a sample of 62 cities for which survey data exist on political values and activities, Clark is able to show how political leadership and local fiscal policy affect fiscal stress. He also relates political leadership back to underlying socioeconomic factors.

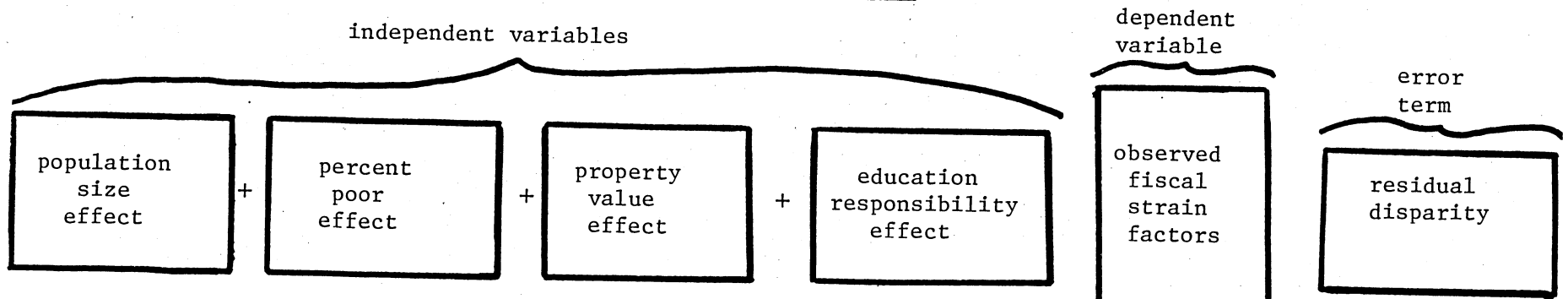
Hence, Clark's political leadership and policy factors are important intermediaries in the process which results in fiscal strain (fig.2). The political leadership variables

Figure 2--Simplified models of Clark study

Path Analysis



Regression Analysis\*\*



\* Fiscal strain factors consist of per capita long-term debt, per capita expenditures (various functions), per capita short-term debt, and revenue effort.

\*\* Cross-section regression estimated for each fiscal strain factor.

Source: (10, pp. 4c, E-2).

singled out in the study include strength of mayors, influence of businessmen, unionization of public employees, "overstaffing" of public employees, and percentage of levied taxes collected. Each of these five factors is correlated significantly with Clark's four indicators of fiscal strain; strong mayors, weak businessmen, unionization, overstaffing, and low tax collection rates are found to be associated with high fiscal stress. Path analysis reveals that a composite index of these leadership factors is related especially to capital expenditures policies, which in turn are closely related to the fiscal strain indicators.

Clark's handling of socioeconomic indicators produced some interesting findings. For example, the percentage of Irish residents was found to be a statistically significant indicator of urban fiscal stress. The theory behind this is that, historically the Irish have been leaders in social and political activities, and in "adding supporters to municipal payrolls," thereby adding to fiscal stress.

The effects of other socioeconomic indicators, such as population, poverty, and tax base, are identified in Clark's regression analyses. Multiple regressions are performed on a cross-section of 51 cities to explain city fiscal strain variations attributable to population size, taxable property value, percent poor, and city responsibility for education. Four regressions are estimated, one for each of the fiscal strain factors. Based on city scores for these underlying socioeconomic factors, the regression provides an estimate of expected (or explained) fiscal stress for each city. When this estimate is compared with actual fiscal stress, as measured by the dependent variable of the regression, Clark obtains a "residual disparity" stress score for the city. Residual disparity is that part of fiscal stress which is attributable to other factors, such as political preferences and financial mismanagement, and hence may be viewed as unnecessary and avoidable (Fig. 2).

Like the Clark study, the Touche Ross study (57) seeks to identify the underlying causes of fiscal stress and to indicate the extent to which a city deviates from its underlying level of stress. It differs from the Clark study in theoretical approach and method of comparison.

The Touche Ross study theorizes that urban fiscal stress results from the dynamic adjustment problem of economic aging. According to this theory, young, growing cities are believed to have different types of fiscal problems and strategies than old, declining cities. Hence, cities are assigned one of three general "stages of growth"--young, industrially maturing, and old industrialized--depending on population and manufacturing employment trends over 1954-72. Of the 66 large and medium size cities studied, 44 are "young" cities, characterized by sustained population and

manufacturing employment growth for the two periods, 1954-67 and 1967-72. "Industrially maturing" cities, 13 of the 66 cities studied, experienced population and manufacturing employment declines only in the most recent period. "Old industrialized" cities, 9 of the 66 studied, have employment and population declines in both periods and an accelerated rate of decline in manufacturing employment in the latter period.

In addition to the growth-decline categorization, the study identifies numerous economic, social, and structural indicators from which one key indicator of each type is chosen which is thought to best characterize a city's underlying problems. To reflect economic conditions, an index of private investment and income is computed. Social conditions are reflected in an index of dependent population. Age of housing stock and population density reflect structural conditions. On the basis of the interplay of these three classifications, 16 separate clusters are identified.

The choice of cluster analysis, rather than the more quantitative regression approach used in the Clark study, reveals the methodological differences between the two studies. In the Touche Ross study, fiscal indicator comparisons for cities within a given cluster are interpreted differently from comparisons between clusters (Table 2). All cities which fall in any one cluster (for example, those with average income and investment, high dependent population, and low population density) are thought to have homogeneous underlying conditions; hence their municipal financial performance "potential" is roughly comparable. "Actual" financial performance is measured using 13 fiscal indicators representing revenues, debts, and expenditures, adjusted for independent school districts (Table 3). The Touche Ross study concludes that large variations in an individual city's financial performance relative to the cluster mean may be an early sign of potentially avoidable financial difficulty (57, p. 106).

The Touche Ross study makes comparisons "across clusters" by reference to mean fiscal indicators for each cluster. In addition, means are compared for the three stages of growth. The principal conclusion is that the old industrialized cities are most likely to be fiscally distressed. But even this form of fiscal distress is not inevitable (57, pp. 7-11). The study identifies cities which are able to "buck the trend;" some old cities which undertake major renewal do not suffer the fiscal disequilibrium that other older cities do, and some younger cities seem to avoid the aging process by avoiding rapid growth.

The Touche Ross method contrasts with Clark's approach, which holds explanatory variables constant using the multiple regression procedure. The regression method allows comparisons among all the cities in the sample, but it relies on the assumption that the explanatory factors are independent variables. This assumption is not necessary with the

Table 2--Touche Ross clusters and cities in fiscal stress

Cluster	Number of cities in cluster	Cities with tax performance greater than one standard deviation above cluster mean	Cities with debt performance greater than one standard deviation above cluster mean	Cities with expense performance greater than one standard deviation above cluster mean
<b>High private investment and income:</b>				
Large dependent population	2		(Insufficient data in cluster)	
Small dependent population	7	Denver	Bloomington Baton Rouge	Denver
High population density	3		(Insufficient data in cluster)	
Low population density	6	Bloomington	Baton Rouge	Bloomington
<b>Above-average private investment and income:</b>				
Large dependent population	6	Evanston	Kansas City	None
Small dependent population	6	Stamford	Stamford	Stamford
High population density	6	Evanston	Seattle	Seattle
Low population density	6	Stamford	Stamford	Stamford
<b>Average private investment and income:</b>				
Large dependent population	13	Boston	Louisville Boston	Pasadena Dayton Boston
Small dependent population	13	Cambridge Worcester	Eugene Wichita	Duluth Worcester Minneapolis
High population density	11	Cambridge Boston	Louisville Minneapolis Boston	Pasadena Dayton Boston
Low population density	15	Worcester	Eugene Duluth Wichita	Duluth Worcester
<b>Below-average private investment and income:</b>				
Large dependent population	14	New Haven Hartford Richmond	Hartford Richmond Atlanta	Hartford
Small dependent population	5	Long Beach	None	Long Beach
High population density	5	Hartford	Hartford	Hartford
Low population density	14	Fresno Richmond Atlanta	Richmond Atlanta	Fresno Tampa Atlanta

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Table 3--Touche Ross fiscal indicators

Financial variables <u>1/</u>	Mean value	Standard deviation	Lowest value	Highest value
<b>Revenue:</b>				
Ratio of local taxes to personal income (tax effort)	5.65%	2.26%	1.92%	13.42%
Local taxes per capita	\$265.02	\$106.41	\$98.76	\$556.36
Intergovernmental revenue as a percent of total local revenue	34.60%	12.24%	5.02%	64.00%
<b>Debt:</b>				
Total debt per capita	\$516.86	\$268.59	\$121.66	\$1,193.84
Interest per capita	\$23.19	\$14.30	\$5.32	\$89.69
Municipal capital spending per capita, five-year average, 1971-75	\$82.73	\$48.47	\$20.55	\$223.25
<b>Expenses:</b>				
Fire expenses per capita	\$29.55	\$10.32	\$9.48	\$56.42
Education expenses per capita (total from all sources)	\$236.94	\$60.24	\$120.45	\$395.08
Health expenses per capita (total from all sources)	\$7.56	\$9.07	\$0.00*	\$47.11
Welfare expenses per capita (total from all sources)	\$5.52	\$14.81	\$0.00*	\$92.22
Ratio of city full-time- equivalent employment to local employment	3.98%	2.23%	0.95%	10.58%
Average city employee annual income	\$7,746.00	\$1,606.00	\$4,158.00	\$12,319.00
Current operation expenses per capita	\$484.61	\$120.27	\$270.40	\$928.36

\*A zero value for health and welfare means that the entire expenses of these programs are borne by other levels of government.

1/ Values are for 1975, unless otherwise noted, based on sample of 66 large and medium-sized cities.

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Touche Ross approach, so the resulting comparisons are less prone to econometric bias and other statistical problems which may arise in the interpretation of the Clark study findings.

Applications to  
Nonmetropolitan  
Areas

Several questions arise concerning the applicability of comparative fiscal stress analyses to nonmetropolitan areas. Are urban stress indicators and urban stress theories meaningful in the context of nonmetropolitan governments or is it necessary to reformulate special financial indicators for rural areas? Are the fiscal dimensions of nonmetropolitan governments less amenable to comparative analysis? Is the paucity of rural data a significant barrier to meaningful application of comparative stress analyses?

There is no clear and obvious answer to the first question. Certainly, the general concepts and methods embodied in comparative urban stress studies, such as the interaction of fiscal and socioeconomic factors in understanding fiscal stress, are transferable to nonmetropolitan analysis. But their measurement and interpretation may differ markedly. For example, high population density is identified by the Touche Ross study as contributing to congestion and the cost of providing services in large central cities. Among rural areas, however, very low population density often causes high costs for service delivery, other things being equal. Also, high poverty levels in central cities tend to be associated with high welfare services and high tax and expenditure efforts. Many high-poverty rural communities, however, have little capacity to finance welfare related services; hence they exhibit very low tax and expenditure effort measures of fiscal stress despite their large welfare needs. Comparative stress analysis of rural areas, therefore, must take a different path when interpreting the effect of fiscal and socioeconomic indicators because direct correlaries with urban stress studies may not exist.

Nonmetropolitan comparative stress analyses suffer from some special problems. Most urban analyses are based on a sample of 50 or so large metropolitan areas covering a large share of total U.S. metropolitan population. There is no such concentration of population for nonmetropolitan America. Therefore, nonmetropolitan comparisons usually are based on high levels of aggregation. For example, data for all local governments within each county area may be summed up to obtain county area estimates. One is left with over 2,000 nonmetropolitan counties. This is a much more manageable number of observations than 54,000, the number of nonmetro local governments in 1977. But 2,000 observations is still a large sample to deal with and further aggregation is usually required. Unfortunately, aggregation erodes some of the validity of fiscal indicators, similar to the way metropolitan averages mask central city-suburb distinctions.

Moreover, when one deals with a relatively small sample of big cities, fiscal data may be obtained readily from city financial reports. The cost of similar data collection for all nonmetropolitan governments would be prohibitive. Hence, most nonmetropolitan analyses use Census of Governments data gathered only once every 5 years. This infrequent source of data is much more limited than that available for large cities from city financial reports, and it is not particularly suited for analysis of fiscal conditions. In addition, nonmetropolitan studies suffer from relatively inaccurate Census data for sparsely populated communities (12).

Because of these difficulties, the application of urban fiscal stress indicators to nonmetropolitan governments has been quite limited in the past and such analysis is far behind metropolitan urban studies. Unlike the urban studies, there have been few attempts to compare nonmetropolitan cities or counties on measures of local fiscal stress. Many theories have been offered to explain urban stress (8). Few theories have been advanced to explain the political, budgetary, and economic factors which bear on rural fiscal stress.

Some recent work on comparative stress measures for nonmetropolitan areas has resulted from a congressionally mandated study of small cities and their community development needs, undertaken by the Department of Housing and Urban Development (HUD) (65). This report combines Census data with survey and case study analyses to provide insight into the needs of a sample of almost 2,000 small cities (1,151 nonmetro, 810 metro). It is especially helpful in identifying differences by city sizes, down to very small city classifications, such as under 2,500. This report includes recent changes and presents a detailed analysis of development factors such as infrastructure, housing, and Federal program utilization. Case studies for 48 small cities are provided by the National League of Cities. HUD's survey of small cities' development needs perceived by city officials is presented.

The Census data analysis, performed by Dommel, Jaffe, and the Brookings Institution, produced a number of fiscal and socioeconomic indicators which are analyzed in more detail in a separate report (17). The Brookings analysis covers basic socioeconomic factors including population, poverty, per capita income, unemployment, and housing. Fiscal conditions are represented by the tax effort indicator, and overall need by the urban conditions index (a composite index of poverty, age of housing, and population change). The analysis of tax effort examines small city variations by metro-nonmetro classification, by region, and by population size and growth. The urban conditions index and several other indicators of nonmetropolitan need are calculated for the 50 States and they are correlated with actual and proposed community development program allocations in the second part of the report dealing with targeting issues.



Other studies have subsequently elaborated on the Brookings findings with respect to small city distress and fiscal conditions in nonmetropolitan areas. In an unpublished paper by Green, the Brookings data base is used to correlate fiscal stress (tax effort) with underlying stress factors (HUD's composite index of poverty and per capita income growth, population size, and population change) for metro and nonmetro small cities (26). In addition, Green examines various survey findings pertaining to rural and suburban government structure: their functional responsibilities, annexation trends, intergovernmental service agreements, and revenue sources. In another study, Bryce employs the Brookings urban conditions index to examine the relationship between population and income trends and small city distress in metro and nonmetro areas (9).

Although nonmetropolitan small cities have received considerable attention in recent fiscal studies, this cannot be said for other kinds of nonmetropolitan local governments, such as counties, townships, and special districts. This is a major omission for rural America, where county governments play a relatively large role. Some studies, however, have described certain basic fiscal characteristics of nonmetropolitan local governments. An unpublished USDA paper, for example, provides detailed per capita expenditure, revenue, and employment statistics for each type of general purpose nonmetropolitan local government (county, municipality, township), broken out by region and by population size group, for 1972 (31). In another report the fiscal characteristics of special districts are compared for metropolitan and nonmetropolitan areas (32). Others have examined local government totals combining fiscal data for each type of local government to make metro-nonmetro comparisons on a national and regional basis (54, 55, 11, 64).

Several studies have examined urban and rural socioeconomic conditions using county area data which are aggregated for all local governments within each county area. For example, county area indicators of economic stress are analyzed in a 1977 CBO report by Cuciti (15). She identifies economic difficulty by a measure of slow economic growth (a composite indicator of growth in earnings, per capita income, and population) and the level of per capita income. In addition, metropolitan and nonmetropolitan economic stress indicators are examined in connection with Federal spending programs in this report. Similarly, an index of socioeconomic stress, comprised of income, poverty, education, and housing characteristics, is presented in a USDA report (50). The use of county area data in these studies enable them to compute aggregate statistics for metropolitan and nonmetropolitan areas differing by degree of urbanization, by metropolitan status, and by region. Although not used as such, these statistics are ideal for creating socioeconomic clusters with which metro-nonmetro fiscal comparisons can be made.

Indicators associated with rural development and other Federal policies affecting nonmetropolitan areas have recently received considerable attention. Composite indicators of development, reflecting institutional differentiation, income equality, and economic resources, are provided by Bauder (7). Various employment and unemployment indicators relevant to targeted Federal economic and human resource development programs are analyzed in a USDA report by Nilsen (42). Federal outlays to metro and nonmetro county areas have been examined in other USDA reports (47, 48). One USDA report emphasizes the fiscal difficulties and policy implications of the recent demographic turnaround for nonmetropolitan America (16).

The studies cited above examine the factors contributing to nonmetropolitan fiscal stress; they do not attempt to measure or identify fiscal stress, nor do they specify or test a model of fiscal stress applicable to rural as well as urban governments. A notable exception is the work of Fox and Sullivan which employs a dynamic, demand-supply model to explain urban and rural fiscal trends for county areas in the Northeast (20). The theory behind this model is that the nature and extent of population change can cause fiscal strain in the form of increased expenditure demands and increased revenue efforts. Population change is hypothesized to affect each local fisc differently, depending on whether population is increasing or decreasing. In addition the authors argue that urban and rural governments with similar total population change may be affected differently. Part of the difference may be explained by differences in the character of population change, such as age and income characteristics. Other factors, such as wage cost inflation and the growth of intergovernmental revenues, may also contribute to differential urban-rural fiscal effects of population change.

This model measures fiscal stress by the rate of change of fiscal variables. Hence, it avoids the problem of making urban-rural comparisons for certain variables found in urban stress studies, such as population size, population density, manufacturing employment, and age of housing, which may not have the same meaning for nonmetropolitan areas as for the older, large central cities. Its emphasis on population change as the causal factor behind fiscal stress appears to fit closely the observed experience of many hardpressed growing and declining nonmetropolitan areas. Empirical testing of the model using regression analysis indicated that the model performed satisfactorily (R-square statistic = 0.62) in explaining the intercounty variation in local fiscal stress for the Northeast from 1962 to 1972 (table 4). The model worked better for growing counties than it did for declining counties, suggesting that it may be particularly suitable for today's growing nonmetropolitan areas.

Table 4—Fox and Sullivan regression analysis

Regression Equations for Estimating the Percentage Change in Direct Current Expenditures  
As a Linear Function of the Percentage Change in Demand and Supply Characteristics, 1962-1972

Variable			% Change in Proportion of School Age Population <sup>a</sup>	% Change in Proportion of Retirement Aged Population <sup>b</sup>	% Change in Per capita Income	% Change in Intergov- ernmental Aid	Change in Average Government Wage Rate <sup>c</sup>	Metro Status Dummy <sup>d</sup>	R <sup>2</sup>
Sample	Intercept	% Change in Population							
Growing Counties N=174	0.48 (1.59)	1.64** (7.00)	2.77** (2.67)	-0.74** (-2.17)	0.32 (1.56)	0.21** (7.81)	0.19 (0.71)	-0.06 (-0.83)	.601
Declining Counties N=39	0.62 (0.95)	2.00 (0.95)	4.40* (1.96)	0.45 (0.41)	0.56 (1.33)	0.11** (2.18)	-0.15 (-0.42)	-0.04 (-0.31)	.354
All Counties N=213	0.52* (1.98)	1.62** (7.90)	2.93** (3.14)	-0.65** (-2.11)	0.39** (2.23)	0.20** (8.35)	0.07 (0.32)	-0.05 (-0.81)	.617

SOURCE: U.S. Census of Governments, 1962 and 1972; U.S. Census of Population, 1960 and 1970.

<sup>a</sup>School age population is defined as ages 5 to 19.

<sup>b</sup>Retirement age population is defined as age 65 and over.

<sup>c</sup>Government wage rate is total October payroll divided by full time equivalent employment.

<sup>d</sup>The metro status dummy variable has a value of 1 for counties included in SMSA's during 1972 and a value of 0 for all other counties.

\*Significantly different from zero at the 90 percent level of confidence.

\*\*Significantly different from zero at the 95 percent level of confidence.

Source: (21, p. 215).

Since their measures of stress are expressed in terms of revenue and expenditure changes, the Fox and Sullivan findings on urban-rural differences in fiscal stress will be discussed later in this report under the topic of fiscal trends. Before examining fiscal trend indicators, however, effort and capacity measures must be critically reviewed.

## CAPACITY AND EFFORT

Capacity and effort measures are the most comprehensive indicators of fiscal well-being of a community. Tax effort, one of the most widely recognized fiscal indicators, receives considerable attention because of its common use in Federal and State revenue sharing programs. Personal income, the simplest measure of capacity, is an important formula factor in many intergovernmental aid programs and is a crucial indicator found in most studies of local stress.

Because tax effort, as employed in the General Revenue Sharing (GRS) formula, is only a crude measure of effort, it has become a controversial indicator whose alleged biases have been examined extensively in the literature. Of particular interest are the urban-rural biases implicit in the tax effort measure, which have spurred a good deal of literature on differences in urban and rural fiscal conditions. Much research has been devoted to modifying capacity and effort factors in order to eliminate bias in various Federal and State aid formulas. This review examines several studies of more sophisticated measures, their advantages, and their limitations. This section concludes with a discussion of the problem of applying refined effort and capacity measures to rural areas. Several studies dealing specifically with urban-rural distinctions are reviewed and prospects for study are discussed.

### Simple Capacity and Effort Measures

The provision of public services may be viewed as a production process which begins with resource inputs and ends with public service outputs. Before public services can be provided, a government must raise funds to purchase resources. Public finance experts refer to government ability to raise funds as fiscal capacity (or tax capacity if only tax revenues are included in the measure). Simple indicators of fiscal capacity, such as income, population and assessed property value, are used in numerous Federal and State aid formulas. Local resident income is probably the most accepted capacity measure. As a gauge of local ability to pay for public services, income is clearly superior to population and widely accepted. In addition, many consider income data more accurate and easier to manage and interpret than property value data.

However, income is not without its drawbacks as a proxy of fiscal capacity. Property wealth, the most important local tax base, is not always closely correlated to income.

Income also is not a good proxy for the revenue potential of user charges. Furthermore, some note that resident income understates capacity for governments that can export a portion of their taxes to residents of other communities. For example, some States which export fossil fuels impose severance taxes which are mostly paid by residents of other States. In some communities, capacity may be overstated by income because a key portion of the tax base is highly mobile and sensitive to tax rate increase, thereby limiting the value of the tax base. For example, some localities offer tax concessions or do not raise taxes for certain key industries because they fear these industries will leave for another locality to avoid the taxes.

Similar problems occur for effort measures which use income. In its simplest form, effort is computed as a ratio of taxes divided by personal income; it is interpreted as a measure of the extent to which a government is taxing its fiscal capacity. A jurisdiction can have a high tax effort for any one of several reasons. For example, it may have average per capita tax levels, but lower than average capacity. Hence the small size of the denominator of the tax effort ratio causes tax effort to be large. Alternatively, the community may have average capacity, but relatively large per capita tax and expenditure requirements either due to large public service needs or because the community has extraordinary "tastes" for public goods. In this case the large size of the numerator of the effort ratio causes tax effort to be high. Hence, tax effort serves as a kind of all-purpose barometer of fiscal stress, making it one of the most commonly employed fiscal indicators in analyses of local fiscal conditions. It is also arguably the most important single fiscal indicator for policy purposes because it is a key factor used in targeting GRS funds and various State aid formulas.

Criticism of simple tax effort is extensive, covering the numerator (taxes), the denominator (capacity), and their interrelationship. One criticism is that the numerator is too inclusive; another, that it is not inclusive enough. Some argue that tax effort should be related only to normal or essential public services. They argue that using total taxes (or taxes minus school taxes as occurs in GRS tax effort) as the numerator unfairly favors some cities which only appear hardpressed because they choose to raise taxes to provide extra or "nonessential services." Others argue that nontax sources of revenue should be added to the numerator to get a "revenue effort" measure which recognizes the strain associated with local user charges and fees. In addition, some say that many small governments use voluntary labor to perform services, and that some valuation of this effort should be included in the numerator of tax effort (52).

The drawbacks associated with using income as the denominator of tax effort are the same as discussed earlier in relation to income as a proxy for capacity and they need not be elaborated further. Some discussion, however, is required to explain the significance of interrelationship between tax effort and capacity (income) which makes it difficult to interpret the effort ratio. Those who use effort as a measure of fiscal stress must confront the tendency for high-income communities to have high tax efforts. This is consistent with the theory that public spending rises more than proportionally to income increases. In such high-income communities, high efforts may not signify fiscal strain as much as the willingness and ability to provide extensive public services. Conversely, low-income communities may have low tax efforts because financially strapped taxpayers simply cannot afford to pay for many public services. Their low tax efforts probably should not be interpreted as low fiscal stress (37).

If this were the only income-related problem in interpreting effort a simple adjustment might suffice to solve the problem. But it is not that simple. Many high-income areas are densely populated central cities which suffer from the special problems of pollution, crime, unemployment, urban decay, and high cost of living. Many policymakers feel there are substantial public sector needs in these communities, not all of which may be met even with their relatively high efforts. In such cases, the combination of high incomes and high tax efforts reflects fiscal stress (18).

The GRS formula only deals with some of these criticisms. For example, the numerator of GRS's tax effort excludes school taxes, which improves comparability between localities with independent school districts and localities which finance education directly. But problems remain with the numerator of GRS's tax effort because user charges are excluded from tax effort, as is voluntary labor. There is compensation in the GRS formula for some of the problems associated with the relationship between income and tax effort. Limits for the amount of aid going to communities constrain the amount of aid received by high-income, high-effort communities. In addition, a relative income factor is included to increase aid for poor communities with low efforts and reduce aid for rich communities with high efforts. And States with large, urban populations are rewarded to reflect the fiscal stress associated with high congestion costs and unmet urban needs which are not measured by tax effort (66, pp. 4-9).

It would be unfair to overly criticize the GRS tax effort ratio however, because most other simple effort ratios used in aid programs have the same kind of problems. More sophisticated measures have been developed in the literature on capacity. Some of these measures are discussed in the following section.

Sophisticated  
Capacity and  
Effort Measures

There have been several attempts to derive more sophisticated measures of fiscal capacity which weight different types of property and other tax bases. Based on these sophisticated measures of fiscal capacity, better measures of capacity and effort have been derived.

The groundbreaking study on advanced measures of fiscal capacity was done by the Advisory Commission on Intergovernmental Relations (ACIR), whose representative tax system approach was designed to estimate tax capacity of State and local governments (61, 62). According to this approach, a locality's tax capacity is determined by applying the national average local tax rate to the estimated local tax base for each tax, and summing across all taxes. ACIR produced a broader measure, revenue capacity, by doing the same computations for all local revenue sources including nontax revenues such as user charges.

By weighting the various tax bases by the national average tax rate, the representative tax system approach has several advantages. First, it implicitly recognizes the average effect of political, traditional, and structural constraints which limit the use of the various types of tax bases nationwide. Second, it recognizes the effect of tax competition which prevents most localities from deviating greatly from normal tax rates. Finally, it weights some tax bases more than others in recognition of the greater ease in taxing them due to the export of the tax to other jurisdictions.

Many would argue that ACIR's representative tax approach is a major improvement over using resident personal income because it avoids much of the tax import-export bias of simple, resident income measures. Many taxes are not borne by individuals or families located in the taxing jurisdiction, but are paid by nonresidents. For example, visitors pay sales and excise taxes, absentee owners pay property and corporate income taxes, and some business taxes are exported or "passed on" to the ultimate consumers who are often nonresidents. Because it measures each tax base of a locality regardless of who pays the tax, the representative tax approach is an improvement over resident income as a measure of capacity.

However, the ACIR capacity measure has a different kind of problem: it is inconsistent in the way it handles State and local decisions which affect the taxable value of revenue bases. Some State and local decisions affecting revenue bases are excluded from consideration in ACIR's measure, while others are included.

Excluded from ACIR's measure is the fact that States differ on which taxes they allow local governments to impose. Local income and sales taxes are important examples. In theory, these tax bases may be considered to exist for local governments in all States, and ACIR counts them as such. In

practice, however, local governments in some States have no legal right to impose these taxes. Even if the tax is allowed, State restrictions on how it is imposed (such as local voter approval) and how high tax rates may rise (tax lids) may effectively prevent local governments from realizing ACIR's estimated value for these taxes. Whether these restraints are imposed by local voters or by the State where such restrictions apply, they represent real constraints on local capacity which are ignored when ACIR measures capacity via national average tax rates.

Other State and local decisions affecting the availability of local revenue bases are implicitly included in ACIR's capacity measure. ACIR's estimate of user charges capacity is based on a locality's expenditures on each public service for which user charges are collected. If a community chooses not to provide such a service (that is, if the service is unavailable or provided by the private sector) or if the service is provided free of charge to the community, then no capacity is estimated. The same approach is taken for other, miscellaneous revenues, such as special assessments, receipts on sales of property, royalties, and so on. This approach ignores potential but unused capacity of local governments which choose not to be more actively involved in the local economy.

A similar bias exists in the capacity measure for property taxes, which applies different rates to different types of property. Communities can exercise control over type of property via zoning restrictions. Since the ACIR capacity measure takes this local zoning decision for granted, it ignores potential revenue which could arise from zoning property into higher tax classifications.

Another problem concerns ACIR's handling of utility revenue capacity. Only "surplus" amounts (receipts minus expenditures) are counted as revenue. By not counting all receipts as revenue this results in an underestimate of revenue capacity for most jurisdictions operating public utilities. Jurisdictions which do not choose to provide such services publicly are counted as having no capacity, although they could choose to provide these services.

For some Federal policy purposes, it may be useful to ignore all State and local restrictions on local capacity. Designers of equalizing general fiscal assistance programs (such as GRS) may not want to reward States which by restricting taxes do not help themselves. Therefore, the capacity indicator used in equalizing aid distribution formulas should include the total local capacity without regard to individual State and local restrictions. But for monitoring trends in the fiscal condition of local governments, it may be essential to recognize these restrictions, which can often make the difference between fiscal balance and imbalance. In addition, State and local policymakers must incorporate these restrictions in their own local fiscal assessments.



Akin has developed an alternative measure using regression analysis (1). This regression approach involves the choice of a group of income and wealth variables which are thought to determine a locality's ability to raise local revenues. The six explanatory variables chosen for Akin's analysis of local areas in New York State are median family income, residential property value per capita, commercial property value per capita, industrial property value per capita, seasonal property value per capita, and other property value per capita. The fiscal capacity estimate is obtained by substituting a locality's values for each factor into the estimated regression equation, which weights each factor by its average, estimated effect on local revenues, to obtain per capita revenue capacity for the given locality.

In some respects, the regression approach may be an improvement over the ACIR method for estimating fiscal capacity. As noted earlier, ACIR's method is inconsistent with respect to local taxes and user charges. It estimates local income and sales tax capacity for all localities regardless of whether they employ such taxes. User charge capacity, however, is estimated only for localities employing user charges. Since taxes and user charges are often substitutes, the ACIR approach results in lower overall capacities for localities, which by choice or by necessity must rely heavily on user charges. This bias is avoided by the Akin approach, which does not discriminate between the tax and nontax revenues in estimating total revenue capacity.

In addition, the Akin approach uses regression coefficients which may be considered more "representative" than the national average tax rates ACIR employs. ACIR's average tax rates are "weighted" averages, which tend to reflect tax rates of heavily populated areas more than sparsely populated areas. Akin's approach counts each local area equally in computing regression coefficients.

A major drawback of this method is the weak theoretical basis of any such simple linear regression model. The regression finding that residential property, the most important tax base for local areas, has no statistically significant effect on local fiscal capacity adds to skepticism of the validity of this method. Another problem concerns the interpretation of Akin's estimate of capacity. It purports to be a measure of the "supply" of fiscal resources to a locality. But because it includes income and wealth factors as independent variables, the regression estimate may capture both "supply" and "demand" factors, giving rise to confusion over the meaning of the indicator.

When government revenues are divided by the ACIR or Akin capacity measures, improved effort measures are obtained. Even more sophisticated measures have been developed by relating ACIR and Akin fiscal capacity measures to measures of public needs. Two examples of such measures, public service capacity and public expenditure need, are examined

in the next section. In the former, a needs index is incorporated directly into the capacity measure, after which effort measures are computed. In the latter, a separate needs index is computed and two "gap" measures are presented as alternatives to effort measures.

Public Service  
Capacity and  
Public  
Expenditure Need

Fiscal capacity measures only go part way toward measuring public service capacity since they do not measure a government's ability to use revenue dollars to satisfy public service needs. For example, two jurisdictions may have the same revenue capacity, but one may have higher costs of providing public service (such as higher public employee wage rates), causing it to have a lower capacity to provide services. The costs of providing public services may vary for reasons other than input cost variations. For example, one jurisdiction may have more industry than another, requiring it to spend more on environmental cleanup services (18). Alternatively a sparsely populated community may lack economies of scale in its production of certain services, resulting in higher costs per unit of output and lower public service capacities than a city with a larger population (19).

An example of an attempt to compute public service capacity indicators is presented by Halstead (30). For each of the 50 States, an index of tax capacity is estimated using the ACIR representative tax system method. Dividing tax capacity by an index of instructional staff salaries (a cost index which differs from one State to another), an indicator of the State's capacity to hire teachers is obtained. This indicator is then divided by an index of per capita school enrollment to indicate the State's capacity to provide public education. Similar computations are made for higher education, police protection, public welfare, and health. Halstead completes the procedure by estimating effort indices in which actual expenditures on education are divided by the capacity to provide education index.

One of the most ambitious studies in this literature is by Auten (4). This study begins with Akin's regression analysis to estimate fiscal capacity. This is followed by the substitution of estimated fiscal capacity into a second regression, along with a number of need variables, in order to estimate expenditures for public service needs. Based on this second stage of the regression analysis, several measures are constructed: the gap between fiscal capacity and public service need, which he calls the "resource gap", and the gap between actual expenditures and estimated public service need expenditures, called the "expenditure gap".

The main achievement of these studies is to recognize that revenue capacity and expenditure need measures are most meaningful when they are taken together to obtain measures of capacity to meet public service needs. As such, they represent a significant conceptual improvement over the simple tax effort variable.

These methods have problems, however. For example, the Halstead method assumes salary differences reflect interstate cost differences, though they may also result from differences in the quality of labor. With more productive laborers, fewer need be hired to provide the same service provided in lower cost jurisdictions. If so, cost differences ought to be modified in the measure of capacity to provide public services. More generally, the difficulties in measuring cost differences and their impacts on service capacity are extensive, ranging from problems in measuring labor costs (including fringe benefits) to the difficulty in measuring the quality and quantity of labor inputs and public service outputs.

Auten's regression method directly estimates expenditure need from social and economic factors, a method which avoids the need to account for various cost and productivity factors. The disadvantage of this is Auten's reliance on the assumption that certain socioeconomic need indicators are good proxies of public expenditure need. There are also potential statistical problems such as multicollinearity.

In addition, none of these approaches goes far enough in measuring capacity. They ignore important sources of local revenues such as intergovernmental aid and borrowed funds. They ignore the fiscal drain of debt services and the fiscal advantage of accumulated fund surpluses. Federal and State taxes and transfers affecting personal income and local capacity are also ignored. The ability to sell publicly owned land and resources is not properly assessed. And the fiscal advantage of having public sector infrastructure in place, which can be used, leased, or sold, is ignored. Finally, the management capacity, which is necessary to make the most of other forms of capacity, is not evaluated. These are the factors which often make the difference between fiscal stability and financial emergency, between fiscal well-being and fiscal need.

#### Applications to Nonmetropolitan Areas

Despite extensive criticism of the use of effort and capacity indicators to make urban-rural fiscal comparisons, effort and capacity measures are the focus of much recent fiscal research on nonmetro areas. Their popularity is explained partly because of data availability and partly because of their use in various Federal and State aid programs. Annual data on income and taxes are available for all general purpose local governments in the United States, and data required for sophisticated effort and capacity measures are obtainable from various State data sources. Still, the policy importance of effort and capacity indicators directs attention to their adequacy (or inadequacy) for targeting intergovernmental aid to urban and rural areas. Questions of urban-rural bias in effort-targeted aid formulas have stimulated a good deal of research concerning proposed modifications of effort factors to better reflect nonmetropolitan fiscal conditions.

Much criticism of the GRS formula concerns urban-rural bias implicit in the GRS tax effort factor. The simple GRS measure of tax effort is conceptually flawed because it does not go far enough in distinguishing between rich and poor communities. Many nonmetropolitan areas have very low income levels which effectively limit the percentage of income which can be spent on local government. In contrast, metropolitan areas tend to have higher per capita incomes than rural areas, thereby allowing them to bear more easily the burdens of high tax efforts associated with extraordinary public goods and services not found in rural areas. In addition, the exclusive use of taxes in the GRS tax effort ratio ignores nontax revenue efforts and voluntary efforts by individuals or groups who provide public services. Rural communities exert more of their effort than urban communities in the form of nontax revenues and voluntary labor (52). Because this nontax effort is excluded from the GRS tax effort indicator, fiscal stress in rural areas is further understated.

A recent General Accounting Office (GAO) report examined these bias issues. It concluded that rural areas suffer from the exclusion of nontax items in the numerator of the GRS tax effort ratio, but they benefit from the use of income as the capacity measure in the denominator of tax effort (66, pp. 24-25). This is because some rural areas are property rich and income poor. If one views wealth as important as income in measuring capacity, then rural capacity may be understated and effort may be overstated relative to urban areas, other things being equal. Rural areas with a high percentage of nonresident property owners may have an extra advantage of being able to export property taxes to nonresidents (55, p.38).

The question of urban-rural bias in the GRS formula is complicated, furthermore, by the consideration of other factors and constraints in the GRS allocation formula. For example, the GAO study concluded that the adjusted tax effort ratio (adjusted taxes divided by income) is biased in favor of high-income metropolitan communities, but this bias disappears when tax effort is multiplied by the relative income factor in the GRS formula.

The GAO analysis is one of several recent studies which apply refined measures of capacity and need to urban and rural areas. Among these are the doctoral dissertations by Auten and Cuciti, both of which employ the Akin regression approach for measuring capacity (5, 14). However, such studies have been limited to examining fiscal variations within a given State.

The lack of adequate property value data, comparable across States, appears to be the major barrier to sophisticated, nationwide studies of local fiscal conditions in rural areas. The Census Bureau provides estimates of assessed

property value for all county areas, but Census provides no estimates of market value of property for sparsely populated rural areas (61, p. 67). Interstate comparisons are hindered by the varying price-assessment ratios among the 50 States. Although States provide price-assessment ratio data periodically, they do not use uniform standards and the time periods do not coincide. Given these difficulties, the Brookings Institution and others have used the income-based GRS tax effort measure in their studies of small city finances.

In conclusion, studies of rural effort and capacity measures do not provide the kind of information provided by ACIR and others for States and large urban areas. Nevertheless, careful analysis of these indicators has potential to provide insights into nonmetropolitan fiscal stress. Thus, it is hoped that continued progress will be made in applying capacity and effort measures to rural government finances.

## FISCAL TRENDS

Fiscal trend measures take many forms and are used for several purposes. But most fiscal trend analyses share a common focus on public finance variables (such as taxes, expenditures, and surpluses) and are based on the premise that the change or duration of fiscal variables over a period of time is a relevant indicator of fiscal condition.

### National-Level Studies

On the national level, several studies have analyzed fiscal trends to assess the fiscal problems shared by the majority of State and local governments. Some have concentrated on National Income Accounts (NIA) data, available on a quarterly basis for the whole State-local sector. Trends in the State-local surplus in particular have been the subject of much attention as an indicator of general, State-local fiscal condition (25). A notable example of trend analysis is the 1975 Ott study in which a multiple equation, time series model for the State-local sector is used to provide projections for NIA receipts, expenditures, and surplus categories for 1976 through 1980 (43).

Other nationwide studies have used quarterly or annual time trend analyses in order to assess the impact of inflation, recession, Federal aid and other factors upon the State-local fisc. Bahl has drawn together the findings of many of these studies to assess State and local financial outlook for the decade of the 1980's (6).

Fiscal trends have been quite useful in identifying the development of nationwide difficulties which are hard to measure using comparative stress techniques. For example, national capital investment and financing trends suggest that State and local governments may be facing increasing difficulty in meeting their public infrastructure needs (46). Trends in retirement system finances indicate growing public employee pension costs for the future (67). Trends

in debt ratios have been useful signs of dangerous accumulation of debt (3). And trends in Federal aid and State and local government dependency on Federal aid reveal the changing degree of fiscal independence of local government nationwide (33).

#### State and Municipal Finance Trends

Fiscal trends are also useful for studying subnational areas. For example, fiscal trend comparisons are sometimes used in conjunction with conventional, static comparative stress indicators to obtain more meaningful fiscal stress comparisons among State and local communities. Fiscal trends also are analyzed to assess the fiscal condition of an individual local government, or type of local government, without making comparisons to other localities.

Several ACIR studies emphasize fiscal trends when comparing States and metropolitan areas. ACIR explicitly incorporates both the level and the trend in its tax effort analysis (66). The report argues that effort trends reveal a different kind of fiscal stress than that associated with effort levels, noting the importance of "perceived" burdens associated with rising or falling tax rates. Recent ACIR updates of State area capacity measures continue to emphasize both static and trend measures (62). A similar emphasis on fiscal trends characterizes ACIR's analysis of metropolitan fiscal stress, in which estimates of the level and change in selected tax capacity and spending measures are presented for the central cities and suburbs of the 85 largest metropolitan areas (58, 63).

Concerns over the urban crisis have spawned a number of studies which compare fiscal trends for different types of cities. Deserving special mention here are Muller's Urban Institute report and a Joint Economic Committee report (39, 35).

Muller's report examines levels and trends of various fiscal indicators for 27 large cities, roughly covering 1960 to 1973. Aggregate or average fiscal measures are computed for both growing and declining cities. In some cases, fiscal data for selected cities representative of these two groups are compared. Similar to several comparative urban stress studies discussed earlier, this study identifies fiscal implications of population decline. It differs, however, in its focus on fiscal measures and trends. It covers a broad range of local government fiscal information, including municipal revenues, expenditures, debt, fiscal capacity and effort, public employment, public wages, and cost indices. Its emphasis on trends helps identify dynamic fiscal problems associated with population change.

An example of Muller's use of fiscal trends to supplement static comparative stress indicators is shown in table 5. The 1971 data show that tax burdens (measured by effective property tax rates) are higher in declining cities than in

growing cities. By itself, this does not provide sufficient evidence of greater stress in declining cities. But when viewed in combination with accompanying trends showing rising tax rates and slow growth in property values for declining cities, Mullers's findings suggest strongly that the fiscal position of declining cities deteriorated vis-a-vis growing cities over the period studied.

Table 5--Muller's fiscal trends

City category:	Effective property tax rate : 1971	Trends in : effective tax rates, 1966-71:	Trends in : property values, 1966-71
<u>Percent</u>			
Growing cities	1.73	-4	+48
Declining cities	2.52	+22	+27

Note: Data for single-housing only.

Source: (39, pp. 69-79)

Monitoring current fiscal trends is the subject of a series of Joint Economic Committee (JEC) reports which include survey results and analyses for a sample of cities, conducted by Deborah Matz (JEC) and John Petersen with the Municipal Finance Officers Association (MFOA) (34, 35, 36). They present financial data for cities aggregated by population size classification: small (10,000-49,999), medium (50,000-99,999), large (100,000-249,999), and largest (over 250,000). Survey responses from about 300 cities provide current financial data and budget projections unavailable from other sources.

These reports are particularly effective in describing and monitoring short-term fiscal stress. Deficits and surpluses are measured in both per capita and percentage of expenditures, and the percentage of cities in deficit or surplus is reported (table 6). This variety of aggregate measures provides a more comprehensive fiscal description than if only one measure were employed. The data in table 6, for example, carry a reader's understanding beyond the simple fact that more than 75 percent of cities are in deficit. It is apparent that these deficits are worsening, that they are spread among all sizes of cities, and that the largest cities have had big deficits longer. Short-term financial stress indicators examined elsewhere in the report include measures of liquidity, Federal and State aid dependency, short-term debt dependency, and ratios of actual to budgeted expenditures and receipts.

Table 6--JEC-MFOA surplus and deficit indicators

Indicators	: 1979	: 1980	: 1981*
<b>Small cities (n=109):</b>			
Average surplus or deficit per capita	\$-11.07	\$-5.41	\$-31.49
Total surplus or deficit as percentage of total expenditures	-4.1%	-1.8%	-9.5%
Number of cities in surplus	47	55	27
Percentage of group population in surplus	42.2%	52.4%	24.2%
Number of cities in deficit	62	54	82
Percentage of group population in deficit	57.8%	47.6%	75.8%
<b>Medium cities (n=51):</b>			
Average surplus or deficit per capita	\$ 1.59	\$ 2.26	\$-23.84
Total surplus or deficit as percentage of total expenditures	0.5%	0.7%	-6.3%
Number of cities in surplus	25	32	9
Percentage of group population in surplus	47.9%	61.0%	17.0%
Number of cities in deficit	26	19	42
Percentage of group population in deficit	52.1%	39.0%	83.0%
<b>Large cities (n=47):</b>			
Average surplus or deficit per capita	\$-9.17	\$-11.64	\$-40.96
Total surplus or deficit as percentage of total expenditures	-2.7%	-3.2%	-10.0%
Number of cities in surplus	24	22	10
Percentage of group population in surplus	50.1%	45.3%	24.1%
Number of cities in deficit	23	25	37
Percentage of group population in deficit	49.9%	54.7%	75.9%
<b>Largest cities (n=29):</b>			
Average surplus or deficit per capita	\$-21.36	\$-22.52	\$-36.72
Total surplus or deficit as percentage of total expenditures	-4.3%	-4.3%	-6.4%
Number of cities in surplus	10	8	4
Percentage of group population in surplus	25.2%	17.7%	8.6%
Number of cities in deficit	19	21	25
Percentage of group population in deficit	74.8%	82.3%	91.4%

JEC=Joint Economic Committee. MFOA=Municipal Finance Officers Association.

\*Budgeted or anticipated amounts for Fiscal Year 1981.

Source: (36, p. 22).



Fiscal trends are examined separately for general government finances, enterprise funds, capital expenditures, long-term debt, public employment, and wage costs. Such distinctions enable these JEC-MFOA studies to relate recent fiscal developments to trends in infrastructure needs, debt burdens, and labor costs. In addition, the distinction between cities of different sizes makes comparisons over time and across size categories more meaningful.

Short-term fiscal stress is the focus of Dearborn's ACIR report (59). According to this report, city financial data should be monitored on an annual basis for indicators of impending city financial emergency. The study's analysis of 30 cities with serious financial difficulties revealed that the most significant warning signs were:

- o an operating fund revenue-expenditure imbalance in which current expenditures significantly exceeded current revenues in one fiscal period;
- o a consistent pattern of current expenditures exceeding current revenues by small amounts for several years;
- o an excess of current operating liabilities over current assets (a fund deficit);
- o short-term operating loans outstanding at the conclusion of a fiscal year (or in some instances the borrowing of cash from restricted funds or an increase in unpaid bills in lieu of short-term operating loans);
- o high and rising rate of property tax delinquency; and
- o a sudden, substantial decrease in assessed values for unexpected reasons (59, p. 6).

Empirical findings revealed that few of the major cities studied were experiencing difficulty on the above indicators, but trends in long-term debt burdens and retirement costs point to possible difficulty in the future.

Expanding upon Dearborn's concept of fiscal monitoring, two studies have made significant progress in developing systematic means by which a local government may monitor its own financial trends. The monitoring systems proposed by these studies share several properties which distinguish their fiscal analyses from approaches taken in fiscal trend studies discussed previously: they rely only upon trends; no comparisons with other cities are made; they are oriented toward indicators for small cities; and they are designed to enable local governments to monitor their own fiscal conditions.

The MFOA study lists 28 fiscal trend indicators along with brief instructions on how to interpret the trends and where to obtain data (49). Each indicator isolates a specific problem area. Indicators are grouped according to broad areas of interest (table 7).

Table 7-MFOA indicators

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Economic vitality:

- Appraised value of real estate per capita.
- Number and value of building permits.
- Number and value of business licenses.
- Retail sales value.
- Expenditures for police and social services as a percent of total expenditures.
- Total population.
- Income per capita.

Financial independence and flexibility:

- Percentage of expenditures for basic services funded from intergovernmental grants.
- Proportion of own source revenues committed to meet matching requirements.
- Debt burden.
- Pattern of budget overruns in specific programs or departments.
- Amount of employee fringe benefits.
- Proximity of key revenue sources to legal ceilings.
- Proportion of municipal expenditures made to fund mandated cost.

Productivity:

- Number of municipal employees per capita.
- Municipal expenditures per capita.
- Municipal enterprises incurring operating losses.
- Rates charged for municipal enterprises.

Current costs deferred to the future:

- Short-term debt outstanding and other obligations at year end as a percent of total own source revenues.
- Long-term debt applied to operating programs.
- Capital outlays as a percent of total city expenditures.
- Deferral of pension liabilities.

Unsound financial management practices:

- Relationship between real estate assessments and true market values.
- Earnings on short-term investments.
- Interest cost of short-term loans as a percent of total own source revenue.
- Incidence of revenue shortfalls.
- Amount of uncollected taxes and fees at year end.
- Frequency of audit qualifications.

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Source: Fiscal indicators from the MFOA study (49). This table is from the Florida ACIR review of the literature (38, p. 90).

The other more comprehensive study is the International City Management Association (ICMA) project on evaluating financial conditions for small cities (28). This project, conducted by Maureen Godsey and Sanford Groves, has resulted in a series of handbooks meant to guide city financial managers in collecting and evaluating fiscal data for their cities. Central to this effort is the testing and evaluation of ICMA'S "financial trend monitoring system" which employs 36 trend indicators. While data availability represents a problem in some cases (implementation of the system requires gathering about 10 years of data for each indicator), preliminary trials with 24 cities have produced positive results overall (27).

The ICMA monitoring system is broader in scope than the MFOA approach, which emphasizes purely financial and financial management factors. The ICMA system includes both financial and environmental factors, and provides a framework for explaining how these factors are related through legislated policies and management factors (fig. 3). A 154-page "Practitioner's Workbook" describes each indicator in detail and suggests additional analyses to determine the causes and policy implications of observed trends (29). Supplementary ICMA handbooks describe how various policies affect fiscal health and how setting financial performance goals and employing financial decisionmaking tools help to avoid fiscal difficulty (22, 23, 24).

The MFOA and ICMA systems, like other trend analyses discussed in this section, require the analyst or policymaker to make subjective judgements about local fiscal condition, based on a collection of interrelated indicators. These monitoring systems do not provide automatic policy solutions, nor will they satisfy those who desire a single number to indicate overall fiscal well-being. However, they will help local officials identify and combat local fiscal difficulties.

#### Applications to Nonmetropolitan Areas

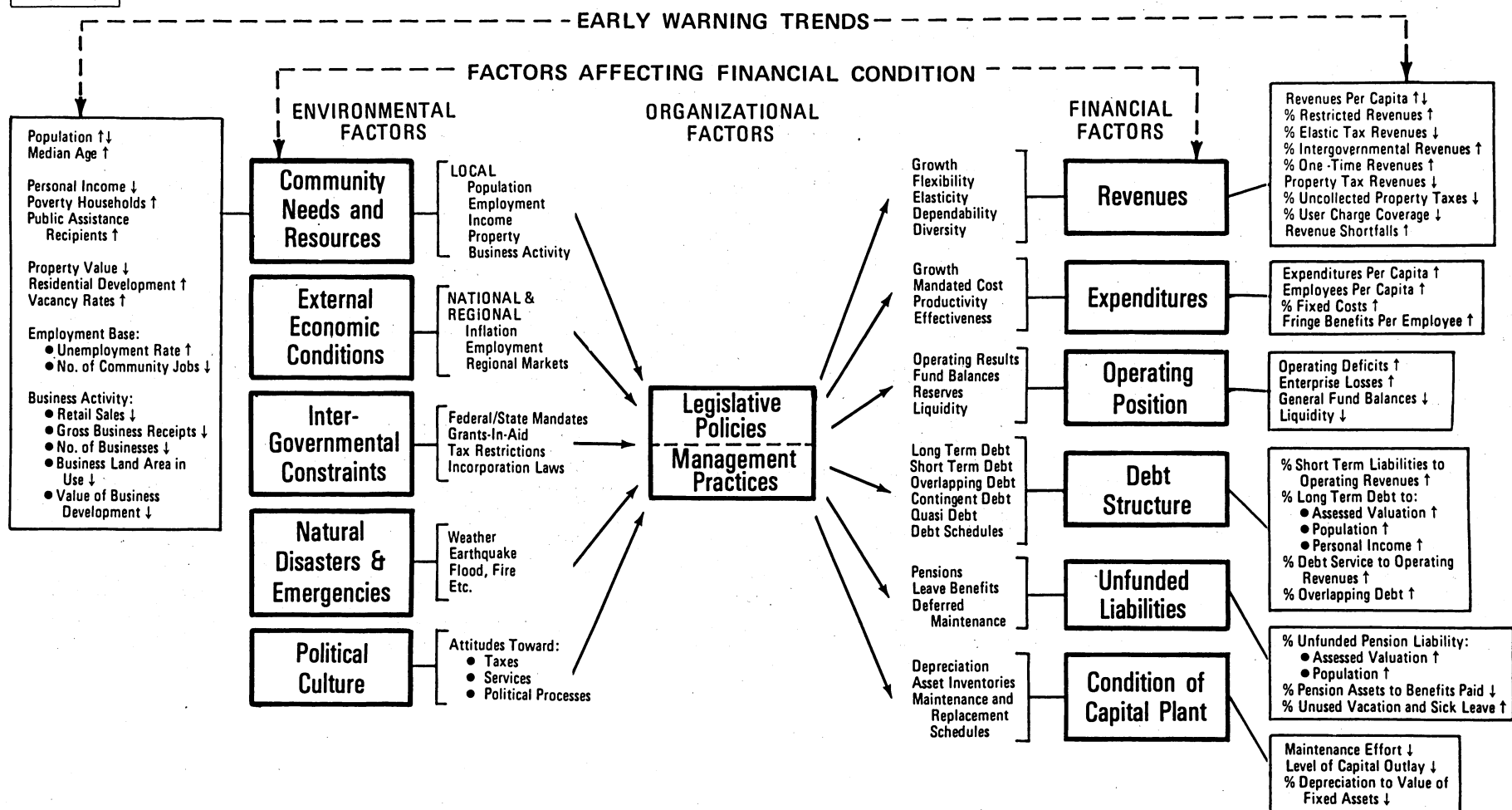
Fiscal trend analysis promises to make up for some of the deficiencies of comparative stress analysis, while providing insights into important new fiscal developments for nonmetropolitan areas. Nonmetropolitan governments are numerous, diverse, and poorly represented in Census accounts. These attributes lead to many problems discussed earlier in this report. Fiscal trend analysis bypasses these difficulties by focusing on the unique characteristics of a given community or type of community. For an individual community, annual information for various fiscal indicators can be collected from State and local data sources. This approach allows for a detailed, individualized analysis of a rural government's fiscal condition.

Because fiscal trends emphasize dynamic rather than static conditions, they have been particularly helpful in revealing important changes occurring in many rural areas as a result of the recent nonmetropolitan population revival. Most

Figure 3--ICMA indicators

# Financial Trend Monitoring System

**LEGEND**  
 ↑ Increasing  
 ↓ Decreasing



37

fiscal studies of nonmetro areas, moreover, have emphasized fiscal trend indicators either instead of or in addition to static comparative stress indicators. For example, a good description of nationwide, nonmetropolitan fiscal trends and factors affecting them is provided by Sullivan, Collins, and Reid (56). Their paper uses aggregate, county area data to obtain comparable fiscal indicators for metropolitan and nonmetropolitan areas for the years 1962, 1972, and 1977. Trends in the size and composition of local government revenue, expenditure, and debt are presented for metropolitan and nonmetropolitan areas on a per capita basis (64). Trends in local costs, Federal and State aid, and local employment levels are also highlighted.

On the regional level, relatively little research has been done to identify or compare nonmetropolitan fiscal trends. Collins' analysis of local government revenue composition and Perkinson's report on government employment and earnings are exceptions (11, 45). In both studies, metro-nonmetro comparisons are made for the four Census regions. In Perkinson's study, more detailed comparisons are made among types of nonmetropolitan counties, where nonmetropolitan counties are differentiated by degree of urbanization and by proximity to metropolitan area. Perkinson discusses similar trend comparisons in a related paper (44).

Metro-nonmetro comparisons for 10 fiscal trend indicators are provided in a Fox-Sullivan working paper (20). Average percentage changes for each of these indicators are presented for metropolitan and nonmetropolitan areas in the Northeast which were either growing or declining over the period 1962-1972 (table 8). The Fox-Sullivan regression model (discussed earlier) emphasizes changes in individual indicators, such as the growth in expenditures or the growth in revenue effort, to identify fiscal stress. This fiscal trend approach underscores the interrelationship of the various financial trend indicators. The authors emphasize the need to go beyond simple percentage change indicators, and to examine base levels and changes in per capita amounts in order to make meaningful comparisons for rural government finances. For example, the inadequacy of dealing with simple trends alone is apparent from the large increases in capital expenditures, 314 percent, for growing nonmetropolitan governments in the Northeast (table 8). This increase, Fox and Sullivan suggest, could merely reflect extremely low initial capital expenditure levels or conversion to capital intensive methods, and hence may not be a cause for great concern (20, p. 14).

Whereas Fox and Sullivan attempt to identify nonmetropolitan fiscal stress and its underlying causes, Stinson is concerned more with the implications of growth and fiscal stress for the quality of life in rural America (54). Stinson focuses on fiscal trends because, like others, he claims static comparisons are potentially misleading. He uses trends to identify important changes in the types of revenues and

Table 8--Fox and Sullivan fiscal strain indicators

Mean percentage change in major fiscal variables by metropolitan-nonmetropolitan status for growing and declining county areas, 1962-1972 <sup>1/</sup>

Revenue and expenditure categories	Growing counties		Declining counties	
	Metropolitan N=84	Nonmetropolitan N=90	Metropolitan N=13	Nonmetropolitan N=26
	<u>Percent</u>			
General revenues	184	164*	142	138
Own source revenues	153	150# <sup>2/</sup>	109	107
Intergovernmental transfers	288	210*	249	208
Direct expenditures	180	161*	132	112
Local school expenditures	188	169*	152	116*#
Nonschool expenditures	178	165*	131	113
Current expenditures	188	162*	136	120
Capital outlays	171	314*#	146	118
Long-term debt outstanding	121	119	103	303*#
Full-time equivalent employment	59	265*	27	47*#

Source: U.S. Census of Governments, 1962 and 1972; U.S. Census of Population, 1960 and 1970.

<sup>1/</sup> Counties are divided according to the Census definition of metropolitan status in 1972 and according to change in size of population between 1960 and 1970. All the numbers represent unweighted means.

<sup>2/</sup> Increased more rapidly in nonmetropolitan counties when measured in per capita terms.

\*Significantly different mean growth rate of total spending and revenue categories at the 90 percent confidence level for metropolitan versus nonmetropolitan county area governments.

#Significantly different mean growth rate in per capita values at the 90 percent confidence level for metropolitan versus nonmetropolitan county area governments. Per capita growth rates are not reported.

Source: (20, p.15).

public service expenditures in an effort to trace the patterns in the growth of local government spending. Another Stinson paper addresses the policy alternatives for overcoming the fiscal stress caused by rapid growth in small rural areas (53).

There have been few applications of fiscal trend monitoring systems to rural areas because the systems designed by MFOA and ICMA have only recently become available to local governments. These new monitoring systems are designed specifically for small units of government. Hence they are well suited to the needs of many small rural communities. These systems are still relatively untested. Only time will tell if rural governments will be able to obtain the kind of financial information necessary for making fiscal policy decisions by using these fiscal monitoring systems.

## CONCLUSION

Rural fiscal indicator research can play a role in the design and implementation of Federal rural development policy, but it must overcome difficulties associated with limited rural government data and insufficient experience in modeling and monitoring rural fiscal conditions. Recent research has demonstrated that fiscal indicators can be used to reveal important insights about rural government fiscal problems and ways to deal with these problems. However, more research is needed to catch up to the state of art in urban fiscal indicator research. In addition, improvements in the quality and quantity of rural government data must be made to obtain more meaningful indicators.

Three types of fiscal indicators were examined in this review: comparative stress, effort and capacity, and fiscal trend indicators. Although there are problems associated with each of these types of indicators--both data problems and conceptual problems--each type of indicator was found to be valuable for helping to identify local fiscal difficulty. Comparative stress indicators are valuable for helping to understand the causes and consequences of fiscal stress, and they may also be used to suggest potential policy solutions to fiscal stress. Effort and capacity indicators are important for their use in distributing aid to local governments in Federal and State revenue sharing programs. Fiscal trend indicators are most useful for identifying developing fiscal problems and monitoring recent trends.

Rural comparative stress studies are well behind urban stress studies for several reasons. First, there has been more interest in urban stress, and more research has been devoted to identifying the causes of urban fiscal problems. Second, rural fiscal problems differ markedly from urban fiscal problems, hence rural comparative stress studies cannot be patterned directly after urban studies. Rural stress studies must examine different economic, social, and fiscal indicators and new conceptual models must be developed. Third, because of the large number and great diversity of small rural government

jurisdictions, the problems of collecting and analyzing rural data prevent rural stress studies from adopting some of the sophisticated or detailed analytical approaches used in urban fiscal stress studies.

Despite these problems, comparative stress may be one of the most promising approaches for identifying rural fiscal stress. Recent rural studies provide valuable insights into the unique fiscal problems and processes of rural governments. Most urban stress studies emphasize the importance of such factors as high tax burdens, declining tax bases, aging housing, public infrastructure maintenance and repair costs, declining manufacturing employment, city-suburb fiscal disparities, and political factors. In contrast, rural stress studies emphasize fiscal problems related to rapid population growth and decline, poverty and public service need, the diseconomies of providing public services in sparsely populated areas, and inadequate financial management and planning capabilities of rural governments.

The effort and capacity indicators used in revenue sharing programs have received much attention. Tax effort measures have been criticized for ignoring user charges and volunteer efforts, which are more widely used in rural areas than in urban areas. Population and income are conceptually inferior to property values as a measure of capacity. But adequate rural property value data are not available.

Some sophisticated measures of effort and capacity have been developed in recent years; however, these also rely on property value data. Because some of these sophisticated measures are likely to be used in Federal and State aid formulas, improved rural property value data sources may be developed in the future. Continued progress in the field of rural fiscal indicator research is contingent on their development.

Fiscal trend analysis is another promising line of research. For State and local government, there has been growing interest in monitoring medium- and short-term trends for individual local governments. Recent work by the Municipal Finance Officers Association and the International City Management Association has provided small local governments with a relatively simple, systematic framework for monitoring financial trends. Such fiscal monitoring systems may be well suited to the needs of small, rural governments. As rural governments begin experimenting with financial monitoring systems, one can expect that further developments will be made in these systems, and that useful insights will be gained about rural government fiscal processes.

At the Federal Government level, rural fiscal trend research has concentrated on long-term national and regional trends associated with the revival of rural population growth and its fiscal implications. However, up-to-date information on fiscal conditions of rural governments is required to assess current rural fiscal conditions and trends nationwide. To obtain such



information, sufficiently detailed fiscal data must be collected regularly for rural areas. For large cities and metro areas, annual data is available from several sources. For rural areas, such data are presently available only once every 5 years following the Census of Governments.

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