MEASURING THE FISCAL CONDITION OF CITIES IN MINNESOTA

Submitted to the
Minnesota Legislative Commission on
Planning and Fiscal Policy

Final Report

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EXECUTIVE SUMMARY

Introduction and Overview

Background and Scope of the Report

In 1989, the Minnesota Legislature asked the Legislative Commission on Planning and Fiscal policy to undertake a study of the relative service needs of local governments. It was anticipated that the results of such a study would be useful in redesigning local government aid programs (see 1989 Laws of Minnesota, First Special Session, Chapter 1).

In March of 1990 the Legislative Commission on Planning and Fiscal Policy contracted with the authors to study the fiscal condition of Minnesota cities, to evaluate the extent to which current aid formulas help the neediest cities, and to assist the commission in devising alternative formulas for aid distribution.

While the legislative mandate to study local government service needs encompassed all local governmental jurisdictions, time limitations required that the scope of this report be limited to the 179 cities with populations over 2,500.

Methodology Used in This Report

This report applies a "need-capacity" gap approach to defining a city's fiscal condition. The authors have applied this approach in other states, including Massachusetts and Nebraska, and the approach formed the basis for Helen Ladd and John Yinger's book, *America's Ailing Cities: Fiscal Health and the Design of Urban Policy* (Johns Hopkins University Press, 1989).

According to this approach, a city's fiscal condition is measured by the gap between its expenditure need and its revenue-raising capacity, where variations in both need and capacity reflect only factors outside the control of local officials. An aid formula that directs more aid

to cities with higher need-capacity gaps equalizes the access of all residents to publicly supplied goods and services at reasonable tax burdens.

The execution of this report involved close and frequent interaction between the authors and Minnesota legislative and executive branch staff and local government officials. Local staff prepared a comprehensive database describing the fiscal, economic, demographic, and physical attributes of all Minnesota's 855 cities and exchanged conceptual memos covering many technical aspects of the project with the authors of this report.

Expenditure Need

Each city's expenditure need per capita is computed by adjusting the average spending per capita of Minnesota cities by a cost index that indicates the impact of selected city characteristics on the cost of providing public services. Cities with less favorable cost characteristics, such as a high cost-of-living or a high crime rate, must spend more than other cities to provide the same level of public services. These calculations were made for four broad categories of spending, namely public safety, transportation, economic and social programs, and administration and miscellaneous.

The impact of cost factors on spending is separated from the impact of other factors using a common statistical tool known as regression analysis. The resulting regression-based cost indexes incorporate only cost factors outside the control of local decision makers. Higher costs imply higher "expenditure need." Expenditure need, a concept that facilitates comparisons across cities, is not a measure of actual spending, nor is it a measure of what local governments should spend. Instead, it indicates how much a city would have to spend to provide average-quality public services if cost factors outside the control of city officials were all that differentiated it from the average city.

Expenditure Need: Highlights

Actual spending (as opposed to "expenditure need") varies substantially across Minnesota cities. In 1988 the average Minnesota city spent $444 per capita to provide public services. Actual spending varied around this average from a low of $153 per capita to a high of $1,092 per capita. Thus, the highest-spending city spent over seven times as much per capita as the lowest-spending city. Some of this variation is due to factors under the control of local decision making such as service quality, while some is due to factors such as population density, outside their control.

Because it captures only the effects of cost factors outside the control of local officials, expenditure need as measured in this report varies less than actual spending. Nonetheless, the variation is still substantial. Expenditure need ranges from a low of $241 per capita in Mountain Iron to a high of $640 per capita in Minneapolis.

Generally, large cities, high-income cities, and property-rich cities have the highest expenditure need. Cities with population over 25,000 have expenditure needs that average $465 per capita, while cities with less than 7,500 people have an average need of $410. The average expenditure need of cities with per capita income over $15,000 is $449 compared to $393 for cities with less than $10,000 per capita. Finally, cities with per capita assessed values over $7,000 have an average expenditure need of $451 compared to $387 for cities with less than $4,000 of assessed value per capita.

Revenue-Raising Capacity

A complete picture of a city's fiscal health cannot be determined by examining its expenditure need alone. Two cities with identical spending need could have widely different fiscal health due to differences in their ability to raise revenue.

This report derives a measure of revenue-raising capacity through the use of a standardized tax rate or tax burden. The focus here is not on actual local tax levels, but on the levels that could be attained if the city levied taxes at the standardized tax rate or standardized burden on city residents.

The capacity calculations were done using two alternative approaches. One is a "tax-base approach" in which revenue-raising capacity from own sources is derived by multiplying a city's property tax base by a standard tax rate, which is an average rate across all cities. Calculations under this approach are limited to property taxes and the property tax rate reflects special assessment revenue and tax increments as well as the standard levy. The other approach, called the "income-with-exporting" approach, measures a city's ability to raise revenue at a standard tax burden on its residents, expressed as a share of resident income, with appropriate adjustment for a city's ability to export its tax burden to nonresidents. The standard burden also reflects special assessments and tax increments.

The inclusion of two alternative ways to calculate revenue-raising capacity is a compromise. The income-with-exporting approach is conceptually more appealing to the authors because it explicitly focuses on the well being of city residents; that is it compares the revenue different cities could raise if the tax burden on their residents were the same. However, the income approach requires estimates of so-called "export ratios," which measure the burden imposed on nonresidents per dollar of burden imposed on residents. These ratios are difficult to estimate. The tax-base approach, on the other hand, uses fairly straightforward calculations of the local base multiplied by an average tax rate, but it does not hold tax burdens constant across cities. Because the state has used the tax-base concept in previous aid formulas, Minnesota staff generally felt that this approach would be more acceptable.

The revenue-raising capacity calculations in this report, using both the tax-base and the income-with-exporting approach, consider only the local property tax plus certain components of intergovernmental aid, with adjustments for net fiscal disparities distributions, tax increments paid by school districts, and transfers to cities from electric utilities and liquor stores. However, either method could be extended to include other local revenue sources.

Revenue-Raising Capacity: Highlights

For cities with population over 2,500, actual city revenue from all sources (as distinguished from revenue-raising capacity) ranged from $150 to $1,495 per capita in 1988, with an average value of $446. On average, the largest components of revenue were the property tax levy ($124 per capita), LGA ($77 per capita), and special assessments ($64 per capita). Other own sources of revenue included tax increment financing, licenses, and various user charges.

It is important to remember, however, that actual revenue reflects both underlying capacity and the level of effort expended to raise revenue. By imposing a standardized tax rate or burden, this report measures the underlying capacity of a city to raise revenue, ignoring locally controlled decisions regarding the of tax effort.

Using the income-with-exporting approach, the 1988 revenue-raising capacity of the average city, excluding aid, is $211 per capita, with a range from $85 to $499. Not surprisingly, this capacity increased with population, resident income, and assessed value per capita.

The tax-base approach produces a set of revenue-raising capacities excluding aid with roughly the same mean value as that of the income approach, but with significantly wider variation from city to city. The average capacity in 1988 is $195 per capita, with a range from $40 to $961. The pattern of capacity across types of cities is roughly the same as with the income-with-exporting approach, except that the relative position of Minneapolis and St. Paul improves when the tax-base approach is used.

When certain state aids are included in the formulation of a city revenue-raising capacity, namely general-purpose aids and aids not considered candidates for redesign, the variation in capacity is reduced somewhat. Using the income-with-exporting approach with aid included, average capacity is $275 per capita with a maximum of $516 in Monticello and a minimum of $105 in St. Joseph. Using the tax-base approach with aid included, average capacity is $250, with a maximum of $978 and a minimum of $68 in the same two cities.

The Need-Capacity Gap

Expenditure need and revenue-raising capacity together define a city's need-capacity gap, the summary measure of a city's fiscal condition and the appropriate target of state equalization formulas. Because both the expenditure need and revenue-raising capacity calculations are based on average city values (average city spending adjusted with a cost index and revenue capacity calculated using an average tax rate or burden) and because the expenditure side encompasses all spending whereas the revenue side is limited to the property tax, it is not surprising that most cities have a positive need-capacity gap. Consequently, it is more useful to focus on the differences in gaps across cities than on the absolute gaps. This report provides no information on whether Minnesota cities are spending too much or too little, or, as a group, need more or less aid. Instead, it provides a measure of each city's fiscal condition relative to that of others.

The Need-Capacity Gap: Highlights

The relative need-capacity gaps using the income-with-exporting approach to capacity range from $-121 in Mountain Iron to $144 in Brainerd, the State's most fiscally troubled city. Minneapolis and St. Paul are also in poor fiscal condition, with relative gaps of $118 and $98 respectively. Despite the Twin Cities' relatively high capacity, they are in poor fiscal condition because they have relatively high expenditure need.

In general, Minnesota's largest and smallest cities are in relative poor fiscal condition, large cities because of their high expenditure needs, and small cities because of their relatively low revenue-raising capacity. Fiscal condition appears to improve with the average income of city residents. Although cities with higher incomes tend to have higher expenditure need, they also tend to have proportionately more revenue-raising capacity than the average city and hence to have relatively low need-capacity gaps. A similar pattern emerges in terms of assessed value, with property-rich cities in the best fiscal condition, all else equal.

Evaluation of Current LGA Formula

The need-capacity gap provides a logical standard by which to evaluate the equalizing impact of the Local Government Aid (LGA) formula. Specifically, we can ask whether Minnesota cities with higher need-capacity gaps receive more LGA. The answer to this question is that 1988 LGA was not well directed to the cities that need help the most. A well-designed equalizing formula would produce a pattern in which cities with high gaps received more aid. In fact, we find no discernable pattern and a very low correlation. 0.10, between the need-capacity gap and actual LGA. A perfect equalizing formula would have a correlation coefficient of 1.0. Although the LGA formula changed in 1989, strong hold-harmless provisions in the new formula imply that the current aid distribution is not very different from the distribution in 1988.

The principal explanation for this result is that the 1988 LGA formula defines a city's "need" as its actual historical spending. This study's unique contribution is to estimate cost indexes, which yield measures of expenditure need that are beyond the influence of city officials. This new approach to need refines the notion of a city's fiscal condition and, as expected, changes the focus of equalization. Our inclusion of selected state aids on the revenue side also helps explain the poor correlation between 1988 LGA and the need-capacity gap.

The key implication of these results is that the current LGA program does not use a cost-effective formula for assisting Minnesota's neediest cities. Even though it tends to give more aid to cities with relatively low revenue-raising capacity, it fails to give more aid to cities with relatively high expenditure need. It also fails to recognize the contribution of some federal and state aid programs to cities' general fiscal condition.

Redesigning LGA Formulas

Many different policy objectives can be served by state grants to local governments. The aid formulas discussed in this report are designed to promote one key objective, namely to help all cities deliver public services to their residents at reasonable tax rates. To achieve this objective, states must compensate cities for fiscal disadvantages caused by factors outside their control.

Complete compensation may be an impractical goal, but aid should lessen the impact of factors outside the control of local officials on the ability of a city to serve its residents. It is worth emphasizing that a city's equalizing aid should be based solely on factors outside its control. Compensating a city for a fiscal disadvantage caused by poor management or wasteful spending would be unfair to more responsible cities and may even encourage such undesirable practices. Aid formulas discussed here do not have this inappropriate feature.

In designing an aid formula, state officials must make two choices:

1. They must decide how targeted the aid will be. That is, will it be directed to all cities, or just to those in the poorest fiscal condition?

2. They must determine the desired extent of equalization within the set of cities receiving aid. This amounts to deciding what proportion of a city's fiscal disadvantage, as measured by its need-capacity gap, will be offset with aid.

These two choices determine how much the state must spend to achieve its equalizing objectives. In other words, a certain budget is required to offset the selected portion of the need-capacity gap in the selected group of cities.

The relationship between these two choices and the required state budget is illustrated in the Table ES-1. If the aid program is targeted on the 97 cities in the worst fiscal condition and if the state wants to offset at least 75 percent of the fiscal disadvantages in that group of cities, for example, it must spend $100 million. Reducing the number of cities receiving aid or the share of fiscal disparities that are offset, reduces the required budget. Table ES-1 also indicates how far a given budget will go. For example, if the state wants to spend $167 million for equalizing purposes and it wants to help the 130 most troubled cities, then it can offset at most 78.5 percent of the existing fiscal disparities across those cities.

In this context, it is important to note that the 1988 city LGA formula provided aid to all of the 179 cities considered here at a total cost of over $250 million, but it failed to systematically offset the existing fiscal disparities. As noted earlier, the correlation between need-capacity gaps and LGA was only 0.10. The budget amount has increased since 1988 but, because of hold-harmless provisions, the distribution of aid does not appear to have changed markedly. Clearly, at the current budget for LGA, a significantly greater degree of equalization is possible even if most cities continue to receive aid. Stated differently, a smaller investment in city LGA could achieve significantly more equalization than is achieved at present.

TABLE ES-1

ALTERNATIVE STATE AID PROGRAMS, INCOME-WITH-EXPORTING APPROACH

Number of Cities Receiving Aid	Percent of Need-Capacity Gaps Offset for a State Budget in Millions of:					
	$33	$67	$100	$133	$167	$200
69	39.9	80.9	100.0+	100.0+	100.0+	100.0+
76	33.9	68.8	100.0+	100.0+	100.0+	100.0+
86	29.1	59.0	88.1	100.0+	100.0+	100.0+
97	25.2	51.1	76.3	100.0+	100.0+	100.0+
107	22.0	44.7	66.7	88.7	100.0+	100.0+
114	19.5	39.5	59.0	78.4	98.4	100.0+
124	17.3	35.2	52.5	69.8	87.7	100.0+
130	15.5	31.5	47.0	62.5	78.5	94.0
139	14.0	28.4	42.3	56.3	70.7	84.6
145	12.7	25.7	38.4	51.0	64.1	76.7

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PREFACE

In 1989 the Minnesota Legislature asked the Legislative Commission on Planning and Fiscal Policy to undertake a study of the service needs of local governments. In March, 1990, the Commission contracted with John Yinger through the Metropolitan Studies Program in the Maxwell School of Citizenship and Public Affairs at Syracuse University, Helen F. Ladd of Duke University, and Andrew Reschovsky of the University of Wisconsin to measure the fiscal condition of cities in Minnesota. The intent was for the consultants to use the need-capacity gap approach to fiscal condition that they had developed for other states, including Massachusetts and Nebraska, and that was embodied in slightly different form in Helen F. Ladd and John Yinger's book, *America's Ailing Cities: Fiscal Health and the Design of Urban Policy* (Johns Hopkins University Press, 1989). According to this approach, a city's fiscal condition is measured by the gap between the city's expenditure need and its revenue-raising capacity, where variations in both need and capacity reflect factors outside the control of city officials. In addition, the consultants were asked to evaluate the extent to which current local aid programs help the neediest cities and to assist the Commission in devising alternative formulas for distributing local assistance to cities.

Since April 1990, we three consultants, Helen Ladd, Andrew Reschovsky, and John Yinger, have collaborated closely with the Minnesota Legislative staff to complete the project. The first phase involved assembling and checking data on public spending, the property tax base and its components, income, population, revenue sources, and socioeconomic characteristics for each city in Minnesota. The Minnesota staff, and in particular, Lynn Reed from Senate Research, took primary responsibility for this task under our guidance. Data were assembled from various state and federal sources for all cities in Minnesota. The second and most time-consuming phase was the development of measures of the fiscal condition of the 181 Minnesota cities with population greater than 2,500. Compared to the smaller cities, the data for the larger cities are more complete and reliable and their expenditures are more amenable to the statistical analysis on which our approach is based. The third phase of the project involves showing how the measures of fiscal condition can be used to evaluate the extent to which the current LGA program targets aid to the cities that need it the most and how they could be incorporated into the design of new, more equalizing formulas for distributing aid to local governments. This report summarizes our methodology and findings.

Throughout this project, we have had a productive and close working relationship with members of the Minnesota Legislative staff and other participants in the various local government aid study groups. In the absence of an executive director of the Legislative Commission on Planning and Fiscal Policy, Daniel Salomone, Director of Senate Research and Counsel, has served as our main contact person in Minnesota. Thanks to him, the project has proceeded smoothly and efficiently. We are extremely grateful for his support, encouragement, and organizational skills.

Early in the project, we decided to use discussion memos to keep people informed of our progress, to get timely feedback on our ideas, to test our understanding of the Minnesota system of local government finance and, as the project progressed, to subject our preliminary results to scrutiny. To accommodate this approach, Dan Salomone worked with others to set up study groups in Minnesota that made possible the productive and timely exchange of ideas that we needed. Table P-1 lists the members of the full LGA study group and Table P-2 lists the members and topics of the various specific study groups. Each memo was distributed to the relevant study group for discussion and analysis. The study group then responded to us in writing, providing answers to our specific queries, providing additional data when needed, correcting any errors or misunderstandings, and expressing any major agreement or disagreement with our approach. Several trips to St. Paul provided additional opportunity for us to interact with the members of the various study groups and also with the members of the Local Aid Task Force of the Commission and other interested groups, such as the Minnesota League of Cities, the Minnesota Business Partnership, and the Minnesota Taxpayers' Association. We believe that this interaction was crucial to the project and that it has greatly improved the quality of this report and, we hope, the understanding of the ideas within it. We are grateful to all the participants in this process for their cooperation, hard work, and interest in this project.

In addition, we thank the staff of the Metropolitan Studies Program at Syracuse University and at Duke University's Institute of Policy Sciences and Public Affairs, without whom this project would not have been possible. Within this group, one person should be singled out, namely Esther Gray, who cheerfully and efficiently produced this report. We are also grateful to Greta Hesse of Syracuse University for research assistance.

TABLE P-1

FULL LGA STUDY GROUP

Consultants	Helen Ladd Andrew Reschovsky John Yinger
Revenue Department	Commissioner John James John Tomlinson Robert Cline Jim Benson Gordon Folkman Rich Gardner
Finance Department	Commissioner Peter Hutchinson Ron Hackett Emmett Metzger Dam Nguyen Tom Stinson
State Auditor's Office	Ed Fuller
Legislative Auditor's Office	Jim Nobles, Legislative Auditor Elliot Long
Senate Majority Leader's Office	Vic Moore
House of Representatives Ways and Means Committee	Dick Pfutzenreuter Liz Podolinsky Matt Shands
Senate Tax Committee	Keith Carlson Kathryn Nelson
Senate Research	Dan Salomone Mark Misukanis Jack Paulson Lynn Reed Sean Stevenson Bill Sims
House Research	Karen Baker Patricia Dalton Steve Hinze Alan Hopeman Joel Michael
League of Minnesota Cities	Barry Ryan

TABLE P-2

ORGANIZATIONAL STRUCTURE OF CITY LGA STUDY GROUP

City LGA Study - Staff Steering Committee

Dan Salomone--Chair
Alan Hopeman
Keith Carlson
Matt Shands
Bob Cline
Ron Hackett
Barry Ryan

Working Group #1: Chair - Alan Hopeman

Topics:	**Working Group Members:**	
Service Responsibilities	John Tomlinson	Keith Carlson
Revenue Raising Capacities Index	Steve Hinze	Matt Shands
Environmental Cost Factors	Liz Podolinsky	Ron Hackett
Degree of Spending Aggregation	Dick Pfutzenreuter	Alan Hopeman
Private Sector Wage Costs	Dan Salomone	

Working Group #2: Chair - Pat Dalton

Topics:	**Working Group Members:**	
Enterprise Funds	Pat Dalton	Jim Benson
User Charges	Lynn Reed	Bill Sims
Special Assessments	Ed Fuller	Dave Kazeck
Intercity Transfers	Karen Baker (Special Assessments)	
Housing and Redevelopment Authorities		

Working Group #3: Chair - Gordon Folkman

Topics:	**Working Group Members:**	
Tax Increment Financing	Matt Shands	Karen Baker
Fiscal Disparities	Kathryn Nelson	Gordon Folkman
Levy Limits	Emmett Metzger	Steve Korris
	Rich Gardner	Joel Michael (TIF)

Working Group #4: Chair - Lynn Reed

Topics:	**Working Group Members:**	
Volunteer Fire Departments	Pat Dalton	Bill Sims
City Hospitals/City Health Departments	Lynn Reed	Kathryn Nelson
Ambulance Service	Dave Kazeck	
Comparable Worth		
Binding Arbitration		
Auditor Data Verification		

CHAPTER 1

INTRODUCTION AND OVERVIEW

Given its current difficult fiscal situation, Minnesota must be particularly careful to ensure that its programs are cost-effective. This report concerns the cost-effectiveness of Local Government Aid (LGA), the state's main general-purpose aid program for cities.

An aid program is effective to the extent that it meets its objectives. Several different objectives have been proposed for state aid programs, including the reduction of local property taxes and assuring adequate levels of locally provided services. At the present time, the most compelling rationale for state aid to cities is to offset fiscal disadvantages faced by cities with relatively low resources or relatively high costs of providing public services. State interest in equalization follows from the fact that cities are not autonomous and separate entities. Instead, the state created them and continues to influence their tax and spending powers.

According to this equalization rationale, the state should direct aid to those cities that, through no fault of their own, are least able to provide adequate public services to their residents at reasonable tax burdens. The goal is one of fair treatment of people living in different cities. Without aid, residents in cities that face high costs of providing public services or that have low capacity to raise revenue are at a disadvantage relative to residents in other cities in terms of their access to publicly provided goods and services at reasonable tax burdens. The state government can help by directing aid to the cities that have the weakest fiscal condition. Aid to cities based on this rationale should be provided with no restrictions, including no restrictions on local property tax levies. Recipient jurisdictions would then be free to use the equalizing aid either to reduce local taxes or to increase public spending as they chose.

The desirability of an equalizing aid program of this type depends on the values and beliefs of state citizens. The more strongly held is the value of fair treatment of residents in different cities, the stronger is the argument for an equalizing aid program. There is no objective way to determine either the appropriate amount of aid to distribute through an equalizing formula or precisely how targeted it should be. These issues will have to be debated by the Minnesota legislature in light of the information provided in this report.

Although this report makes no attempt to say how much equalization is appropriate or how much the state should spend on LGA, it does show how much the state would have to spend to achieve any given degree of equalization selected by state policymakers. This amount depends on the magnitude of the disparities in fiscal condition across cities in the state. The greater the disparities, the more the state must spend to achieve a given degree of equalization.

Thus, the main purpose of this report is to develop a methodology for measuring the relative fiscal condition of each Minnesota city. Throughout this report, fiscal condition indicates the ability of a city to provide an average level of services at a standard tax burden on city residents. More specifically, fiscal condition is defined as the gap between a city's expenditure need and its revenue-raising capacity, where both need and capacity reflect factors outside the control of city officials. The larger is this gap, the poorer is the city's fiscal condition and consequently, the larger is the city's claim on local government aid. Chapter 2 provides a detailed explanation of expenditure need and Chapter 3 of revenue-raising capacity.

A second purpose of this report is to evaluate how well the state's current general aid program directs aid to the cities with the largest need-capacity gaps and to show how the fiscal condition measures could be incorporated into a new, more equalizing, distribution formula for state aid to cities. Chapter 4 summarizes our findings about the fiscal condition of Minnesota

cities, compares the 1988 distribution of LGA aid to city fiscal condition, and indicates the steps involved in designing a new, more targeted aid program, to cities.

Concept of Fiscal Condition

Three aspects of the measure of fiscal condition used in this report should be highlighted. First, it is a relative, rather than an absolute, measure. Hence, it provides no information about whether cities as a group or on average are needy. Instead, it provides information only about whether one city is needy relative to another. Because of this fact, the measure cannot be used to determine how much aid the typical city deserves or needs. It can only be used to determine whether one city is more deserving of aid than another city.

Second, by focusing on the balance between expenditure need and revenue-raising capacity, this measure of fiscal condition appropriately includes the spending side as well as the revenue side of the local fiscal picture. One can easily imagine a city with an above-average per capita tax base that is in poor fiscal condition because of its even higher expenditure need. The Minnesota legislature has long recognized the importance of expenditure need as a contributor to a city's claim on local government aid, but has struggled to measure it in an appropriate way. Compared to previous measures included in the LGA distribution formula, the concept of expenditure need developed in this report has a stronger conceptual and empirical foundation.

Third, fiscal condition measures the effects on expenditure need and revenue-raising capacity only of factors outside the immediate control of city officials. Stated differently, fiscal condition as measured here is independent of a city's actual spending or taxing decisions. For example, a city's measured fiscal condition will not vary with the city's decision to spend either above- or below-average amounts on public services or with its decision to impose either above- or below-average tax rates. This independence from current decisions is crucial if the measure

is to be used in a new formula for distributing aid to cities. A measure that varied with current local decisions would have the undesirable characteristic of providing incentives for local officials to change their tax or spending decisions to obtain more aid. No such incentives exist in the programs discussed in this report.

The Need-Capacity Gap

We define the fiscal condition of each Minnesota city as the gap, expressed in dollars per capita, between what the city would have to spend to provide average-quality public services and the amount of revenue it would generate from the property tax if it imposed either a standard burden on residents or a standard tax rate. We refer to the first part as the city's expenditure need and the second part as its revenue-raising capacity. The analytical task is to develop measures of need and capacity that are comparable across cities, that are independent of the tax and spending decisions of city officials, and that can be updated annually.

In developing such measures for Minnesota we draw on our previous work for large cities throughout the country, for cities and towns in Massachusetts, and municipalities, and school districts in Nebraska. All the analysis in this report applies to 1988 data for 179 Minnesota cities with population greater than 2,500.[1] As we show in Chapter 4, the approach can easily be updated to incorporate more recent data.

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[1]Data limitations forced us to exclude two cities with population in excess of 2,500, International Falls and South International Falls, from the analysis. The 1988 consolidation of these two cities made it difficult to put together complete data for the two cities as of 1988. However, the results from this study can easily be applied to the consolidated city for later years.

Expenditure Need

Table 1 summarizes the 1988 per capita spending by Minnesota cities disaggregated into four broad spending categories--public safety, transportation, economic and social programs, and general administration. For the purposes of this table and for our analysis in Chapter 2, spending is the sum of current account spending plus capital spending averaged over a four-year period. Capital outlays were averaged to smooth what otherwise could be an uneven expenditure pattern. (The basic data source is the State Auditor's city database, adjusted in various ways as discussed in Chapter 2.)

The table shows that per capita spending averaged over $100 in each category and that it varied greatly from one city to another. The largest variation is in the broadly defined category of economic and social programs. As described in more detail in Chapter 2, this category includes spending on housing, economic development, parks and recreation, health and libraries.

Several factors account for this variation in spending. In part, it reflects variation in service quality. A city that chooses to provide high-quality services to its residents has to spend more, all else held constant, than a city that provides a poorer quality of services. In addition, spending differences reflect variation in responsibilities for providing services. For example, a city that has more miles of roads to maintain than other cities would have to spend more than those other cities to provide a given quality of road. Finally, variation in spending may reflect variation in the costs of providing a given quality of services. In particular, a city with higher input costs or harsher conditions for providing public services, would have to spend more than a city with lower input costs or more favorable conditions, to provide a given package of public services. For example, a city with a higher proportion of old housing might have to spend more on fire protection than one with newer housing.

TABLE 1

SPENDING PER CAPITA IN MINNESOTA CITIES OVER 2,500, 1988

	Mean	Minimum	Maximum	Standard Deviation
Public Safety				
Current	91.48	22.67	283.32	40.47
Capital	9.06	0.00	79.21	9.95
Total	100.54	28.27	286.32	41.68
Streets and Transportation				
Current	55.05	5.39	125.04	22.89
Capital	63.19	0.00	459.02	61.81
Total	118.24	5.39	518.57	67.54
Economic and Social Programs				
Current	66.86	0.00	362.29	58.89
Capital	40.75	0.00	281.42	48.52
Total	107.61	0.00	479.41	82.50
Administration and Miscellaneous				
Current	73.58	22.81	266.71	32.59
Capital	44.46	0.21	384.12	62.42
Total	118.04	25.60	456.24	72.10
Total				
Current	286.97	75.33	808.06	116.35
Capital	157.45	1.03	544.00	92.54
Total	444.42	153.37	1,091.99	160.96

Clearly it would not be appropriate to measure expenditure need by a city's actual spending. An aid program based on that measure would have the undesirable characteristic of providing more aid to cities that chose to provide higher quality services. A better approach is to ask how much a city would have to spend to provide an average package of public services given its service responsibilities and the costs it faces. By standardizing the service package at the average level, this approach yields a measure of expenditure need that is comparable across cities. Moreover, variation across cities in this measure reflects variation only in those factors that are outside the immediate control of city officials.

To implement this measure of expenditure need, indexes of service responsibilities and costs must be constructed by major expenditure category for each city. With such indexes, a city's expenditure need can be calculated as average per capita spending for each expenditure category, multiplied by the city's index of service responsibilities and the city's index of costs for each category, and summed over the categories. A city that has above-average responsibilities and above-average costs has to spend more than the average city to provide a given package of public services and consequently is deemed to have above-average expenditure need.

Service Responsibilities. In work that we have done for other states or for cities throughout the nation, variation in service responsibilities has contributed greatly to the variation in expenditure need across cities. In Minnesota, it plays a much smaller role because most of the cities in the study (those with population over 2,500) have reasonably similar responsibilities. Where expenditure responsibilities differ, we adjust the reported figures to make spending comparable across cities. For example, we adjust city spending on economic and social services upward in those cities where some of the development spending is done by a separate housing redevelopment authority.

Only for the spending category of transportation does variation in service responsibility play a major role. For this category, we begin with the concept of average spending per lane mile rather than average spending per person. Cost differences then reflect the differing costs across cities of maintaining a lane mile of road. Service responsibilities are measured by the lane miles for which the city has responsibility divided by city population. Large variation across Minnesota cities in lane miles per capita implies that service responsibilities are a major determinant of variation in expenditure need for transportation services. Thus, for example, we find that even though Rochester faces above-average costs per lane mile, it has below-average expenditure need for transportation. Its low expenditure need reflects its small amount of lane miles in proportion to its population.

Cost Indexes. Of much greater general significance for the measurement of expenditure need across Minnesota cities is variation in costs. The cost index for each major expenditure category is designed to measure how much more or less it costs a city (relative to the average city) to provide a given package of public services. For example, if a city's cost index is 1.3, the city would have to spend 30 percent more than the average city to provide a given package of public services. If a city's cost index were 0.80, the city could provide a given package of public services with spending 20 percent below the average.

We use the statistical technique of multivariate regression analysis to construct a cost index for each city by major expenditure category. This statistical technique allows one to isolate the average effects on spending of various potential cost factors while controlling for other determinants of spending such as residents' income. Cost factors refer to characteristics of the city that are likely to raise costs and are beyond the control of city officials. For example, two potential candidates for cost factors for transportation are population density and weather conditions. It is reasonable to suspect that a city that is densely populated or that has more

frequent freezing and thawing is likely to spend more per lane mile to provide a given quality of road than a more sparsely populated city or one with more favorable weather conditions. For a city characteristic to be included as a cost factor, it must be intuitively plausible and it must exert a statistically observable impact on spending in the regression equation.

To some extent, of course, a city's actual costs may reflect decisions by city officials. For example, a city may decide to offer generous wages to its employees, or it may be slow to implement managerial reforms. To eliminate the effects of actual decisions, we use cost variables that are beyond the direct influence of city officials. For example, instead of using city wage rates to capture the effect of higher input prices, we use a cost-of-living index. The logic here is that in areas where the cost-of-living is high, city governments will have to pay more to attract workers from the private sector than where the cost-of-living is low.

A list of the cost factors that pass both the test of intuitive plausibility and the statistical test of exerting an observable impact on spending by Minnesota cities are reported by spending category in Table 2. For example, a larger proportion of housing built before 1940, more accidents on city roads, a higher cost-of-living in the city's county, and a higher crime rate all increase the cost of providing public safety. The city characteristics that influence spending on economic and social services are population density, old housing, population, and population change. Many of these characteristics also affect the cost of general government administration. Road costs per lane mile decrease with the number of lane miles operated by the city and with the number of heating degree days, but increase with population and population growth. Road costs rise with higher density but at a decreasing rate.

A city with many characteristics that lead to high costs of providing public services will have a higher cost index than a city with a different set of characteristics. Exactly how much higher depends on the values of each of the city's cost factors and the average impacts on

TABLE 2

COST FACTORS BY SPENDING CATEGORY

Public Safety
- Proportion of 1980 housing built before 1940
- Accidents on all city roads per resident
- Cost of living in the city's county
- Crime rate (total reported crimes per 1,000 people)

Transportation Spending Per Mile
- 1988 Population
- Lane miles owned by the city (reduces costs)
- Heating degree days (reduces costs)
- Population density (and density squared)
- Change in population

Economic and Social Services
- Population density
- Proportion of 1980 housing built before 1940
- 1988 population (in logarithmic form)
- 5-year rate of population change (and rate squared)

Administration
- 1988 population (in logarithmic form)
- 5-year rate of population change (and rate squared)
- Cost of living in the city's county
- Number of subsidized family housing units per capita

spending associated with each cost factor as determined from the statistical analysis. Table 3 summarizes the variation in estimated cost indexes. For public safety, for example, we estimate that costs range from 0.69 of the average in the lowest-cost city to 1.48 in the highest-cost city. A comparison of the standard deviation (a measure of the typical variation around the average) in each spending category indicates that costs vary even more for the other three spending categories than they do for public safety. In thinking about the combined effect of cost and responsibility differences for transportation, one should keep in mind that the two indices are likely to be inversely correlated. That is, a densely populated large city is likely to face above-average transportation costs per lane mile but have low responsibilities, as measured by the number of its lane miles relative to the number of city residents.

In summary, the main determinant of variation in the expenditure need of Minnesota cities is variation in the cost of providing public services. Variation in service responsibilities is important for expenditure on transportation, but for the other three categories the driving force is variation in cost. Our results suggest that cost variations are large. Hence, accounting for differences across cities in the cost of providing public services, is an essential part of measuring the fiscal condition of Minnesota cities. (See Chapter 2 for detailed analysis and discussion of the cost indexes, service responsibility indexes, and expenditure need.)

Revenue-Raising Capacity

Table 4 provides summary information on the composition of revenue sources used in 1988 by Minnesota cities with population over 2,500. The largest component is property taxes, broadly defined to include special assessments and tax increments. Other own-source revenues include the utility franchise tax, local sales and gravel taxes, licenses, permits, and user charges. User charges differ from the other local revenue sources because they resemble a price for a specific service. Hence, as described in Chapter 2, we net them out of the spending side rather

TABLE 3

COST INDEXES FOR MINNESOTA CITIES OVER 2,500

	Mean	Minimum	Maximum	Standard Deviation
Public Safety				
Cost Index	1.00	0.69	1.48	0.13
Transportation				
Cost Index	1.00	0.10	5.05	0.50
Responsiblity Index	1.00	0.22	3.49	0.47
Economic and Social Programs				
Cost Index	1.00	0.23	2.77	0.32
Administration and Miscellaneous				
Cost Index	1.00	0.23	1.82	0.34

TABLE 4

REVENUE PER CAPITA IN MINNESOTA CITIES OVER 2,500, 1988

	Mean	Minimum	Maximum	Standard Deviation
Property Tax				
Standard Levy	123.74	40.64	515.56	54.10
Tax Increment Financing	26.24	0.00	260.71	35.87
Special Assessments	64.05	0.00	333.29	64.23
Total	214.03	76.28	663.93	101.65
Licenses and Other Taxes	30.68	1.24	179.38	28.18
User Charges	24.40	0.00	140.66	23.64
Federal Aid	13.25	0.00	511.29	45.21
State Aid				
LGA	76.56	1.48	200.91	43.95
Homestead and Taconite Credit	37.45	14.50	198.12	26.08
Other	43.32	0.00	1138.64	92.61
Total	157.34	19.81	1311.07	119.98
Local Aid	6.56	0.00	173.71	18.37
Total	446.25	149.94	1494.85	177.18

than considering them as a revenue source. Because all of the remaining nonproperty revenues are small, we focus attention on the ability of cities to generate local revenue only from the broadly defined property tax. (See Chapter 3 for further discussion of nonproperty tax revenues.)

City governments also rely heavily on state aid and, to a much smaller extent, on grants from the federal government and from counties and other local governments. Because our goal is to develop a measure of fiscal condition that could be used to distribute general purpose state aid to cities, LGA should not be counted as a source of revenue in the calculation of a city's revenue-raising capacity. As discussed further below, however, some of the other forms of intergovernmental aid are appropriately included as part of a city's capacity to raise revenue for general spending.

Revenue-Raising Capacity from the Property Tax

The revenue-raising capacity of a city can be measured two ways. The **income-with-exporting approach** measures revenue-raising capacity as the amount of revenue that a city could generate by imposing a standard burden (expressed as a percent of income) on residents, augmented by the revenue that would be generated from nonresidents. The **tax-base approach** indicates how much revenue the city would raise if it applied an average tax rate to its property tax base. We prefer the income-with-exporting approach on conceptual grounds but present both because the tax-base approach has historically been used in Minnesota.

The starting point for both approaches is that the measure of a city's capacity to raise revenue should not vary with how much revenue the city chooses to raise. Revenue-raising capacity (RRC) is intended to measure how much revenue the city **could** raise if it were put on the same basis as other cities. This comparable basis could be defined in terms of a standard tax burden on city residents, as in the income-with-exporting approach, or in terms of an average tax structure, as in the tax-base approach. Either form of standardization produces the desirable

outcome that variation in RRC across cities reflects variation only in factors such as the income of city residents or the size of city tax bases that are outside the immediate control of city officials.

We prefer the income-with-exporting approach to the tax-base approach because it focuses attention on the ability to pay, as measured by income, of city residents. No matter what tax a city uses, the portion that is paid by residents comes out of the income of those residents. If one accepts the proposition that the welfare of city residents ought to be the focus, then it follows logically that two cities can be put on a comparable basis by asking how much revenue each could raise if they imposed identical tax burdens, expressed as a percent of income, on their residents.

In contrast, the tax-base approach achieves comparability across cities by imposing a standard tax rate on each tax base. A given tax rate on city property will produce differing tax burdens on residents depending on the relationship between the income of city residents and their property wealth. If the average income of city residents is similar in two cities, but residential property values are higher in one than in the other, the specified tax rate will result in a higher burden on residents in the first city than in the second city.

The disadvantages of the income-with-exporting approach are the difficulty of implementing it and the fact that it is less familiar to state policymakers. However, we show in Chapter 3 how it can be implemented in a reasonable and straightforward way for Minnesota cities. A comparison between the two measures indicates that, in practice, the two measures are highly correlated. The main difference is that the tax base measure exhibits greater variation in revenue-raising capacity across cities than does the income-with-exporting approach.

The Role of Other Intergovernmental Aid. A city's ability to raise revenue for general purposes is enhanced by the revenue it receives from other levels of government. Such aid should be counted as part of a city's revenue-raising capacity provided it is not in the form of a narrowly defined categorical grant and that it is not a candidate for consolidation into a new equalizing aid program. In measuring capacity, we include federal aid in the form of Community Development Block Grants (CDBG) to entitlement cities, state and county highway aid, homestead and taconite credits, and taconite aid.

The Need-Capacity Gap

Calculating a city's need-revenue gap is straightforward. It is simply the difference between the city's expenditure need and its revenue-raising capacity. However, the absolute values of the resulting need-capacity gaps are not very meaningful because expenditure need is based on spending financed from all sources of revenue while the revenue side is incomplete. By design, the intergovernmental aid used to compute revenue-raising capacity excludes some major categories, such as current LGA and narrowly defined categorical programs, and own-source revenue excludes nonproperty revenues. Consequently the absolute gap for all cities is positive.

This result is neither surprising nor disturbing. As we emphasize throughout, our methodology provides no information about whether Minnesota cities as a group are spending too much or too little or need more or less state aid to meet their service needs. Instead, our approach provides a measure of the fiscal condition of each city relative to other cities. Thus, we prefer to report the results in the form of each city's gap relative to the average gap for all cities. In this form, a positive figure indicates that the city's fiscal condition is poor relative to the average, and a negative figure indicates that the city's fiscal condition is stronger than that of the average city.

Table 5 summarizes the results for expenditure need, revenue-raising capacity and the need-capacity gap. The mean in each case is zero because each measure is expressed as a deviation from the average. The large variation in expenditure need should be noted. This variation reflects the variation in costs discussed above. While expenditure need in the least-cost city (Mountain Iron) falls short of the average by $181 per capita, expenditure need in the highest-cost city (Minneapolis) exceeds the average by $217. Combining this large variation in expenditure need with an equivalently large variation in revenue-raising capacity yields substantial variation in the need-capacity gap. This large variation indicates that the current system of city government finances places more severe constraints on some cities than on others, and provides strong justification for a program of state equalizing aid.

Designing State Aid Formulas to Offset Cost and Revenue Disadvantages

The distribution of need-capacity gaps across cities should be a useful tool for state policymakers. It can be used most directly to determine the extent to which state aid is currently directed to cities that need it the most. In addition, the gap measures can be used in the design of a new, more equalizing distribution formula.

Our results in Chapter 4 are clear and striking. In 1988, local government aid was virtually uncorrelated with city fiscal condition as measured by the need-capacity gap. That is, cities with high per capita gaps typically received no more per capita aid than cities with low gaps. Further analysis indicates that this lack of equalization reflects the fact that the current approach to distributing aid fails to account adequately for the variation across cities in their expenditure need as we measure it.

TABLE 5

THE FISCAL CONDITION OF CITIES IN MINNESOTA OVER 2,500, 1988

	Mean	Minimum	Maximum	Standard Deviation
Deviation from the average value of:				
Expenditure Need	0.00	-181.41	216.93	56.53
Revenue-Raising Capacity[a]	0.00	-170.16	132.13	67.95
Need-Capacity Gap	0.00	-268.22	143.76	78.12

[a]Based on the income with exporting approach.

If the state chooses to distribute aid in a more equalizing manner, it can incorporate the need-capacity gaps (updated to the most current year), directly into a formula for distributing local government aid to Minnesota cities. The goal of such an aid program would be to offset, at least in part, the cost and revenue-raising disadvantages faced by many Minnesota cities.

In designing such an aid program, state policymakers must make two decisions. First, they must decide which cities should receive aid. This decision is equivalent to determining a baseline need-capacity gap below which no equalizing aid would be given. The higher the baseline gap, the fewer the number of cities eligible for aid. Of course, policymakers could choose the smallest gap that emerges for any city as the baseline gap. However, for a given budget, the consequence of this decision is that only a small proportion of the aid would be distributed to cities that need it the most.

Second, state policymakers must decide how equalizing the new aid program should be. For example, should it offset 33 percent or 50 percent, of the relative disadvantages faced by some cities as measured by their need-capacity gaps?

These two decisions together determine the appropriate size of the state aid budget. More specifically, the amount of money required to achieve a given degree of equalization depends on the number of cities eligible for aid. The greater this number, the larger will be the necessary budget. Similarly, for any specific number of cities to be aided, the amount of money required will be larger the greater the percentage of the need-capacity gaps that the state legislature chooses to offset.

Only policymakers in Minnesota are in a position to make these two decisions. Therefore, we provide no specific guidance in this report about how much Minnesota should spend for its LGA program. Instead, we describe the tradeoffs by showing the budget that is required to

achieve a certain degree of equalization in a given set of cities. Calculations of this type for 1988 are presented in Chapter 4.

CHAPTER 2

EXPENDITURE NEED OF CITY GOVERNMENTS

Central to the measurement of fiscal condition is the measurement of a city's expenditure need. Failure to include expenditure need in a measure of city fiscal condition can lead to erroneous conclusions about fiscal condition. Consider, for example, a city that has above-average revenue-raising capacity. If the expenditure side is not incorporated, the city will appear to be in strong fiscal condition relative to other cities. Yet the characteristics of the city might be such that the city has to spend much more per resident than other cities to provide an average package of public services. If this were the case, the city could well have below-average ability to provide adequate services to its residents at a reasonable tax burden.

Throughout this report, a city's **expenditure need** indicates the amount that the city must spend per resident to provide an average level of public services to its residents. The main determinant of variation in expenditure need across cities is variation in the cost of providing services, where cost reflects the effects of city characteristics that are outside the control of city officials.

More precisely, a city's expenditure need depends on the average amount per resident required to provide an average quality of public services, a city-specific index of service responsibilities, and a city-specific cost index. For a single category of spending, expenditure need can be written in symbols as

$$EN_i = Q\,SR_i\,C_i$$

where Q = the dollars of per capita public spending required to provide an average quality of the public service in a city with average service responsibilities and average costs of providing the service. Because Q cannot be observed directly, it is approximated by the average per capita spending on the service across all cities in the most recent year.

SR_i = an index of the service responsibilities of the ith city relative to those of the average city. For example, an index value of 1.15 means that the city's service responsibilities exceed those of the city with average responsibilities by 15 percent.

C_i = an index of the costs of providing the service in the ith city relative to those of the average city, where costs reflect characteristics of each city that are outside the control of current city officials. For example, a cost index of 1.23 indicates that it would cost the city 23 percent more than the city with average costs to provide an average quality of the public service.

As explained below, we work with four broad spending categories in Minnesota so that a city's total expenditure need is the sum of its expenditure need as just defined for each of the four categories.

Several characteristics of this approach to measuring city expenditure need should be highlighted. First, at a conceptual level the measure is clear and precise. No vague or controversial value judgements are required to define a city's expenditure need. Second, as elaborated below, the cost index reflects not what state policymakers believe **should** affect costs, but rather how various cost-related city characteristics have in fact, systematically affected spending in the past. Third, the measure is independent of city-specific decisions about how much to spend. Finally, we note that the measure carries with it no normative content. In other words, the measure does not indicate how much a city should be spending, but instead provides an estimate of how much a city would have to spend to provide an average level of public services given its particular characteristics. How much a city actually spends will depend on its resources and the preferences of its residents for public services.

We begin with a description of the basic spending data. In subsequent sections we then discuss each of the components of expenditure need as they apply to Minnesota cities. We begin with brief descriptions of how we measure Q and service responsibilities. We then turn, in more detail, to the calculation of costs, which are the main source of variation in expenditure need.

The final section combines the components into measures of expenditure need and describes the distribution of the expenditure need measure across cities.

The Expenditure Data

Throughout this chapter and the entire study, we work with 1988 data for 179 Minnesota cities. This sample includes all but two of the cities with 1988 population over 2,500. (International Falls and South International Falls were excluded because of data complications related to their 1988 consolidation.) Although these 179 cities comprise less than a quarter of Minnesota's 855 cities, they include within their boundaries 87.1 percent of the total state population living in cities and 67.5 percent of the state's total population.

The use of 1988 data was dictated by availability; 1988 was the most recent year for which the main data source, the State Auditor's City Database, was available. However, Q and the cost and service responsibility indexes reported here can easily be updated to a more recent year when additional data become available. A discussion of the steps necessary to update expenditure need can be found in Chapter 4.

All municipal governments in Minnesota are required to file annual financial reports with the State Auditor. The data for cities with population over 2,500 are more reliable than that for smaller cities because they all use the modified accrual basis of accounting and follow generally accepted accounting principles (GAAP). The LGA staff worked hard to verify the accuracy of the spending data for the cities in our sample. Based on careful analysis and checking of the original data, and when necessary, telephone calls to individual cities, minor adjustments were made to the data to increase its accuracy and improve the consistency of the classification of spending, especially that categorized as "miscellaneous spending." (See Appendix A for a summary of the data verification efforts and the adjustments made to the Auditor's data.)

Spending from this source was aggregated for each city into four broad categories: public safety; transportation; economic and social services; and, administration and miscellaneous. In each case, 1988 spending was defined as current account spending plus a four-year average of capital spending. Because capital spending can vary greatly from year to year, the four-year average of capital spending represents a better measure of a city's typical capital spending than would capital spending in 1988 alone.[2] The inclusion of this capital spending means that debt service should be excluded from the spending measures. Together, interest and principal payments represent a rough measure of the annual cost of using capital in the production of public services. Because capital spending is already included, adding debt service would represent double counting.

To account for the fact that cities make differential use of enterprise funds and of noncity entities such as housing and redevelopment authorities, several additional adjustments were made to the Auditor's data.

- We subtracted any spending on garbage collection or airports reported in the Auditor's database on the grounds that spending on these categories does not typically appear in city budgets. If the service is provided by the city, the spending is usually reported in an enterprise fund.

- We added to city spending all enterprise fund spending for services that are typically reported in city budgetary accounts. For example, we added to recreation spending enterprise fund spending on activities such as sports facilities, community centers, and ice arenas, and we added to transportation spending enterprise spending on activities such as parking meters, street lights, storm sewers, and storm drainage. (See Appendix B for a complete list of adjustments of this type.)

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[2]Per capita capital spending for each year was deflated by the national GNP implicit price deflator for state and local government purchases. This deflator is preferable to a consumer price index because the goal is to measure the real quantity or quantity of capital investments each year rather than the burden on consumers in terms of consumer goods foregone.

- We added to city spending any comparable spending done by separate entities such as housing and redevelopment authorities (HRAs) or port authorities. For HRA spending, the additional spending we added excluded spending related to federal section eight housing. For port authorities, the additional spending excluded port-specific spending; our intent was to add only the spending of port authorities on economic development that might otherwise have been done by the city government.[3]

Spending reported in a variety of other enterprise funds was simply ignored on the grounds either that it is never included in general city budgets or that when it is included in the city budget, it cannot be separated from other spending. Falling in the first category are all the utility enterprise funds such as those for water, sewer and electricity plus enterprise funds for liquor stores.[4] Another set of enterprise funds, such as those for cable TV, cemeteries, convention centers and laundromats, generally are not provided by city governments. However, when cities provide them they are typically, but not always, included in enterprise funds. For comparability across cities it would be desirable to exclude any spending of this type reported in the Auditor's data, but unlike the situation for trash collection and airports, the absence of separate lines in the Auditor's data make this adjustment infeasible.

After these adjustments, the state auditor's data is entirely appropriate for the purposes of this study. Any remaining inconsistencies or errors are inconsequential for the analysis. This conclusion follows because of how we use the spending data. First, we use it to determine average spending across all 179 cities in each spending category. Any error in a specific city will have almost no impact on this average spending. Second, as elaborated below, we use a city's

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[3]Lack of data prevented us from adjusting city spending for HRA spending in the situations where HRA boundaries differ from city boundaries.

[4]Enterprise funds for electricity and liquor stores differ from those for the other utilities in that they often generate profits that can be transferred into the general fund. These transfers are like an additional revenue source for city spending and are treated accordingly in the expenditure regressions discussed below.

actual spending in the statistical analysis from which we determine city-specific cost indices. However, a city's actual spending has no impact on our estimate of that city's expenditure need; instead, the city's cost index, and consequently its relative expenditure need, depends on measurable characteristics of the city, such as its population density, that affect the cost of public services.

Calculation of Q

The variable Q is intended to represent the average dollars per capita required to provide an average quality of public services. We measure it in practice by average spending in each of the four spending categories net of associated user charge revenue. We have netted out user charges because they are often associated with individual consumption decisions (for example, to use a hockey rink or golf course), and are therefore not associated with general-purpose public spending. To be consistent with this treatment of user charges on the expenditure-need side, we do not include charges and fees in the calculation of revenue-raising capacity.[5]

The four spending categories are defined as follows.

> **Public Safety.** Per capita spending on public safety is computed as the sum of per capita current and four-year average capital spending on police and ambulance, fire protection, and other protection, plus enterprise fund operating and nonoperating spending on ambulances, emergency services and fire-related activities, minus the revenue from police and fire contracts with other communities and departmental fee revenue. Police contracts are subtracted because they represent payments for services provided to other jurisdictions.

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[5]Note, however, that in estimating the equations for the cost index, our dependent variable is spending gross of user charges. The use of gross spending in that context provides better estimates of the production relationship between various cost factors and city spending. The use of net-of-charge spending might confound the financing decision with the production relationship.

Transportation. Per capita transportation spending is computed as the sum of current spending on street maintenance, snow removal, street engineering, and street lighting, plus the four-year average capital spending on street construction and/or related equipment and buildings. To this total we add enterprise fund spending on street lights, parking, storm sewers, water drainage, and transit, and subtract the value of road contracts with the state government and transportation fee revenue. The road contracts with the state government are subtracted to produce a cleaner measure of spending on city-owned roads.

Economic and Social Services. This expenditure category is broader than the previous two and includes services related to housing and community development, parks, sanitation, health, and libraries. Specifically, spending, expressed in per capita terms, is computed as the sum of current account spending and four-year average real capital outlays on parks and recreation; urban redevelopment, housing, and economic development; sanitation, health, and libraries. To this total we add enterprise fund spending related to recreation, housing, economic development, health, and libraries, and HRA and port authority spending on housing and economic development, and we subtract relevant departmental fee revenue.

Government Administration and Miscellaneous. This category of expenditure includes general administration plus miscellaneous expenditure. Spending (all in per capita terms) is computed as the sum of current spending on the mayor and council, administration and finance, and other general government, unallocated pension contributions, insurance and all other current expenditure. To this total is added the four-year average capital spending on general government and on other spending, and enterprise fund spending on administration. Relevant user charge revenue is subtracted.

The average per capita spending, and hence our measure of Q for each service is as follows: $98.41 for public safety; $116.39 for transportation; $100.68 for economic and social services; and $107.32 for administration. These averages are slightly lower than the numbers presented in Table 1 because they are net of user charges.

Measuring Service Responsibilities

If some cities are responsible for a broader range of services than other cities for reasons outside their control, these differences should be reflected in a measure of service responsibilities. For example, differences in service responsibilities could occur if some cities provide services

which in other cities are provided by other governments, such as counties or special districts.

In Minnesota, all cities, and in particular those with a population over 2,500, have responsibility for essentially the same package of public services. We have accounted for the remaining differences by adjusting the reported spending data in various ways as discussed above. For example, we accounted for the higher public safety spending in those cities that have contracts with neighboring communities by subtracting from city spending any revenue they receive from these contracts. In addition, we adjusted for the differential provision of garbage pickup by subtracting reported spending on this service. In terms of our notation, this means that SR_i equals one for all cities.

This approach does not apply to transportation, however, for which we have an explicit measure of service responsibilities, namely the number of city-owned lane miles per capita divided by the average number of lane miles per capita in all 179 cities. The greater this ratio, the larger a city's responsibilities for transportation spending. Correspondingly, we estimate cost per lane mile rather than cost per capita.

Many cities in Minnesota rely heavily on nonsalaried firefighters. If we assign cities that use mostly volunteers a lower service responsibility than cities with a fully salaried fire department, we lower their expenditure need and penalize them in terms of state aid for choosing to rely heavily on volunteers. As we consider this an undesirable outcome, we assign all cities a service responsibility index of one for public safety. As expenditure need should reflect the costs of providing public services, we attempt to treat all cities identically by identifying, through the use of the public safety regression, the characteristics of cities, such as population density or the age of the housing stock, that influence the underlying costs of providing fire protection. As the reliance on salaried firefighters will undoubtedly raise public safety expenditures, we include

in our public safety equations a control variable that measures the percentage of firefighters who are salaried.

Conceptual Approach to the Measurement of Costs

In an influential article written more than twenty years ago, Bradford, Malt, and Oates (1969) made the distinction between spending on public services and the level of public services or output. Public spending is indicated by the size of the public budget, while public output refers to the results or outcomes of public spending. Examples of public output include safety from crime, the cleanliness of streets, and the availability of recreation facilities. Although public output is often hard to measure, the distinction between public output and public spending is important because it acknowledges that there need not be a close link between levels of public spending and levels of public services. Cities with high per capita spending do not necessarily provide an above-average amount of public services, while cities with below-average spending do not necessarily skimp on the provision of public services.

As Bradford, Malt, and Oates point out, the level of public services provided by any government depends not only on its commitment to public spending, but also on a variety of city characteristics over which city officials have little or no control, but which have the potential to either raise or lower the amount of public services provided for a budget of a given size. For example, while city officials can choose to organize their fire departments more or less efficiently, they have no control over the city characteristics that directly affect the costs of providing fire protection. Costs will tend to be higher in a city with frame houses built on small lots, or in a city with tall buildings, than in a city with brick houses built on large lots. To achieve the same level of fire protection (measured by the probability of a resident experiencing

a serious loss from fire), the denser city must hire more firefighters and purchase more fire equipment, thereby raising its costs of providing fire protection.

To isolate the impact of the relevant city characteristics, which we refer to as cost factors, on the spending of city governments we use the statistical technique of multiple regression. Using 1988 data, we estimate a regression equation of the following form:

$$EXP_j = f(\textit{demand, preference, intergovernmental aid, and institutional variables; cost factors})$$

where EXP_j is actual per capita spending on spending category j in each city. The regression allows us to determine the average effect of each cost factor on spending in Minnesota cities, while controlling for the effects of demand, preference, aid, and institutional variables on city spending.[6]

The expenditure regressions are based on the view that expenditure decisions by city governments respond, at least in part, to the level of public services desired by city residents. Following a large literature on the determinants of city spending, we model the desired service level as a function of residents' preferences for public services, their incomes, the tax-prices they face, and the intergovernmental aid received by the city. There exists considerable evidence that people with higher incomes demand higher levels of public services. Likewise, lower tax prices and larger grants from other levels of government also increase demand.[7] The relationship

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[6]It may be impossible to control for all factors that influence city government spending; however, to the extent that any unobserved (and often unmeasurable) factors are uncorrelated with the cost factors and the included control variables, their impact will be reflected in the error term of the regression equations, and will not distort our estimates of the impact of environmental costs on government spending.

[7]A tax price is defined as the tax cost to a typical resident taxpayer of increasing per capita public spending by one extra dollar. Tax prices are less than one if some portion of the tax base is in the form of nonresidential property or if the city government receives

between the preferences of residents and city government expenditure decisions may also be influenced by the institutional structure of city government, so our equations include several institutional variables. By controlling for all the factors that systematically influence city spending, we can isolate the impact on spending of the factors of interest here, namely cost factors. (Appendix C provides a description of all the control variables used in the regression analyses.)

The regression model is specified in linear form and estimated with ordinary least squares (OLS) techniques. We recognize that the resulting model ignores a number of issues that have been the subject of considerable discussion within the economics literature in recent years.[8] Explicit consideration of some of these issues would undoubtedly alter the functional form of the expenditure regressions and might require more advanced statistical techniques. However, these additional considerations would not alter the basic approach; namely, that the level of city government spending is a function of city resource, demand, cost, and institutional factors. Our approach is a compromise. Although it may not consider the full complexity of city government decision-making, it allows for the estimation of the impact of environmental cost factors on city government spending in a relatively straightforward manner. This lack of complexity not only renders the approach more comprehensible, but also makes it easier to both replicate and update.

To calculate a cost index, we use the results from the regression equation to predict what each city would have spent if the city had average values of all the control variables, but retained its own values for the cost factors. We calculate this hypothetical, or simulated, spending level by substituting the average values for the control variables and actual values of the cost factors

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matching aid from a higher level government.

[8]See, for example, Inman (1975) or Rubinfeld (1985).

into the estimated regression equation. Thus, the variation among cities in this "hypothetical" expenditure reflects only variations in cost factors across cities. A cost index for each city is then constructed by dividing this hypothetical expenditure by average spending for all cities in Minnesota with population over 2,500. A city whose characteristics are such that it has an index value greater than one, thus has to spend more money to provide the same public goods as the average city, while a city with an index value less than one could provide an average bundle of public services at lower-than-average cost.

Cost Factors

Our preferred regression equations along with a discussion of the estimation strategy are presented in Appendix D. The equations all perform quite well and the major control variables, such as personal income, tax price and the appropriate intergovernmental aid variables, have the expected signs, and in many cases are statistically significant. At least four cost factors emerge as determinants of spending in each of the spending categories.

Public Safety

Four city characteristics emerge as cost factors in the public safety regression: the crime rate, a cost-of-living index, old housing, and the number of accidents on city roads per capita.

Not surprisingly, a higher crime rate (*CRIME*) is associated with a higher cost of providing public safety. The crime variable that is most strongly related to public safety spending is the total number of reported Part I and Part II offenses per capita. Part I offenses include "serious crimes" such as homicide, forcible rape, robbery, aggravated assault, and burglary. Part II offenses include a number of crimes that are considered to be "less serious,"

such as vandalism, driving under the influence of alcohol, the sale or possession of narcotic drugs, prostitution, fraud, and disorderly conduct.[9]

A greater proportion of old housing in a city's housing stock (*HAGE40UP*) is also associated with higher public safety costs. The housing age variable is defined as the percentage of a city's 1980 year-round housing units that were built prior to 1940. Because old housing has old wiring and is made from old materials, extensive old housing raises the probability of fire. Moreover, to the extent that old housing is associated with a concentration of disadvantaged households who tend to be overrepresented both among the victims and the perpetrators of crime, a city with more old housing will have to spend more on police services than one with less old housing.

The third characteristic affecting public safety costs is the number of accidents on all city roads per capita (*PACCID*). Because city police and ambulances both respond to accidents within city boundaries, this variable provides one measure of their workload. The positive coefficient on this variable indicates that an increase in the number of accidents per capita results in higher public safety expenditures.[10]

The final cost factor is a general cost-of-living index for the county in which the city is located (*PRICE2*). This factor primarily measures the wages a city government must pay in order

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[9]Crime data are available from the Department of Public Safety's Crime Information Reports. In 1988 the number of crimes had to be imputed for nine cities which did not report these data. The imputations were carried out by using the results of a regression of the number of total offenses on city population and city population squared, where the regression was estimated for the 170 cities for which data were available. The same method was used to impute Part II crimes to St. Paul, which, unlike other cities, includes unfounded reports of crimes.

[10]Although the State Patrol generally responds to accidents that occur on major roads within city boundaries, higher accident rates also appear to generate higher costs for city police departments.

to attract employees.[11] Cities that must pay higher wages obviously must spend more to provide a given package of public safety services.

Transportation

In contrast to the other three expenditure categories, transportation spending is expressed **per lane mile** of city-owned streets rather than per resident. We have identified five city characteristics that affect transportation costs per lane mile: the miles of city-owned streets, city population, population growth, population density, and heating degree days.

The first characteristic is the number of city-owned lane miles (*OWNLANE*), which enters the equation with a negative sign. This negative sign implies that there exist economies of scale in city transportation spending, with the cost per lane mile declining as the number of city-owned miles increases. The second cost factor is city population (POP88), which is positively related to transportation spending per mile. Holding lane miles constant, more city residents imply greater road usage and thus higher **per lane mile** costs. The rate of population growth also enters the transportation equation with a positive sign, indicating that rapid population growth requires additional spending for street construction, repair, and replacement.

Population density (DENSITY and DENSQ), defined as population per square mile of land area, appears in the regression in a nonlinear fashion (with a positive coefficient on the density variable and a negative coefficient on the density-squared variable). These coefficients imply that in the range of low to moderate density, the additional traffic and congestion associated with more dense development results in additional road maintenance costs per mile.

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[11]Ideally we would like city-specific data on the wages paid to private-sector workers in occupations similar to police and firefighters. However, an area cost-of-living index provides an adequate substitute to these more detailed, but unavailable, data. Note that public sector wage rates are to some degree under the control of city governments and are therefore inappropriate as cost factors.

However, because higher levels of population density are, in most cases, associated with slower highway speeds, and hence less road wear and tear, once high densities are reached, increases in density lead to reductions in road-related spending per mile. The final cost factor is the number of heating degree days (*DEGREE*). Degree days enter the equation with a negative sign indicating that per mile costs are higher in cities with higher average winter temperatures. In general, cities in the southern half of the state experience more frequent thawing and freezing, which increases the costs of road maintenance.

Economic and Social Services

Five city characteristics emerge as cost factors for economic and social programs: population, density, old housing, the rate of change in population between 1983 and 1988, and the rate of population change squared.

LNPOP88, the log of city population in 1988, serves as a scale variable. For public services with large fixed costs, per capita costs decline with the size of the population to be served as the fixed costs are spread over more people. In the case of economic and social services, however, there are apparently diseconomies to population scale; cities with many residents spend more per capita on economic and social programs than those with small populations.

Density emerges as a second cost factor for economic and social services. Densely populated cities face higher per capita costs of providing economic and social services than more sparsely populated cities. The higher land prices associated with higher density lead to higher costs of housing, community development, and recreation activities. Moreover, higher residential density leads to heavier use of park and recreation facilities, which in turn increases maintenance and repair costs.

The third cost factor, HAGE4OUP, measures the amount of old housing within the city. This variable is defined as the percentage of a city's 1980 year-round housing units that were built prior to 1940. Because older housing is likely to be in worse condition than newer housing, cities with extensive old housing are likely to have to spend more than other cities for code enforcement and housing and community development to maintain the housing stock. Moreover, poor and disadvantaged households are disproportionately concentrated in old housing. Thus, old housing also contain more disadvantaged households with their greater needs for social services.

The final cost factor that emerges for economic and social services is DELPOP, which measures percentage change in city population between 1983 and 1988. DELPOPSQ, the square of the population change variable, is included to allow for a nonlinear relationship between per capita expenditures and population change. The estimated coefficients of the two variables together imply that costs rise, but at a decreasing rate, throughout most of the relevant range of population growth. Thus, more rapid growth requires additional spending on social and economic services, much of which may be in the form of capital outlays needed to accommodate new residents.

Administration and Miscellaneous

Five cost factors emerge for administration and miscellaneous spending: city population (in logarithmic form), the population growth rate (and the growth rate squared), a cost-of-living index, and the number of subsidized family housing units per capita.

Per capita spending on administration is lower in cities with more population than in less populated cities. This result indicates that there exist substantial scale economies in the administration of city government. Per capita spending is also higher in cities facing higher rates of population growth. A positive coefficient on the population growth rate variable and a negative coefficient on the squared growth rate variable indicate that the impact of population

growth on per capita administrative and miscellaneous spending is smaller in cities with extremely rapid population growth than in cities experiencing more moderate growth.

As with public safety spending, the county cost-of-living index (*PRICE2*) is positively related to per capita administrative spending. The final cost factor is defined as the number of subsidized family housing units divided by city population (*PSUBFAM*). As eligibility for subsidized housing units is restricted to families with very low incomes, this cost factor serves as a proxy for the concentration of low-income families within a city. The variable measures the additional administrative and miscellaneous costs city governments incur if their population includes a concentration of low-income residents.

The Construction of Cost Indices

The cost index for each category of spending measures how much more or less it costs a city to provide an average package of public services relative to the city with average costs. The regression analysis discussed in the previous section allows us to identify appropriate cost factors. We use the information obtained from the regressions to construct cost indices for each category of spending.

We first determine the **hypothetical** amount a city would spend if it had all the characteristics of an average city except for those that influence its cost of providing public services. To convert this hypothetical spending into a cost index, we divide it by the average per capita spending in all 179 cities. To assist in understanding the relationship between individual cost factors and the final cost index, it is helpful to use an alternative, yet equivalent, definition of hypothetical expenditures. Hypothetical spending in any city can be defined as the sum of the contributions of the cost factors and the average level of per capita spending. The contribution of a particular cost factor equals the marginal impact of that cost factor on spending (measured

by the appropriate regression coefficient) multiplied by the difference between the value of the cost factor and its average value across all cities. In Figure 1 we demonstrate that the two formulations of hypothetical expenditure are equivalent.

Tables 6 to 9 illustrate how, for ten illustrative cities, we construct cost indices for each category of spending. The first four, five or six columns present the positive or negative contributions of each cost factor. The next column, entitled "total contribution," gives the sum of the contributions of the cost factors, which represents the dollar amount by which costs are above or below those in the city with average costs. The next column, labeled "hypothetical spending" is the sum of the average spending over all cities (with populations over 2,500) and total contributions. This sum is equivalent to the amount a city would spend if it had the demand, preference, and institutional characteristics, as well as the intergovernmental aid per capita, of the average city, but retained its own cost factors. The final column is the cost index, which is defined as hypothetical spending divided by average spending.

At the bottom of each of the next four tables are three rows of numbers. The first row presents the regression coefficient associated with each cost factor. The second row shows the standard deviation of each cost factor, and the final row is the product of the first two rows. The figures in this row (labeled coefficient*standard deviation) provide an indication of the relative contribution of each cost factor to the variation in spending across cities and, hence, to costs.

Table 6 illustrates the construction of the public safety cost index. In the ten illustrative cities the cost indices range from a high of 1.48 in Bemidji and 1.46 in Minneapolis to a low of 0.90 in Worthington. These values indicate that the costs of providing an average level of public safety are nearly 50 percent higher in Bemidji and Minneapolis than in the city with average costs, while costs are 10 percent below average in Worthington. Each cost index reflects the sum of the contributions of each cost factor, with some cost factors increasing costs and some

FIGURE 1

THE CALCULATION OF COST INDICES

The steps to be followed in constructing a cost index can be expressed in algebraic terms. We start with an expenditure equation for any spending category:

$$E_j = \sum_i^n b_i C_{ij} + \sum_k^m a_k Z_{kj} \tag{1}$$

where E_j = per capita expenditure in city j,
C_{ij} = the value of cost variable i in city j,
b_i = the estimated coefficient for cost factor i,
Z_{kj} = the value of control variable k in city j, and
a_k = the estimated coefficient for control variable k.

To calculate the level of hypothetical spending in city j, $\hat{\bar{E}}_j$, we replace each Z_{kj} with its average value across all 179 cities, $\bar{Z}_k$. Thus,

$$\hat{\bar{E}}_j = \sum_i^n b_k C_{ij} + \sum_k^m a_k \bar{Z}_k \tag{2}$$

The final step in calculating a cost index, CI_j for each city is to divide the hypothetical spending calculated above by the average amount of per capita spending in all 179 cities, $\bar{E}$. This gives:

$$CI_j = \frac{\hat{\bar{E}}_j}{\bar{E}} = \frac{\sum b_i C_{ij} + \sum a_k \bar{Z}_k}{\bar{E}} \tag{3}$$

Note that by definition of a regression equation, one can define $\bar{E}$ as the sum of the regression coefficients times the mean values of the independent variables. Thus,

$$\bar{E} = \sum_i b_k \bar{C}_i + \sum_k a_k \bar{Z}_k \tag{4}$$

Now by solving for the last term, and substituting into (3), we can write the cost indices as:

$$CI_j = \frac{\bar{E} + \sum_i b_i (C_{ij} - \bar{C}_i)}{\bar{E}} \tag{5}$$

where $\bar{C}_i$ is the average value of cost factor i. The advantage of this form of the cost index is that it focuses attention on the contribution of each cost factor to the cost index of each city. Cost factors are expressed in terms of their deviations from their average value.

TABLE 6

PUBLIC SAFETY COST INDEX

	Contribution of Cost Factors				Total Contribution	Hypothetical Spending	Cost Index
	PCACCID	CRIME	HAGE40UP	PRICE2			
Illustrative City							
Minneapolis	15.77	5.89	17.03	7.51	49.19	146.73	1.46
St. Paul	15.40	2.31	13.06	4.91	35.69	136.23	1.35
Fridley	4.37	8.59	-12.79	5.03	5.20	105.74	1.05
Bloomington	8.19	-3.25	-12.31	7.51	0.14	100.69	1.00
Eagan	-1.54	-1.77	-12.47	9.62	-6.17	94.37	0.94
St. Cloud	16.69	4.33	1.66	-4.01	18.66	119.20	1.19
Worthington	5.61	-6.76	2.14	-11.32	-10.33	90.21	0.90
Bemidji	12.11	31.07	10.33	-5.13	48.39	148.93	1.48
Buffalo	-0.67	0.75	0.75	-1.04	-.21	100.33	1.00
Chisholm	-2.14	-6.18	19.65	-7.73	3.59	104.13	1.04
All Cities Over 2,500							
Coefficient	4.65	0.15	0.54	1.24			
Standard Deviation	1.27	49.35	16.80	6.03			
Coefficient*Standard Deviation	5.92	7.24	8.97	7.45			

reducing costs relative to the average. All four coefficients of the cost factors are positive, implying that value for any cost factor, for example a higher crime rate, will lead to costs. Thus, an above-average number of accidents per capita and an above-average cost-of-living index lead to above-average costs, while a below-average crime rate and a lower-than-average proportion of old housing lead to below-average costs. In Bloomington, for example, which has a per capita accident rate that is approximately 1.76 accidents above average, public safety costs are $8.19 higher than they would be if Bloomington had an average accident rate. Likewise, because Bloomington's crime rate was about 22 points below the average rate in the 179 cities in our sample, per capita public safety costs are $3.25 lower than if Bloomington faced an average crime rate.[12] Looking across all four cost variables, we find that the impact of relatively high accidents and prices in Bloomington is almost exactly offset by the impact of relatively low crime and old housing, so that Bloomington's cost index, 1.0, is the statewide average.

The numbers in the last row of Table 6 indicate that, on average, the four cost factors contribute about equally to public safety costs. However, the importance of any one of the cost factors varies considerably from city to city. For example, in both Minneapolis and St. Paul, above-average accident rates and higher-than-average proportions of old housing contribute most heavily to public safety costs. In St. Cloud, the largest contributor to costs is a high accident rate, while Bemidji's high crime rate is the primary contributor to its above-average costs. In Chisholm, a high proportion of old housing is associated with higher costs, while a below-average cost-of-living and crime rate are the reasons for Worthington's below-average public safety costs.

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[12]For each cost factor these calculations are made by multiplying the regression coefficient by the deviation of the cost factor from its average value in the 179 cities. Thus, the $8.19 cost contribution of per capita accidents in Bloomington is the product of the coefficient value of 4.65 and the 1.76 higher than average number of accidents per capita.

As we noted previously, the cost index for transportation differs from the other three cost indices in that costs are calculated per lane mile; rather than per capita. Table 7 illustrates the calculation of these cost indices for ten illustrative cities. The cost indices for these ten cities range from a high of 5.05 for Minneapolis to a low of 0.67 for Chisholm. The transportation cost index must be combined with a service responsibility index to obtain a complete picture of the factors affecting expenditure need for transportation. Service responsibilities for each city are measured as the number of city-owned lane miles per capita, and then converting to an index by dividing by average lane miles per capita. These indices are displayed in the rightmost column in Table 7.

As indicated in the table, all the cost factors make a substantial contribution to the variation in per lane mile transportation cost with the largest contribution from population size. To understand why Minneapolis has relatively high costs, as indicated by a cost index of 5.05, it is useful to explore the contributions of the individual cost factors. As Minneapolis has an above-average number of city-owned lane miles, economies of scale (indicated by the negative coefficient on OWNLANE) result in lower costs per lane mile. However, the effects of scale economies are more than offset by high per lane mile costs attributable to an above-average population and population density, and the associated higher rate of road usage.

Among our illustrative cities, costs per lane mile are lowest in the two northern-most cities, Bemidji and Chisholm. This occurs primarily because of the relatively light road usage in the two cities as indicated by their small and stable populations.[13] A further contribution to their below-average costs per mile is made by the absence of frequent freezing and thawing in these two cities due to their below-average winter temperatures. The relatively high

[13]Chisholm actually lost about ten percent of its population during the 1980s.

TABLE 7

TRANSPORTATION COST INDEX

	Contribution of Cost Factors						Total Contribution	Hypothetical Spending	Cost Index	Responsibility Index
	DENSITY	DENSQ	POP88	DELPOP	DEGREE	OWNLANE				
Illustrative Cities										
Minneapolis	25,766.30	-44,030.50	88,335.60	-853.20	157.74	-17,062.7	52,313.1	65,234.00	5.05	0.26
St. Paul	17,863.50	-24,435.90	64,739.40	-778.72	467.34	-9,666.0	48,189.6	61,110.50	4.73	0.22
Fridley	6,147.93	-4,432.64	3,403.98	-797.14	-13.39	-1,540.07	2,768.69	15,689.60	1.21	0.66
Bloomington	4,169.74	-2,121.10	17,963.1	-400.30	101.28	-13,026.6	6,686.17	19,607.10	1.52	0.87
Eagan	-2,304.12	3,290.33	6,843.25	4,864.83	3,425.78	-3,093.66	13,026.40	25,947.30	2.01	0.63
St. Cloud	8,039.75	-6,931.37	7,562.84	-301.96	-728.74	-3,955.85	3,684.68	16,605.60	1.29	0.68
Worthington	-908.19	2,402.44	-1,480.70	-482.13	36.01	402.17	-30.41	12,890.50	1.00	0.94
Bemidji	-3,668.61	4,009.99	-1,339.96	-800.35	-1,861.31	-256.63	-3,916.88	9,004.02	0.70	1.18
Buffalo	1,977.17	81.06	-2,645.16	1,450.08	-13.39	1,625.21	2,474.97	15,395.90	1.19	0.67
Chisholm	-3,360.52	3,860.30	-2,870.20	-1,419.47	-1,672.20	1,261.85	-4,200.24	8,720.65	0.67	1.12
All Cities Over 2,500										
Coefficient	3,550.74	-496.16	0.26	79.44	-0.88	-19.30				
Standard Deviation	1.88	14.71	34,777.8	14.68	1,176.2	144.84				
Coefficient* Standard Deviation	6,654.03	-7,277.63	9,022.36	1,162.77	-1,034.55	-2,787.21				

transportation cost index in Eagan (2.01) is attributable in part, to the extremely rapid growth in both population and employment that the city has experienced in recent years. With population more than doubling in the past ten years, the city faces the relatively high costs of maintaining and upgrading city roads that undoubtedly were not built to handle the currently high levels of road usage.

Turning now to the cost index for economic and social services, we see (in Table 8) a wide range of costs in our ten illustrative cities, with high costs in the Twin Cities (a cost index of 2.77 in Minneapolis and 2.44 in St. Paul), above-average costs in Bloomington (1.35) and St. Cloud (1.62), both relatively large and slow growing cities, and below-average costs in the fast growing Twin Cities metropolitan area suburb of Eagan (0.81).

To understand why Minneapolis has high costs for economic and social services, look at the top row of Table 8. Higher-than-average density, old housing, and population in Minneapolis contribute respectively, $66, $41, and $93 to above-average costs. On the other hand, the below-average rate of population growth experienced by Minneapolis reduces costs by $10 (the sum of the contributions to costs of DELPOP and DELPOPSQ). The per capita contributions, both negative and positive, of the five cost factors that influence economic and social service spending in Minneapolis total $191, implying that Minneapolis spends this amount per capita more on economic and social services than it would if it had the characteristics of the city with average costs.

For the first four cost factors that influence economic and social service spending, a negative contribution to costs implies that the value of the cost factor in that city is below-average. For example, the negative contributions of old housing in Fridley, Bloomington, and Eagan indicate that these cities have a smaller proportion of old houses than the average city. Among our sample of cities, only in Eagan do the negative contributions exceed the positive

TABLE 8

COST INDEX FOR ECONOMIC AND SOCIAL PROGRAMS

	Contribution of Cost Factors					Total Contribution	Hypothetical Spending	Cost Index
	DENSITY	HAGE40UP	LPOP88	DELPOP	DELPOPSQ			
Illustrative City								
Minneapolis	65.83	40.86	93.41	-16.86	7.41	190.66	298.26	2.77
St. Paul	45.64	31.36	86.01	-15.39	7.50	155.12	262.73	2.44
Fridley	15.71	-30.70	30.67	-15.75	7.48	7.41	115.01	1.07
Bloomington	10.65	-29.54	57.50	-7.91	7.24	37.95	145.55	1.35
Eagan	-5.89	-19.93	40.02	96.13	-120.79	-20.45	87.15	0.81
St. Cloud	20.54	3.99	41.61	-5.97	6.98	67.15	174.75	1.62
Worthington	-2.32	5.15	4.98	-9.53	7.40	5.68	113.28	1.05
Bemidji	-9.37	24.80	6.24	-15.82	7.48	13.33	120.93	1.12
Buffalo	5.05	1.81	-8.88	28.66	-11.29	15.34	122.95	1.14
Chisholm	-8.59	47.16	-12.74	-28.05	5.20	2.99	110.59	1.03
All Cities Over 2,500								
Coefficient	9.07	1.28	25.14	1.57	-264.32			
Standard Deviation	1.88	16.80	0.97	14.68	0.08			
Coefficient*Standard Deviation	17.00	21.53	24.40	22.98	-22.04			

contributions to costs, resulting in below-average hypothetical economic and social services spending, and consequently a cost index of less than one.

By looking at Table 8 row by row, one can assess the relative importance of the contributions of each cost factor to total costs. For example, large population size and high density are the most important contributors to costs in Minneapolis and St. Paul. In Chisholm, the primary contribution to costs is the high proportion of old housing, while the rapid rate of population growth provides the largest contribution to costs in Buffalo. The fact that all the contributions to costs are relatively small in Worthington indicates that it has close to average values for all the cost factors. Looking at the last row of Table 8 indicates that averaged across all cities, the five cost factors associated with economic and social services have approximately equal impacts on total costs. Thus, no single factor provides a simple explanation of why this category of public services is more costly in some cities than in others.

A comparison of Tables 6, 7 and 8 with Table 9 demonstrates that cities that have high costs for some expenditure categories can have low costs for other types of spending. Table 9 illustrates the construction of the cost index for administration and miscellaneous spending. For example, while economic and social services costs are **above**-average in all our illustrative cities except Eagan, the costs of administration are **below**-average in all cities except Eagan and Buffalo. Minneapolis has a cost index for administration of 0.40. This means that Minneapolis could provide average per capita administrative and miscellaneous services for two-fifths the cost in the city with average costs. The major reason for low administration costs in Minneapolis (as well as in St. Paul and Bloomington) are the economies of scale that exist in the provision of administration and miscellaneous services.[14] For example, the above-average population of

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[14] This contrasts with the role population plays in economic and social services, where larger cities face higher per capita costs due to the existence of diseconomies of scale.

TABLE 9

COST INDEX FOR ADMINISTRATION AND MISCELLANEOUS

	Contribution of Cost Factors					Total Contribution	Hypothetical Spending	Cost Index
	LPOP88	DELPOP	DELPOPSQ	PRICE2	PSUBFAM			
Illustrative City								
Minneapolis	-76.16	-40.87	9.88	21.38	14.89	-70.87	47.16	0.40
St. Paul	-70.13	-37.30	10.00	13.97	24.44	-59.01	59.02	0.50
Fridley	-25.01	-38.18	9.97	14.33	-3.31	-42.20	75.84	0.64
Bloomington	-46.88	-19.17	9.65	21.38	-11.48	-46.50	71.54	0.61
Eagan	-32.63	233.01	-161.06	27.38	-3.60	63.09	181.13	1.53
St. Cloud	-33.92	-14.46	9.30	-11.43	7.04	-43.46	74.57	0.63
Worthington	-4.06	-23.09	9.86	-32.24	2.87	-46.66	71.38	0.60
Bemidji	-5.09	-38.33	9.97	-14.60	35.35	-12.71	105.33	0.89
Buffalo	7.24	69.45	-15.06	-2.96	17.10	75.78	193.81	1.64
Chisholm	10.38	-67.99	6.93	-22.01	13.41	-59.27	58.77	0.50
All Cities Over 2,500								
Coefficient	-20.50	3.81	-352.44	3.53	26,732.0			
Standard Deviation	0.97	14.68	0.08	6.03	7.07			
Coefficient*Standard Deviation	-19.89	55.69	-29.39	21.20	18.84			

Minneapolis reduces its per capita administration costs by nearly $80. Costs also are higher in Minneapolis and St. Paul because of their higher cost-of-living and their relatively high proportion of subsidized housing. However, as these two factors increase costs by less than $40 per capita, their impact on total costs is outweighed by the scale economies.

The results in the last row of Table 9 show that all five cost factors contribute substantially to administration costs. However, the population growth rate provides the largest single contribution to the variation in costs across cities. Thus, on average, cities that are growing rapidly, such as Buffalo and Eagan, face substantially higher costs of administration than slowly growing cities.

Table 10 brings together the cost indices from the previous four tables and provides data on the average, standard deviation, and range of the cost indices for each spending category. Figures are also presented for the average value of the cost indices grouped by city population size, per capital income, and per capita assessed valuation.

For each spending category there is considerable variation in the magnitude of the cost indices. For example, the range of the administration and miscellaneous cost index is from 0.23 to 1.82 and the range of the economic and social services index is even greater, from 0.23 to 2.77. Table 10 reveals some clear patterns across types of cities. For example, the costs of economic and social programs are much higher in larger cities than in smaller ones. However, the cost indices are not a function of a single variable such as city size or average income. In fact, most of the variation in the cost indices occurs within a population, income, or assessed value classes.

TABLE 10

COST AND RESPONSIBILITY INDEXES

	Safety Cost	Transportation		Economic and Social Cost	Administration and Miscellaneous Cost
		Cost	Responsibility		
All Cities Over 2,500					
Average	1.00	1.00	1.00	1.00	1.00
Minimum	0.69	0.10	0.22	0.23	0.23
Maximum	1.48	5.05	3.49	2.77	1.82
Standard Deviation	0.13	0.50	0.47	0.32	0.34
Illustrative Cities					
Minneapolis	1.46	5.05	0.26	2.77	0.40
St. Paul	1.35	4.73	0.22	2.44	0.50
Fridley	1.05	1.21	0.66	1.07	0.64
Bloomington	1.00	1.52	0.87	1.35	0.61
Eagan	0.94	2.01	0.63	0.81	1.53
St. Cloud	1.19	1.29	0.68	1.62	0.63
Worthington	0.90	1.00	0.94	1.05	0.60
Bemidji	1.48	0.70	1.18	1.12	0.89
Buffalo	1.00	1.19	0.67	1.14	1.64
Chisholm	1.04	0.67	1.12	1.03	0.50
By Population					
> 25,000	1.06	1.62	0.70	1.37	0.87
7,500 - 25,000	1.03	0.96	0.92	1.07	0.99
2,500 - 7,500	0.96	0.85	1.15	0.84	1.04
By Income					
> 15,000	0.99	1.07	1.12	0.95	1.11
$10,000 - $15,000	1.00	1.04	0.92	1.04	1.00
< $10,000	1.00	0.75	1.21	0.89	0.87
By Assessed Value Per Capita					
> $7,000	1.04	1.22	1.03	1.01	1.10
$4,000 - $7,000	1.01	0.98	0.96	1.02	1.06
< $4,000	0.95	0.84	1.04	0.95	0.82

The Calculation of Expenditure Need

A city's expenditure need indicates the amount per resident that a city must spend to provide its residents with an average level of public services. Expenditure need differs across cities because of the substantial variation in the per capita cost of providing public services.[15] It is important to remember that we include in our measure of cost only those cost factors that are outside the control of city officials.

We first calculate expenditure need for each city for each category of spending. Overall expenditure need is the sum of the four separate expenditure needs. To calculate expenditure need for each category of spending, we multiply the average spending per capita net of user charge revenue in that category (which we refer to as Q) by the appropriate cost index. In the case of transportation spending, Q and the cost index are also multiplied by the service responsibility index.[16]

Table 11 provides the results of these calculations. The data in the last column illustrate very clearly that the expenditure need of cities varies substantially across Minnesota cities. Some cities must spend over two and one-half times as much as other cities to provide the same level of public services. Any state government aid program designed to equalize the ability of city governments to provide public services will not be fully effective unless it accounts for the substantial variation in expenditure need indicated by this table. It should be emphasized however, that large variation in expenditure need do not necessarily imply similar differences in

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[15]Recall that in the case of spending on transportation, differences in expenditure needs are also due to variations in service responsibilities. Costs are measured on a per lane mile basis while service responsibilities are measured in terms of city-owned lane miles per capita.

[16]One minor adjustment is needed to insure that average expenditure need equals Q for transportation. The product of the cost and responsibility indexes is divided by the average value of this product across all cities.

TABLE 11

EXPENDITURE NEED, 1988

	Public Safety	Transportation	Economic and Social Programs	Administration and Miscellaneous	Overall Expenditure Need
All Cities Over 2,500					
Average	98.41	116.39	100.68	107.32	422.79
Minimum	68.31	20.04	23.50	24.70	241.38
Maximum	145.77	217.95	279.06	195.23	639.72
Standard Deviation	13.26	32.71	31.73	36.61	56.53
Illustrative Cities					
Minneapolis	143.62	174.16	279.06	42.88	639.72
St. Paul	133.34	136.08	245.81	53.66	568.89
Fridley	103.50	104.43	107.61	68.95	384.49
Bloomington	98.55	173.25	136.18	65.04	473.01
Eagan	92.37	165.11	81.54	164.68	503.70
St. Cloud	116.67	114.58	163.50	67.80	462.55
Worthington	88.29	123.10	105.99	64.89	382.27
Bemidji	145.77	107.77	113.15	95.76	462.45
Buffalo	98.20	104.72	115.03	176.21	494.16
Chisholm	101.92	98.66	103.47	53.43	357.48
By Population					
> 25,000	104.00	130.35	137.79	93.21	465.35
7,500 - 25,000	101.73	107.58	107.77	106.58	423.66
2,500 - 7,500	94.33	119.03	84.81	111.88	410.05
By Income					
> $15,000	97.70	136.15	96.02	119.62	449.49
$10,000 - $15,000	98.64	112.53	104.49	107.77	423.42
< $10,000	98.12	112.76	89.43	93.14	393.46
By Assessed Value Per Capita					
> $7,000	102.61	128.58	102.15	117.61	450.96
$4,000 - $7,000	99.01	113.58	103.12	113.58	429.28
< $4,000	93.68	110.44	95.23	87.61	386.97

city fiscal conditions. No such assessment can be made without also considering the revenue-raising capacity of city governments, the subject of the next chapter.

Table 11 shows that average expenditure need varies when cities are grouped by population size, income, or assessed valuation per capita. Expenditure need is positively correlated with population size, with cities with over 25,000 population having an average expenditure need that is nearly 15 percent higher than in cities with population between 2,500 and 7,500. A large part of this difference in expenditure need by population size is attributable to the expenditure need for economic and social services, which is over 60 percent higher in the larger than in the smaller cities. Pushing in the other direction, the expenditure need of administration is nearly 20 percent lower in cities with populations over 25,000 than in the smallest category of cities.

Expenditure need also tends to be higher in cities with higher levels of income per capita and with higher assessed valuations per capita. Expenditure need is positively correlated with both per capita income and assessed valuation for all four categories of spending, with expenditure need for transportation varying the most by both income and assessed value class.

CHAPTER 3

REVENUE-RAISING CAPACITY

Just as cities differ in their expenditure need, they also differ in their capacity to generate revenue. We focus on two main revenue sources: local property taxes and intergovernmental aid. For this purpose, we define property taxes broadly to include special assessments, net fiscal disparities distributions, and tax increments. Intergovernmental aid, in contrast, refers to only a portion of the intergovernmental aid received by each city; it excludes aid earmarked for narrowly defined spending projects or aid that is a candidate for a new equalizing aid program.

Revenue-Raising Capacity from Own Sources

The main component of a city's revenue-raising capacity is the amount of revenue it can generate from its own local tax sources. Our preferred approach is to measure this component of capacity as the amount of revenue that a city could raise if it imposed a standard burden on city residents. The use of a standardized tax burden, expressed as a percentage of the income of city residents, yields a measure of revenue-raising capacity that is comparable across cities and that does not vary with a city's tax decision. We refer to this approach as the **income-with-exporting** approach because the amount of revenue a city can raise at the standard burden depends on the income of city residents plus the ability of city residents to shift, or export, taxes to nonresidents.

An alternative approach to the measurement of capacity is the **tax-base approach**. In contrast to the income-with-exporting approach that achieves comparability across cities by assuming a uniform tax burden on city residents, this approach achieves comparability by assuming a uniform property tax rate. Thus, the tax-base approach provides an answer to the

question: If each city applied an average property tax rate it its tax base, how much revenue could each city raise?

The major source of own-source revenue in Minnesota cities is the local property tax (broadly defined to include special assessments and tax increments). Other revenue sources include licenses and permits, utility franchise taxes, hotel/motel taxes, and in a few cities, local sales taxes. In the average city with population greater than 2,500, property taxes accounted for about 87 percent of local revenue from taxes and fees in 1988. Measuring revenue-raising capacity for the miscellaneous licenses, permits, and taxes that make up the other 13 percent is sufficiently problematic that we focus our analysis on the contributions to capacity of the property tax. User charges are not treated as a separate revenue source; instead, spending financed by user charges is subtracted in calculating expenditure need.

Because Minnesota's system of property tax classification appears to be a relatively permanent feature of the Minnesota fiscal environment, it is appropriately incorporated into the calculation of each city's capacity to raise revenue from the property tax. There seems to be a general consensus, for example, that the property tax should be progressive with respect to residential property and that residential property should bear lower effective rates than commercial or industrial property. Given this consensus, calculating capacity as if the classification system did not exist would not provide realistic measures of the revenue-raising capacity of one Minnesota city relative to another. Hence, the measures of revenue-raising capacity that we report below are based not on market values, but rather on assessed values, that is, on values after the application of the appropriate classification rates.

The argument for taking account of another feature of Minnesota's fiscal environment, levy limitations, is less compelling. Because they are scheduled to expire in 1993 (and could be

eliminated sooner) and because they apparently are often not very binding, we believe that levy limitations can be ignored in the calculation of a city's capacity to raise revenue.

In the first section we implement the income-with-exporting approach to revenue-raising capacity and in the second, the tax-base approach. In the third section, we compare the results from the two approaches. The fourth section justifies our decision to ignore the nonproperty revenue sources.

Throughout the analysis, we use data for 1988. The 1988 results provide useful information on the steps involved in implementing each approach, in the variation in revenue-raising capacity across cities, and on the differences between the two approaches. Both approaches can easily be updated to incorporate more recent data.

Income-with-Exporting Approach

The conceptual arguments for measuring revenue-raising capacity by the income-with-exporting approach rather than by the tax-base approach are strong. Not only is the income-with-exporting approach more firmly grounded in economic theory, but more importantly, it is based on residents' income. However, the income-with-exporting approach is more complicated to implement and less familiar to state policymakers. Our goal here is to indicate the steps and assumptions needed to implement it for Minnesota cities.

Based on this approach, a city's capacity to raise revenue from property taxes is measured as follows

$$RRC_i = K^* Y_i (1 + e_i)$$

where K^* is a standard burden on residents defined as taxes ultimately paid by residents as a share of their income, Y_i is the per capita income of the residents of city i and e_i is the city's export ratio, defined as the dollars of property taxes ultimately paid by nonresidents per dollar

paid by residents. The first part of the expression indicates the amount of revenue that can be raised from residents at the standard burden. To the extent that a portion of a city's property taxes are ultimately paid by nonresidents, the city can raise additional property tax revenue while maintaining a standard tax burden on its residents. Nonresidents end up bearing some of the burden of city taxes either because they own some city property, because the owners of city property are able to shift burdens to them in the form of higher prices or lower wages or profits, or city residents are able to shift burdens to others through the mechanism of tax deductibility. Holding constant the income of city residents, the greater is the ability of a city to export tax burdens to nonresidents per dollar raised from residents, the greater will be the city's revenue-raising capacity.

Calculation of the Standard Burden. The standard burden, K^*, serves the important function of making revenue-raising capacity comparable across cities. A natural way to define K^* is to set it at the statewide average property tax burden on residents as a percentage of income. Two subsidiary issues arise in implementing this procedure: what should be included in property taxes and should the average across cities be weighted or unweighted by population?

In calculating the average burden, we believe it makes sense to include revenue from special assessments as well as from property taxes. The importance of special assessments as a revenue source for many Minnesota cities, especially fast growing cities, implies that they should not be ignored. A related observation is that cities that rely heavily on special assessments tend to rely less heavily on the property tax. In other words, special assessments and property taxes are substitutable to some degree. Implicit in this treatment of special assessments is the assumption that a city's ability to shift tax burdens to nonresidents is similar for the property tax and special assessments. While special assessments do not apply to the same base as the property tax, their burden often bears some relationship to property value. In the

absence of any basis for determining a distinct export ratio for special assessments, it seems reasonable to make the crude assumption that a city's export ratios for property tax levies and for special assessments are similar, and as discussed below, vary across cities with the composition of assessed valuation.[17] (See Appendix E for a more detailed discussion of special assessments.)

We also include as part of property tax revenue, the revenue received from tax increment financing (TIF) districts other than that from overlying school districts. The differential treatment of revenue derived from school districts reflects the fact that the state reimburses school districts for the revenue they lose as a result of TIF districts. Hence, the school portion of TIF revenue received by the city is appropriately treated more like state aid to the city rather than like property tax revenues. This issue is discussed more fully below.

With respect to the issue of weighting, we have opted for weighted rather than unweighted averages. Unweighted averages yield the burden in the average city. Weighted averages yield the burden on the average resident. Our focus throughout on residents provides support for the latter approach. In practice, weighting simply means adding up the resident share of total property tax levies (net of homestead and taconite credits), tax increments, and special assessments across all cities and dividing by aggregate income in all cities.

To summarize, the standard tax burden is calculated as follows:

$$K^* = \frac{\sum (prop.\ tax\ levies_i + spec.\ assess._i + increments_i)S_i}{\sum income_i}$$

[17]This assumption about export ratios is not quite right because of differences in tax deductibility. While taxpayers are allowed to deduct property taxes from taxable income, they cannot deduct special assessments. One way to interpret our measures is that they indicate how much revenue each city could raise if all property taxes and special assessments were in the form of property taxes alone.

where $increments_i$ refer to the nonschool portion of TIF revenues and S_i is the residents' share of the total property tax burden in the *i*th city. The city-specific residential shares are closely related to the export ratios that are discussed below; we show how resident shares can easily be calculated from export ratios.

Based on this definition, the standard burden in 1988 is 0.0089. This burden may appear low both because we are focusing on city taxes alone and because the burden is net of homestead credits.

Before leaving the topic of the standard burden, it is useful to note that a city-specific tax rate is implicit in the standard burden. This implicit tax rate is not the city's actual tax rate but rather the rate the city would have had to apply in order to impose the standard burden on its residents. Starting from the expression

$$K^* = t_i TAV_i S_i / Y_i$$

where TAV is total assessed value and S is the share of the tax burden borne by residents, the implicit tax rate can be written as

$$t_i = K^* Y_i / (TAV_i S_i) \ .$$

The fact that this implicit tax rate differs from the actual tax rate in most cities emphasizes that our measure of revenue-raising capacity is independent of a city's actual decisions about taxes. Recognition of this implicit tax rate is also useful for thinking about the treatment of fiscal disparities contributions and distributions as discussed below.

Calculation of Export Ratios. To implement the income-with-exporting approach, an export ratio is needed for each city. This ratio is intended to reflect the distribution between nonresidents and residents of the ultimate burden of the property tax. Thus, what matters is not who pays the tax in a statutory sense but rather who ends up paying the tax after various market adjustments have occurred including, for example, the possibility that taxes on business property are shifted forward to consumers in the form of higher prices.

Our strategy is to use economic theory and previous work by Bradbury and Ladd (1985) to assign export ratios to each of the major types of property and then to calculate an overall export ratio for each city as a weighted average of the export ratios for each type of property. Thus, a city's export ratio is calculated as follows:

$$e_i = \sum_j w_{ij} e_j$$

where e_j is the export ratio for the jth type of property (assumed to be constant across all cities) and w_{ij} is the weight for the jth type of property in the ith city. These weights are calculated as the share of the burden of the tax on each property type borne by residents divided by the total burden of property taxes on residents. Thus,

$$w_{ij} = \left(AV_{ij} S_j\right) / TAV_i S_i$$

where AV_{ij} = assessed valuation of type j in the ith city and S_j is the share of the burden on the jth type of property borne by residents (assumed to be constant across cities) and TAV_i and S_i are total assessed valuation and the resident share of the overall burden in the ith city.

The availability of excellent data on assessed values by property type facilitates this approach. The only challenging task is the determination of appropriate export ratios by property type.

Column 1 of Table 12 reports our preferred export ratios, defined as dollars from nonresidents per dollar from residents. The second column reports a related measure, the resident share of the burden for each type of property. This resident share is related to the export ratio as follows:

$$S_j = 1/(1 + e_j) \ .$$

Similarly, the export ratio can be calculated from a resident share variable as follows:

$$e_j = (1 - S_j)/S_j \ .$$

We have reported both the export ratio and the resident share because both are needed at various stages of the calculation. In addition, thinking about the share of the burden borne by residents may be more natural or straightforward in some cases than thinking about export ratios. In developing these estimates we chose to make the export ratios relatively round numbers. Hence, the apparent precision of some of the resident shares is misleading; the precision simply reflects the algebraic relationship between export ratios and shares.

Consider first the export ratio for residential and farm homesteads. For property of this type, no distinction need be made between users and owners of the property. Moreover, by definition of a homestead, all owners of such property live in the city. These considerations imply that the tax on homesteads is borne fully by city residents. However, an additional consideration, namely the fact that city taxpayers who itemize can deduct their property taxes from their taxable income for both federal and state purposes, means that some of the property

TABLE 12

EXPORT RATIOS, RESIDENT SHARES, AND PROPORTION OF TAXABLE VALUE BY PROPERTY TYPE, 1988

	Export Ratio $e_j = \frac{1 - s_j}{s_j}$	**Resident Share** $s_j = \frac{1}{1 + e_j}$ **(percent)**	**Proportion of Total Tax Base (percent)**
Residential and Farm Homestead	0.30	76.9	35.7
Rental: Nonhomestead, 1,2,3, units	0.15	87.0	9.5
Other Apartment	0.25	80.0	9.4
Seasonal Recreational	5.00	16.7	0.04
Agricultural (minus farm homestead)	0.50	66.7	1.6
Vacant Land	3.00	25.0	2.7
Commercial	1.50	40.0	25.1
Industrial	2.00	33.3	9.6
Public Utilities	5.00	16.7	2.7
Mineral	5.00	16.7	0.05
Railroad	5.00	16.7	0.1
Personal Property	4.50	18.2	3.7

tax on homesteads is shifted to federal and state taxpayers. Data provided by the Research Department of the Minnesota Department of Revenue indicate that the marginal income tax rate (including both state and federal taxes) of Minnesota homeowners in 1988 was 23 percent and hence, that 23 percent of the tax on homesteads on average is exported to state and federal taxpayers. Translating this 23 percent nonresidential share into an export ratio implies that about 30 cents is shifted to nonresidents per dollar paid by resident (see first row of Table 12).

For rental property, we distinguish between structures with three or fewer units and all others. For the small structures, we initially attribute 95 percent of the tax to residents on the grounds either that the tax is shifted forward in the form of higher rents or that most of these small landlords live in the city. This 95 percent figure is consistent with the following assumptions: 60 percent of the tax is shifted to tenants in the form of higher rents, 40 percent is borne by landlords, and 88 percent of the landlords live in the city. However, the landlords who live in the city can shift some of their initial burden to federal and state taxpayers through the mechanism of tax deductibility. If we assume a marginal tax rate for these local landlords of .23, an additional 8.1 percent of the tax is shifted to nonresidents (= (.40)(.88)(.23)). Thus, shifting through the two mechanisms implies that about 13 percent of the tax is borne by nonresidents and that the export ratio is about 15 percent.

The export ratio for larger apartment buildings exceeds that for the small apartments because more of their owners are likely to live outside the city. For these large structures, we initially attribute about 14 percent of the burden to nonresidents (based on an assumption that 70 percent of the burden is borne by tenants in the form of higher rents, 30 percent is borne by owners, and 45 percent of the owners are nonresidents). To this exported share, we add the share that can be exported by local owners through tax deductibility. Based on the assumption that many of the owners of the large structures are likely to be corporations or wealthy individuals,

we assume a marginal tax rate of .30 for this group which implies that 5 percent of the tax is exported through deductibility (=(.30) (.55) (.3)) and that the total share of the tax exported to nonresidents amounts to about 19 percent of the tax. This 19 percent share for nonresidents translates into a 23.5 percent share export ratio, which we rounded up to 25 percent.

In contrast to the relatively low export ratios for the three main types of residential property, we have assigned a high export ratio, namely 5, to seasonal recreational property on the grounds that most of the burden (approximately 83 percent) is likely to be borne by nonresidents.

Farm land within cities is likely to be in the form of small plots. Even accounting for deductibility, we assume that most of the burden of taxes on this property (67 percent) is borne by city residents on the grounds that these small farmers have little or no control over the prices of their products and that most of them are probably city residents. Vacant land in contrast is more likely to be owned by corporations or nonresident landowners, leading to a large export ratio and a small resident share.

The export ratios for commercial and industrial property are relatively consistent with the more detailed estimates reported by Bradbury and Ladd (1985). The ratio for industrial property (2) is somewhat higher than that for commercial property (1.5) on the grounds that more of the output is likely to be sold in a larger market. We assumed export ratios of 5 for utility, mineral, and railroad property on the grounds that most of the burden of taxes on these types of properties are not borne by local residents. For example, the high export ratio for utility property is consistent with the view that the presence in a city of a big power plant provides that city with tremendous opportunity to export burdens to nonresidents. Much of personal property is utility property, with the rest belonging to commercial and industrial firms. Hence, the export ratio of 4.5 that we assign to personal property is a weighted average of the export ratios for utility

property and commercial and industrial property, with 85 percent of the weight on utility property.

Fiscal Disparities. The basic expression for revenue raising capacity needs to be modified to account for net distributions under the fiscal disparities program. We deal with this program by modifying the expression for the *i*th city's revenue-raising capacity as follows:

$$RRC_i = K Y_i \left(1 + e_i + (D_i - C_i) / (TAV_i S_i)\right)$$

where D_i is the distribution of assessed value to the *i*th city from the fiscal disparities pool and C_i is the city's contribution to the pool. The intuition of this modification is straightforward. Because the net inflow to the city is comparable to having nonresidents bear part of the tax burden, we need simply express the net inflow (D_i - C_i) relative to the burden borne by residents to convert it to export-ratio form.

A more formal explanation for this functional form can be derived using the tax rates implicit in the standard burden (see earlier discussion of these implicit tax rates). We can think of revenue-raising capacity as the amount the city can raise from residents at the standard burden ($K\ Y_i$) plus the amount it can raise from nonresidents at the tax rate implicit in the standard burden (= $t_i\ TAV_i\ (1\text{-}S_i)$) plus the amount it could raise from its net new assessed valuation at the implicit tax rate (= $t_i\ (D_i - C_i)$). Substituting $K^* Y_i / TAV_i\ S_i$ for t_i yields the expression reported above.

Treatment of Tax Increment Financing Districts (TIFs). The key fact about TIF districts is that they allow the city (or more precisely the development agencies of the city) to capture revenue that otherwise would have gone to overlying districts such as schools or counties. The portion that otherwise would have gone to counties and special districts is similar to city taxes in that it ultimately is paid by both city and noncity residents. The portion that otherwise

would have gone to schools is more comparable to state aid to the city in that the state reimburses school districts for revenue lost to TIF districts. Although the revenue is earmarked for economic development in the TIF district, the revenues are fungible to the extent that they free up city funds for other purposes. This fungibility makes it appropriate to include captured revenue as another component of a city's revenue raising capacity.

We propose to measure this component of revenue-raising capacity by the simple expression

$$t_i^* \, TIFBASE_i$$

where t_i^* is the tax rate imposed by overlying school districts and $TIFBASE_i$ is the per capita assessed valuation of the tax base in the TIF district.

Including the TIF base as a component of revenue-raising capacity is not fully consistent with our basic logic that a city's revenue-raising capacity should reflect only those factors that are outside the control of city officials. We would prefer to use a measure of a city's potential TIF base, but we have no way of determining the potential base in each city. The alternative of ignoring the captured revenue is undesirable. Not including the captured revenues mean that the revenue-raising capacity of those cities that use TIF districts would be underestimated and that their claim on state aid would be correspondingly overestimated. This outcome would inappropriately provide an incentive, even if small, for cities to use tax increment financing.

In fact, the TIF base may not be as endogenous as it might first appear. Because many of the decisions about TIF financing were made in earlier years, the current TIF base is not likely to be very responsive to current aid. This conclusion is strengthened by the observation that the rules for setting up TIF districts are tighter today than in the past (Bolling et al., 1990, p. 16).

Transfers from Enterprise Funds. One final component of revenue-raising capacity is transfers into the general fund from municipal electric companies and liquor stores. These two

enterprise funds have been singled out because they tend to provide significant additional funds for general-purpose spending. For example, a detailed analysis of the 64 electric enterprises in the cities with population over 2,500, showed that 16 had net transfers out greater than 5 percent of general fund revenues. Of the 65 liquor stores in the large cities, 32 contributed on average more than 1 percent of general fund revenues.

In the absence of any reasonable way to determine an export ratio (or in the tax-base approach, to define a tax base), we simply count all the transfers as an addition to a city's capacity to generate revenue.

Results for Illustrative Cities and Groups of Cities. The results for illustrative cities and groups of cities are reported in Table 13. The first column indicates the per capita amounts of revenue that can be raised from residents at the standard burden. This amount varies across cities only because of variation in the per capita income of city residents. Of interest is the finding that the city with the highest per capita income can raise almost five times the amount of revenue from residents ($273) at the standard burden as the city with the lowest per capita income ($58).

The range across the ten illustrative cities is smaller because they are not representative of all Minnesota cities with population over 2,500. Nonetheless, the amounts vary from $74 in Bemidji to $154 in Bloomington. Minneapolis and St. Paul both can raise approximately average amounts of revenue from residents at the standard burden. Across cities grouped by population size, income, and assessed value per capita the average amount that can be raised from residents varies in predictable and reasonable ways. The average per capita income of city residents is apparently about 22 percent higher in the large cities than in the small cities, more than twice as high in the high income as in the low income cities, and about 70 percent higher in the cities

TABLE 13

REVENUE-RAISING CAPACITY EXCLUDING AID, INCOME-WITH-EXPORTING APPROACH, 1988

	k* Times Income	Export Ratio	Fiscal Disparities Ratio	Tax Increment Financing Addition	Electricity and Liquor Transfers	Revenue-Raising Capacity
All Cities over 2,500						
Average	113.05	0.73	0.06	14.78	7.53	221.15
Minimum	57.88	0.37	-0.28	0.00	0.00	84.69
Maximum	273.39	2.99	0.78	134.04	107.23	499.42
Standard Deviation	33.62	0.29	0.16	20.06	15.99	61.51
Illustrative Cities						
Minneapolis	116.84	0.78	-0.05	51.53	0.00	253.58
St. Paul	111.55	0.74	0.13	30.55	0.00	239.37
Fridley	126.72	0.92	-0.12	33.75	1.70	263.27
Bloomington	154.58	0.86	-0.17	34.64	0.00	296.03
Eagan	133.50	0.81	-0.09	2.43	0.00	233.08
St. Cloud	93.87	0.81	0.00	9.42	1.54	181.18
Worthington	105.62	0.72	0.00	10.38	14.76	207.29
Bemidji	74.35	0.85	0.00	2.77	16.58	156.98
Buffalo	100.67	0.61	0.00	46.54	64.10	272.22
Chisholm	84.30	0.69	0.00	0.00	0.00	142.28
By Population						
> 25,000	132.86	0.75	-0.02	23.71	3.50	254.01
7,500 - 25,000	112.41	0.72	0.09	16.21	7.99	226.23
2,500 - 7,500	108.07	0.72	0.05	10.91	8.39	208.05
By Income						
> $15,000	173.09	0.63	-0.04	24.90	1.95	298.70
$10,000 - $15,000	106.28	0.74	0.09	13.94	8.46	216.95
< $10,000	81.70	0.77	0.00	7.50	9.43	161.58
By Assessed Value Per Capita						
> $7,000	152.24	0.83	-0.05	25.58	2.31	288.98
$4,000 - $7,000	106.43	0.69	0.12	14.86	8.20	215.31
< $4,000	90.07	0.68	0.05	4.77	11.09	171.61

with high assessed values than those with low assessed values. (Assessed value for the categories of cities is defined as total assessed valuation with no additions or subtractions.)

As shown in the second column, the average export ratio is about 0.73. Thus, the typical Minnesota city can raise about 73 cents from nonresidents for each dollar raised from residents. The ability of cities to export tax burdens does not vary much across cities grouped by city size. With respect to assessed valuation, cities with high assessed values tend to have greater ability to export tax burdens to nonresidents on average cities with low assessed values. This finding presumably reflects above-average proportions of business property in the higher base cities. When cities are grouped by income, cities where the income of residents is the highest tend to have the lowest export ratios. Thus, the above-average ability of these cities to raise revenue from their residents is partially offset by a below-average ability to raise revenue from nonresidents.

The next column reports the fiscal disparities ratio, which can be interpreted as another component of each city's export ratio. A positive ratio increases the city's ability to garner revenue from nonresidents and a negative ratio diminishes it. These ratios are nonzero only for cities in the Twin Cities metropolitan area and range from -0.28 to 0.78. Among the illustrative cities, the biggest fiscal disparities ratios relative to the city's export ratio are in Bloomington with a net outflow and St. Paul with a net inflow. The fiscal disparities program reduces Bloomington's ability to raise revenue from nonresidents per dollar from residents by about 20 percent but increases that of St. Paul by about 15 percent.

The revenue captured through tax increment financing, which is equivalent to state aid, averages about $15 and ranges from 0 to $134. Recall that this amount depends both on the extent to which a city relies on tax increment financing (as measured by the size of the base per capita) and the tax rate in the overlying school district. Among the illustrative cities, the largest

additions are found in Minneapolis, Buffalo, Bloomington, and Fridley. Across groups of cities the patterns are similar to those for the standard burden on residents. In other words, the use of tax increment financing augments revenue more in cities able to raise above-average amounts from their residents than in other cities.

Transfers into the general fund from municipal electric companies and liquor stores vary from 0 to $107 per capita. The picture that emerges from the ten illustrative cities is reasonably representative of all cities; many cities have no transfers of this type, some have very small transfers, a few have transfers near $20 per capita, and a few outliers like Buffalo, have extremely large transfers.

The final column puts all the pieces together in the form of revenue-raising capacity. The mean across all cities is now $221 with a standard deviation of $62 and almost a six-fold range ($85 to $499). Among the illustrative cities, Chisholm has the smallest RRC and Bloomington the largest. The patterns across groups of cities are reasonable and are similar to those for the revenue from residents at the standard burden.

Tax-Base Approach

The tax-base approach is the simpler and more familiar of the two approaches to measuring the revenue-raising capacity of local governments and is relatively straightforward to implement. With the same adjustment for the captured TIF revenues and transfers from enterprise funds discussed above, this measure of revenue-raising capacity can be written as follows:

$$RRC_i = \bar{t}\,BASE_i + t_i^* TIFBASE_i + TREL_i$$

where $BASE_i$ is the per capita tax base in the ith city, $\bar{t}$ is an average tax rate applied to that base, t_i^* and $TIFBASE_i$ are the school tax rate and the TIF base, and $TREL_i$ is transfers from municipal electric companies and liquor stores.

To reflect the consensus that the Minnesota system of property classification is a relatively permanent feature of the fiscal environment within which cities operate, the tax base is defined in terms of assessed, rather than the market, value of property. In other words, we use the value after the application of the appropriate class rates for each type of property.

The relevant property tax base for each city (*BASE*) is calculated in per capita terms as follows:

$$BASE_i = TAV_i - PL_i - CREDITBASE_i - C_i + D_i$$

where TAV_i is total assessed value, PL_i is 10 percent of power line valuation, $CREDITBASE_i$ is the tax base to which the homestead and taconite credits apply (calculated as credits divided by the overall tax rate in the city), C_i is the fiscal disparities contribution value, and D_i is fiscal disparities distribution value. Our treatment of *CREDITBASE* here is motivated by our goal of comparing the two approaches to measuring revenue-raising capacity. Because we treat the homestead and taconite credits as state aid in the income-with-exporting approach, we want to treat them the same way in the tax-base approach. To do so, we subtract the base equivalent from the base and then add credits back in as state aid.[18]

In calculating $\bar{t}$, we use the same broad definition of property taxes that we used in calculating K^*, namely, property tax levies plus special assessments plus tax increments other than those from overlying school districts. The average tax rate is calculated by summing these revenues across all cities and dividing by the sum of total property tax bases.

For 1988, the value $\bar{t}$ of is 0.0339.

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[18]A close analysis will show that this treatment is not exactly equivalent to including the credit base in the city's tax base. When the credit base is included in the tax base, it augments a city's revenue raising capacity by the average tax rate not the city's own rate. Our understanding of the post-1988 changes in how the state deals with these credits suggests that for future years the treatment of credits as described in the text is the preferred approach.

The additional revenue captured by TIF is included as part of revenue-raising capacity here for the same reason that it was added to revenue-raising capacity under the income-with-exporting approach. Because the state reimburses school districts for revenue lost to TIF districts, the revenue captured from school districts is comparable to state aid. Transfers from municipal electric companies and liquor stores are included for the same reason.

Table 14 summarizes the results for the tax-base approach. Of most interest is the first column which indicates the amount of tax revenue each city could raise if it applied the average tax rate to its tax base. The range across cities is huge and varies from $40 to $886 around an average of $172. The maximum occurs in Monticello which has a power plant within its borders. Across the illustrative cities, capacity ranges from $41 per capita in Chisholm to $362 in Bloomington. The basic patterns of averages across categories of cities are similar to those for the income-with-exporting approach but the differences across groups are much larger.

Adding in the tax increments and the transfers yields the capacity measures in the fourth column. The key finding is tremendous variation across cities. Across all cities the range is $40 to $961 and the standard deviation is $120.

Comparison of Income-With-Exporting Approach and the Tax-Base Approach

One way to compare the two measures is to see how highly correlated they are. The simple correlation between the two RRC measures is 0.92. If the TIF addition and the transfers are excluded from both measures, the correlation falls slightly to 0.87. Because the TIF addition augments both measures identically, the correlation without the TIF addition is slightly preferred. The correlation coefficient of .92 is quite high and suggests that the measures move quite closely together.

A second way to compare the two measures is to compare the deviations across cities of each measure from their respective means (see Table 15). A positive deviation means that a city

TABLE 14

REVENUE-RAISING CAPACITY EXCLUDING AID, TAX-BASE APPROACH, 1988

	$\bar{t}$ Times Tax Base	Tax Increment Financing Addition	Electricity and Liquor Transfers	Revenue-Raising Capacity
All Cities Over 2,500				
Average	172.42	14.78	7.53	194.73
Minimum	40.46	0.00	0.00	40.47
Maximum	885.79	134.04	107.23	961.34
Standard Deviation	111.09	20.06	15.99	120.08
Illustrative Cities				
Minneapolis	276.29	51.53	0.00	327.82
St. Paul	217.20	30.55	0.00	247.75
Fridley	237.58	33.75	1.70	273.03
Bloomington	362.71	34.64	0.00	397.35
Eagan	249.79	2.43	0.00	252.22
St. Cloud	159.09	9.42	1.54	170.06
Worthington	116.41	10.38	14.76	141.55
Bemidji	111.22	2.77	16.58	130.57
Buffalo	118.40	46.54	64.10	229.04
Chisholm	41.94	0.00	0.00	41.94
By Population				
> 25,000	239.67	23.71	3.50	266.89
7,500 - 25,000	169.37	16.21	7.99	193.58
2,500 - 7,500	155.29	10.91	8.39	174.59
By Income				
> $15,000	317.95	24.90	1.95	344.81
$10,000 - $15,000	156.58	13.94	8.46	178.97
< $10,000	92.10	7.50	9.43	109.03
By Assessed Value Per Capita				
> $7,000	320.09	25.58	2.31	347.98
$4,000 - $7,000	149.51	14.86	8.20	172.57
< $4,000	80.75	4.77	11.09	96.61

TABLE 15

DEVIATIONS FROM AVERAGE REVENUE-RAISING CAPACITY, 1988

	Exporting Approach	Tax-Base Approach
All Cities Over 2,500		
Average	0.00	0.00
Minimum	-136.46	-154.26
Maximum	278.27	766.62
Standard Deviation	61.51	120.08
Illustrative Cities		
Minneapolis	32.44	133.10
St. Paul	18.22	53.02
Fridley	42.13	78.30
Bloomington	74.88	202.63
Eagan	11.93	57.49
St. Cloud	-39.97	-24.67
Worthington	-13.86	-53.18
Bemidji	-64.17	-64.15
Buffalo	51.08	34.32
Chisholm	-78.86	-152.79
By Population		
> 25,000	32.86	72.16
7,500 - 25,000	5.09	-1.15
2,500 - 7,500	-13.01	-20.13
By Income		
> $15,000	77.55	150.08
$10,000 - $15,000	-4.20	-15.76
< $10,000	-59.57	-85.69
By Assessed Value Per Capita		
> $7,000	67.84	153.26
$4,000 - $7,000	-5.84	-22.15
< $4,000	-49.54	-98.12

has above-average revenue raising capacity and, all else constant, its need revenue gap relative to other cities would go down by the amount of the deviation. Similarly, a negative deviation indicates that a city has below-average capacity to raise revenue.

Of particular interest are the deviation results from Minneapolis and St. Paul, the two most populous cities in the state. The substantially larger positive deviations for both cities under the tax-base approach imply that both cities will appear better off when the tax-base approach to capacity rather than the income-with-exporting approach is used in the calculation of a city's need-capacity gap. As discussed in Chapter 4, this difference means that fewer scarce state dollars flow to Minneapolis and St. Paul when the tax-base approach is used, which leaves more funds for equalization across other cities.

Other Nonproperty Own-Source Local Revenues

As we noted earlier, Minnesota cities also raise small amounts of own-revenue from sources other than the property tax (broadly defined to include special assessments).[19] These nonproperty tax revenues include licenses and permits, and miscellaneous minor taxes. In principle it is possible to develop measures of revenue-raising capacity for these other sources. Upon further reflection, however, we believe that these methods would be so arbitrary that the results would not be sufficiently valid to use in a state aid distribution formula.

The income-with-exporting approach is difficult to implement because of the absence of a conceptual basis for assigning export ratios. Consider, for example, licenses and permits. If the revenue from this source were broken down into that paid by business and that paid by residents, reasonable export ratios could be developed. In the absence of that breakdown any

[19]Cities also impose user charges. User charges are not included in this discussion because, as discussed in Chapter 2, we net them out on the expenditure-need side. In other words, we define Q as an average spending level that is total spending minus revenue from user charges.

attempt to assign export ratios would be arbitrary and ad hoc. Assigning appropriate export ratios for taxes such as the utility franchise tax is equally problematic.

Similarly, the tax-base approach is difficult to implement because of the absence of appropriate measures for the potential tax base. With respect to licenses and permits, we would probably end up using as the base either income or population, neither of which does justice to the business portion of the potential base. With respect to the miscellaneous taxes, the challenge is to determine bases not only for the cities that actually use each tax but also for the many other cities allowed to use the tax.

Aid as A Contributor to Capacity

The treatment of intergovernmental aid is straightforward once the decision is made about what types of federal and state aid to include as part of a city's capacity to raise revenue. Following the advice of the Minnesota staff, we have included only one type of federal aid, community development block grant funds, received by the six Minnesota entitlement cities. Because these six cities receive funds from this block grant program based on their eligibility rather than for a specific project and because the funds can be used for a variety of purposes, it seems reasonable to argue that such funds contribute to the general revenue-raising capacity of these cities. This type of aid should be distinguished from CDBG grants for nonentitlement cities which are much more project-specific and from other narrowly defined federal categorical aid programs which typically serve federal rather than state objectives. Neither of these other forms of aid are included in our federal aid category.

With respect to state or local aid, the goal is to include all aid that is fungible other than aid that might be consolidated into a new LGA program. Hence, we include three major categories of aid: the aid related to the homestead and taconite credits, highway aid, and taconite

aid. Although highway aid is earmarked for specific purposes, it is fungible in the sense that it frees up city funds for other purposes.[20] Other project specific aid, including IRRRB aid, is excluded.

Because neither federal nor state aid is explicitly controlled by city officials, both forms of aid contribute dollar for dollar to a city's revenue generating capacity. Thus, we simply express each form of aid on a per capita basis and add it to each city's RRC.

The magnitude of these aid figures is shown in Table 16. As just noted, federal aid is zero in all non-CDBG entitlement cities and rises to $59 per capita in Minneapolis. State (and local) aid in the relevant categories ranges from $17 per capita to $286. Such aid tends to be highest on average in the middle sized cities, and in those with the lowest income and the lowest tax base. The effects on revenue-raising capacity are shown in the final columns of Table 16.

[20]We intended to include police and fire aid as well, but were not able to isolate them from "other state aid."

TABLE 16

REVENUE-RAISING CAPACITY WITH INTERGOVERNMENTAL AID, 1988

			Revenue-Raising Capacity with Aid	
	Federal Aid	**State Aid**	**Exporting Approach**	**Tax-Base Approach**
All Cities Over 2,500				
Average	0.74	53.22	275.11	248.69
Minimum	0.00	16.69	104.95	68.15
Maximum	58.96	285.53	516.11	978.04
Standard Deviation	5.10	39.38	67.95	119.27
Illustrative Cities				
Minneapolis	58.96	61.68	374.22	448.46
St. Paul	13.00	70.69	323.05	331.44
Fridley	0.00	25.50	288.78	298.53
Bloomington	4.94	48.28	249.26	450.58
Eagan	0.00	42.56	275.64	294.77
St. Cloud	0.00	46.86	228.04	216.92
Worthington	0.00	46.15	253.43	187.70
Bemidji	0.00	48.11	205.09	178.69
Buffalo	0.00	33.27	305.50	262.31
Chisholm	0.00	185.51	327.79	227.45
By Population				
> 25,000	5.31	52.11	311.42	324.30
7,500 - 25,000	0.00	61.50	287.73	255.07
2,500 - 7,500	0.00	47.60	255.64	222.19
By Income				
> $15,000	0.17	42.21	341.08	387.19
$10,000 - $15,000	1.06	53.76	271.77	233.80
< $10,000	0.00	62.98	224.56	172.02
By Assessed Value Per Capita				
> $7,000	1.75	44.12	334.85	393.85
$4,000 - $7,000	0.17	53.10	268.58	225.85
< $4,000	0.82	62.01	234.45	159.44

CHAPTER 4

STATE AID AND THE NEED-CAPACITY GAP

Introduction

The previous two chapters have described the two components of a city's fiscal condition: expenditure need and revenue-raising capacity. This chapter brings these two components together to form a comprehensive measure of a city's fiscal condition. In addition, this chapter turns to the question of state aid. We investigate the extent to which the 1988 LGA formula directed aid to the cities that needed help the most and we provide some guidance in designing a more cost-effective equalizing LGA formula for Minnesota.

The Need-Capacity Gap

Our summary measure of the fiscal condition of a city is the gap, G, between its expenditure need, EN, and its capacity to raise revenue from its own sources, RRC, as augmented by certain kinds of intergovernmental aid, A. All of these variables are measured per capita and reflect factors outside the control of city officials.

For the ith city, this measure can be written as follows:

$$G_i = EN_i - RRC_i - A_i$$

As explained in Chapter 3, the aid variable refers to general-purpose aid that is not a candidate for incorporation into a new LGA formula for cities. This chapter presents calculations of the need-capacity gap using both income-with-exporting approach and the tax-base approach to revenue-raising capacity.

Although the components of the need-capacity gap vary across cities average expenditure need equals average spending per capita across all cities in the most recent year. Similarly, the income-with-exporting approach to revenue-raising capacity is based on the average property tax burden on city residents and the tax-base approach is based on an average property tax rate. Thus, expenditure need is based on spending financed from all sources of revenue, whereas the revenue side is incomplete. By design, the calculation excludes some intergovernmental aid, such as current LGA and narrowly defined categorical programs, and revenue-raising capacity, which is based exclusively on the property tax, excludes other local revenue sources. It follows that the need-capacity gap G_i, will be positive for most cities.

This discussion implies that we should focus on differences in need-capacity gaps across cities, which we call fiscal disparities, not on the absolute magnitudes of the gaps or on the average gap. As we have emphasized throughout this report, our methodology provides no information about whether Minnesota cities as a group are spending too much or too little or need more or less state aid to meet their service responsibilities. Instead, our approach provides a measure of each city's fiscal condition relative to that of others.

To emphasize the relative nature of our measure, we focus on the gap in the *i*th city relative to that of the average city. We can write this differential or relative gap, *RG*, as:

$$RG_i = (EN_i - \overline{EN}) - (RRC_i - \overline{RRC}) - (A_i - \overline{A})$$

where the bars indicate averages. Not only does this formulation focus attention on the relative position of a city, it also clearly indicates the contribution of each component of a city's fiscal condition. For example, consider a city whose expenditure need exceeds the average by $40 per capita, whose revenue-raising capacity falls short of the average by $70 per capita, and whose

relevant aid exceeds the average by $10 per capita. Adding these components implies that the city's differential need-capacity gap is $100 (= $40 - (-$70) - $10).

Moreover, this differential formulation yields a meaningful interpretation of results even when revenue-raising capacity is based on property taxes alone. For example, consider a city that has above-average expenditure need but also above-average capacity to raise revenue from the property tax. The amount ($RRC_i - \overline{RRC}$) in this case can be interpreted as the contribution of the city's property-tax capacity to offsetting the city's above-average expenditure need. A need-capacity gap calculation could also incorporate the contribution of other types of revenue-raising capacity, such as that related to fees and licenses, but such additional information is not necessary for a correct and meaningful interpretation of the property tax component alone.

Finally, one should not jump to the conclusion that only cities with positive differential gaps are deserving of aid. Even cities with negative differential gaps are less well off than cities with larger negative differential gaps. As explained more fully below, the determination of the base differential gap below which aid should not be given is a policy question to be debated by Minnesota policymakers.

The need-capacity gaps for illustrative cities and for various categories of cities are presented in the third column of Table 17. The average gap is $147.68 per capita and the range is from a minimum of -$120.54 in the city with the best fiscal condition, which is Mountain Iron, to a maximum of $291.45 in the most troubled city, which is Brainerd. High positive gaps exist in Minneapolis and St. Paul. Minneapolis has a high gap despite its relatively high revenue-raising capacity; as shown in Table 17, Minneapolis also has the highest expenditure need in the state. Although its expenditure need is not quite so high, St. Paul's fiscal condition is similar to that of Minneapolis. In addition, Eagan, St. Cloud, and Bemidji are in relatively poor fiscal shape, whereas Fridley and Chisholm are in much better fiscal condition than the average city.

TABLE 17

THE NEED-CAPACITY GAP, INCOME-WITH-EXPORTING APPROACH, 1988

	Expenditure Need	Revenue-Raising Capacity	Need-Capacity Gap
All Cities Over 2,500			
Average	422.79	275.11	147.68
Minimum	241.38	104.95	-120.54
Maximum	639.72	516.11	291.45
Standard Deviation	56.53	67.95	78.12
Illustrative Cities			
Minneapolis	639.72	374.22	265.50
St. Paul	568.89	323.05	245.84
Fridley	384.49	288.78	95.71
Bloomington	473.01	249.26	123.76
Eagan	503.70	275.64	228.07
St. Cloud	462.55	228.04	234.50
Worthington	382.27	253.43	128.84
Bemidji	462.45	205.09	257.36
Buffalo	494.16	305.50	188.67
Chisholm	357.48	327.79	29.69
By Population			
> 25,000	465.35	311.42	153.93
7,500 - 25,000	423.66	287.73	135.93
2,500 - 7,500	410.05	255.64	154.15
By Income			
> $15,000	449.49	341.08	108.41
$10,000 - $15,000	423.42	271.77	151.57
< $10,000	393.46	224.56	168.90
By Assessed Value Per Capita			
> $7,000	450.96	334.85	116.11
$4,000 - $7,000	429.28	268.58	160.66
< $4,000	386.97	234.45	152.52

A list of the relative need-capacity gaps for all 179 cities is given in Appendix F. A city's relative gap is simply its absolute gap minus the gap in the average city.

Table 17 also reveals that, on average, the largest and the smallest cities tend to be the ones in the poorest fiscal condition. However, the largest cities are in poor fiscal condition because their relatively high expenditure need outweighs their relatively high revenue-raising capacity, whereas the smallest cities are in poor fiscal condition because their relatively low expenditure need is outweighed by their relatively low capacity.

Fiscal condition also improves with the average income of a city's residents. Again see Table 17. Although higher-income cities tend to have greater expenditure need than other cities, they also tend to have much greater revenue-raising capacity. The capacity effect dominates and fiscal condition is highest in the richest cities and lowest in the poorest ones. The pattern is similar when cities are classified by assessed value per capita. The cities with the greatest property wealth are also in the best fiscal condition, but the least wealthy cities have such low expenditure need that their average fiscal condition is somewhat better than cities in the middle assessed-value class.

Table 18 presents need-capacity gaps based on the tax-base approach to revenue-raising capacity instead of the income-with-exporting approach. The average gap in this case is $174.10. Because capacity measured with the tax-base approach exhibits more variation across cities than does capacity measured with the income-with-exporting approach, the need-capacity gaps in Table 18 also vary more across cities than do those in Table 17. In fact, the range is from $-434 to $358 per capita. With one important exception, however, the patterns of results in the two tables are similar. The exception is that the relative fiscal positions of Minneapolis and St. Paul are much better when the tax-base approach is used. Although both cities still have below-average fiscal condition, they are much closer to average than before. This change is reflected

TABLE 18

THE NEED-CAPACITY GAP, TAX-BASE APPROACH, 1988

	Expenditure Need	Revenue-Raising Capacity	Need-Capacity Gap
All Cities Over 2,500			
Average	422.79	248.69	174.10
Minimum	241.38	68.15	-434.20
Maximum	639.72	9.78	357.96
Standard Deviation	56.53	119.27	113.29
Illustrative Cities			
Minneapolis	639.72	448.46	191.26
St. Paul	568.89	331.44	237.45
Fridley	384.49	298.53	85.96
Bloomington	473.01	450.58	22.43
Eagan	503.70	294.77	208.93
St. Cloud	462.55	216.92	245.63
Worthington	382.27	187.70	194.58
Bemidji	462.45	178.69	283.76
Buffalo	494.16	262.31	231.85
Chisholm	357.48	227.45	130.04
By Population			
> 25,000	465.35	324.30	141.05
7,500 - 25,000	423.66	255.07	168.59
2,500 - 7,500	410.05	222.19	187.60
By Income			
> $15,000	449.49	387.19	62.30
$10,000 - $15,000	423.42	233.80	189.55
< $10,000	393.46	172.02	221.45
By Assessed Value Per Capita			
> $7,000	450.96	393.85	57.11
$4,000 - $7,000	429.28	225.85	203.40
< $4,000	386.97	159.44	227.52

in the relative improvement of the categories of cities that include Minneapolis and St. Paul, namely the largest cities, the cities with the highest average incomes, and the cities with the highest assessed-values.

Analysis of the LGA Formula

In this section we review the history of the LGA program and determine the extent to which the LGA formula gives more aid to the cities in the poorest fiscal condition.

History of the LGA Program

The LGA program was initially created as part of Minnesota's 1971 overhaul of state and local fiscal relations. Its two purposes were to provide property tax relief and to help ensure that local governments were able to raise sufficient revenue to meet their needs. In contrast to previous programs, LGA was explicitly intended to be based on need. Although it provides assistance to counties, towns, and special districts as well as to cities, over time LGA has become increasingly oriented toward cities. The portion distributed to cities is our focus in this report.

The Minnesota legislature has periodically grappled with the concept of fiscal "need" and with the philosophical underpinnings of the LGA program. Between 1972 and 1975, fiscal need was measured by the property tax levy. Presumably, the underlying logic was that cities that relied more heavily on property taxes were more needy than others. However, cities with larger tax levies received more aid regardless of whether their larger levy resulted from greater objectively determined expenditure need or higher preferences for public services or greater waste and inefficiency.

The early LGA formulas also failed to account for differences in cities' capacity to raise property tax revenue. This flaw was addressed in 1976 as Minnesota moved to a formula based on the city's mill rate. With this change, the legislature accepted the concept that a city's claim

on aid depends on both its expenditure need (still measured imperfectly by the city's levy) and its capacity to raise property tax revenue (as measured by the assessed value of its property).

Between 1980 and 1985, the concept of fiscal need was refined further and embodied in a revenue-gap formula. During this period, a city's claim on aid was measured by the gap between its expenditure need, defined as the sum of its property taxes and LGA averaged over three years, and its capacity, defined as a proportion of its property tax base. Various adjustments in the formula were made to prevent large increases or decreases in aid over time and to make total aid conform to the appropriated amount.

The formula was changed again for payable 1986. Once again, spending need was determined by a city's three-year average spending level. A city's aid amount was then determined by the difference between its spending need and the amount of revenue it could raise at the tax rate it would have needed to meet its expenditure need if it had a tax base of $17,000 per capita. This approach was intended to insure that cities with low tax bases would not be penalized in meeting their expenditure need.

Not until the 1988 changes effective for payable 1989 did the legislature move away from actual spending as a measure of city expenditure need. According to the latest approach, a city's expenditure need, called its revenue guarantee, is calculated as a nonlinear function of the number of households in the city, adjusted upward for nonmetropolitan cities and Minneapolis and St. Paul and for cities with declining population. This approach to need has the desirable characteristic that it is independent of a city's actual spending. However, the revised distribution formula complicates the issue by including a city's spending as well as this new measure of need.

The 1988 revisions can be criticized on several grounds. First, the new measure of expenditure need is arbitrary. While we applaud the state's effort to move away from actual spending as a measure of expenditure need, we believe the state should develop a measure of

expenditure need that has a stronger conceptual and empirical foundation. Second, the fact that additional aid is linked to a city's actual spending may build in some undesirable incentives for cities to spend more to get more aid. Third, the distribution formula is complicated and difficult to understand. Finally, it is likely that the pattern of aid across cities is not much different from past patterns because of the hold-harmless provisions.

As explained more fully in a later section, the formula we propose can be viewed as the next logical step in the evolution of Minnesota's LGA program. It, too, is based on the concepts of expenditure need and revenue-raising capacity, although these concepts are refined versions of those that have appeared in the program up to now.

Equalizing Impact of the LGA Formula

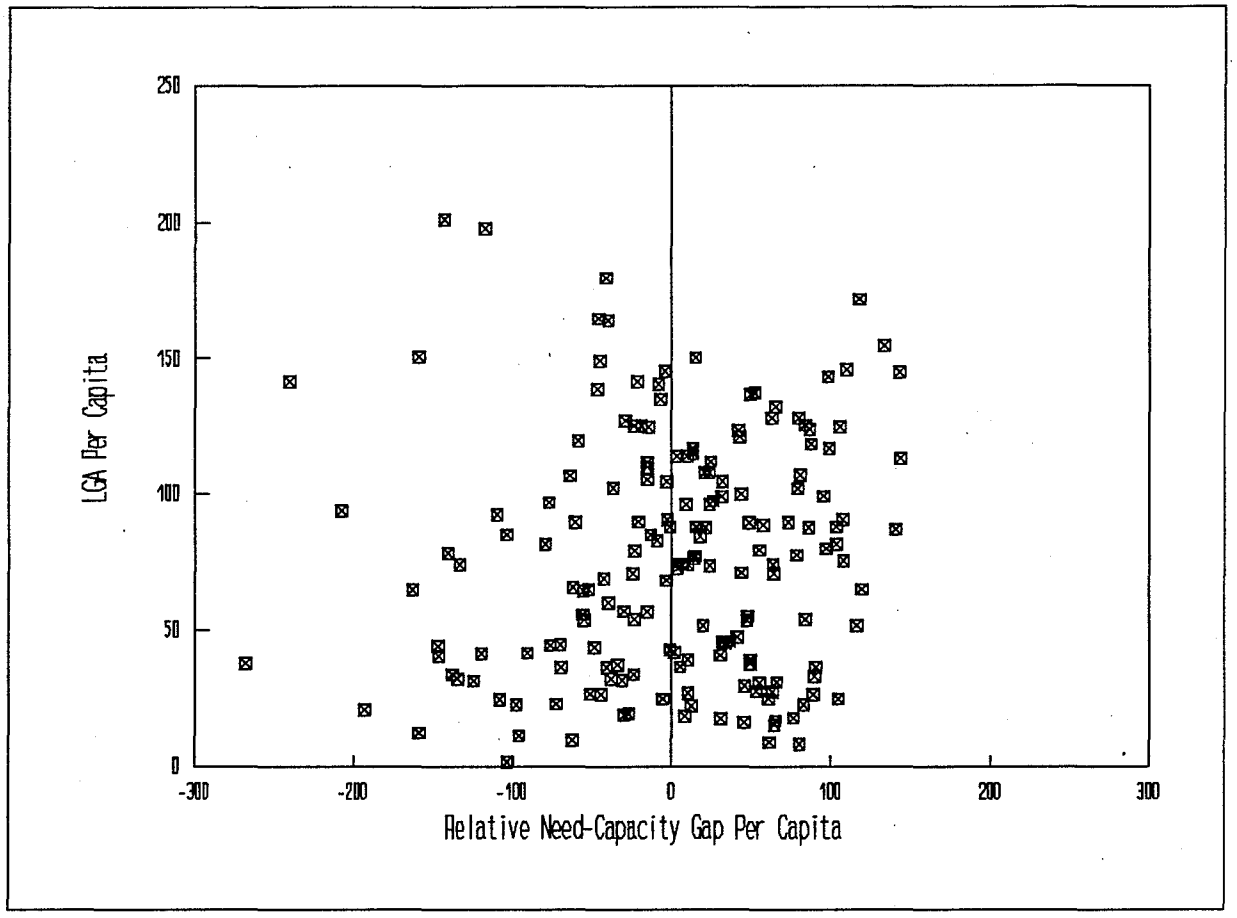
The need-capacity gap is our summary measure of a city's fiscal condition, based on factors outside its control. As a result, this gap provides a natural standard by which to evaluate the equalizing impact of the 1988 LGA formula. In particular, we can determine whether cities with higher need-capacity gaps received more LGA in 1988. Although the current LGA formula is different from the one employed in 1988, its hold-harmless provisions imply that its equalizing impact is likely to be similar to that of the formula used in 1988.

Our analysis indicates that in 1988 LGA was not well directed to the cities with the greatest need-capacity gaps, measured using the income-with-capacity approach. This conclusion can be seen clearly in Figure 2, which plots each Minnesota city's relative need-capacity gap against its 1988 LGA per capita. No pattern emerges from this picture. Cities with higher need-capacity gaps do not systematically receive either more or less aid.

Another approach is to ask whether the need-capacity gap, still using the income-with-exporting approach, and 1988 LGA per capita are correlated. In fact, the correlation coefficient between these two variables is positive but very small, about 0.10. Moreover, a simple bivariate

FIGURE 2

1988 LGA AND THE NEED-CAPACITY GAP, INCOME-WITH-EXPORTING APPROACH



regression of LGA per capita on the need-capacity gap indicates that, on average, a $1.00 increase in a city's need-capacity gap is associated with a $0.06 increase in that city's LGA per capita. This association is not statistically significant, which indicates that we cannot reject the hypothesis that LGA amounts do not vary at all with the need-capacity gap.

We can gain further insight into the equalizing impact of the LGA program by exploring the relationship between LGA and the components of the need-capacity gap. We find that the 1988 LGA formula did successfully target aid on cities with low revenue-raising capacity, measured with the exporting approach but it actually directed less aid to cities with higher expenditure need and more aid to cities with higher federal or other state grants.

These features of the program can be seen in another simple regression analysis with per capita LGA as the dependent variable and the components of the need capacity gap as the independent variables. These components are expenditure need, revenue-raising capacity (exporting approach), and selected federal and state aid, where the "selected" aid programs are discussed in Chapter 3. In this regression, the coefficient of revenue-raising capacity is negative and significant; each $1.00 increase in a city's revenue-raising capacity is associated with a $0.35 reduction in its LGA. However, the coefficient of expenditure need is also negative; a $1.00 increase in expenditure need is associated with a $0.01 decrease in a city's LGA, although this effect is not statistically significant. This regression also reveals that LGA amounts are positively associated with federal and other state aid programs; a $1.00 increase in aid through programs included in our need-capacity gap calculations is associated with a $0.31 increase in LGA. This regression should be interpreted with care, because it does not include other factors that might influence state aid to a particular city. Nevertheless, it suggests that 1988 LGA aid is not closely associated with a city's fiscal condition because the definition of expenditure need in the LGA

formula is very different from the refined measure developed in this report and because the LGA formula does not account for other aid programs.

A similar analysis can be conducted for the relationship between 1988 LGA grants and the need-capacity gap calculated with the tax-base approach. The results are very similar. As shown in Figure 3, there is still no clear pattern linking LGA and the need-capacity gap. Moreover, as below, a bivariate regression indicates that LGA aid increases only $0.11 for every $1.00 increase in the need-capacity gap. In this case, however, this coefficient is statistically significant. Although the link between LGA and this version of the need-capacity gap is still not strong, we can reject the hypothesis that there is no link at all.

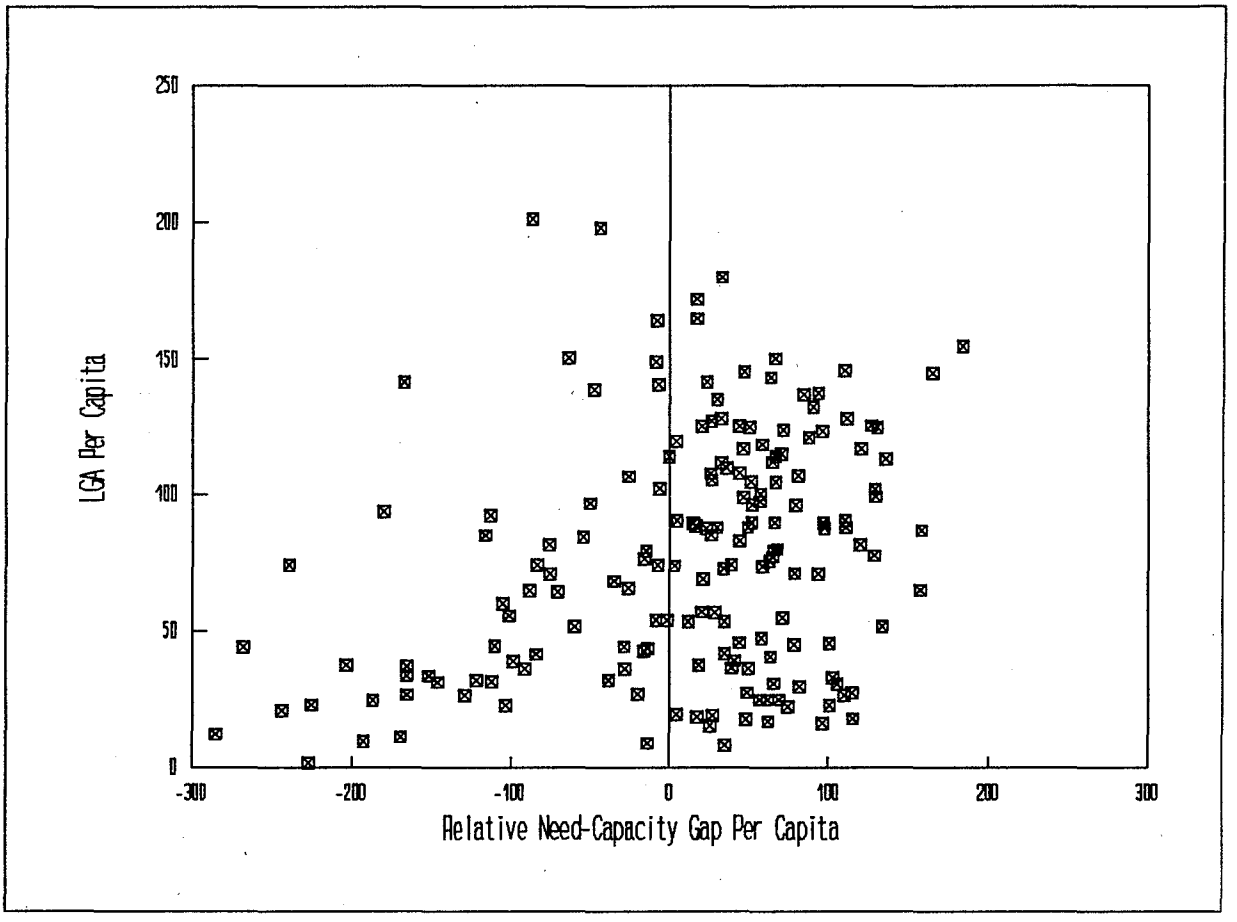
The key implication of these results is that the 1988 LGA program did not use a cost-effective formula for assisting Minnesota's most troubled cities--as indicated by their high need-capacity gaps. Even though the formula did tend to give more aid to cities with relatively low revenue-raising capacity, it also failed to give more aid to cities with relatively high expenditure need--as we measured it--and it failed to recognize the contribution of some other federal and state aid programs to cities' general fiscal condition. In the next section, we show how to design an LGA formula that is more effective in equalizing fiscal condition across cities.

Designing Alternative LGA Formulas

Many different policy objectives can be served through state grants to local governments. The grant formulas discussed here are designed to promote one key objective, namely to help all cities be able to deliver public services to their residents at a reasonable tax rates. Grant programs in many different states are, to some degree, designed to meet this objective. As guardians of the system of local governments in their state, many state policymakers have concluded that they have a responsibility to insure that this system is fair, that is, that some cities

FIGURE 3

1988 LGA AND THE NEED-CAPACITY GAP, TAX-BASE APPROACH



(or other types of local governments) are not much more severely constrained by their economic and social circumstances than are others.

In order to achieve this objective, state governments must compensate cities for fiscal disadvantages caused by factors outside the control of local officials. Compensation need not be complete--indeed that may be an impractical goal. Instead, aid programs should lessen the impact of factors outside the control of local officials on the ability of a city to serve its residents. The LGA program in Minnesota is intended, at least in part, to perform this equalizing function, but as we showed earlier, its actual equalizing impact in 1988 was limited.

It is worth emphasizing that a city's equalizing aid should be based only on factors outside the control of city officials. Compensating a city for fiscal disadvantages caused by the poor management of city officials or by wasteful spending would be unfair to more responsible cities--and might even encourage such undesirable practices. The aid programs discussed here do not have this inappropriate feature.

Designing an Equalizing Aid Formula

In designing an aid formula to compensate cities in relatively poor fiscal condition, state officials must make two choices.

The first choice is to decide how targeted the aid program will be. In particular, state officials must decide whether the program will be directed to all cities or just to the cities in the poorest fiscal condition. For example, the cities in the state could be ranked by fiscal condition and the bottom half, or the bottom two-thirds, could receive aid. Alternatively, one could argue that an equalizing objective requires a state to give at least some aid to all cities except those in very strong fiscal condition. It is important to recognize, however, that an aid program that assists all cities will be stretched very thin and may not be able to give very much assistance to the cities that need help the most. For a given budget, the smaller the number of cities receiving

aid, the greater the share of fiscal disparities among those cities that the program is able to offset. Thus, state officials can have a larger impact on the fiscal disadvantages of the most troubled cities by limiting the number of cities receiving aid.

Second, state officials must decide how much equalization they want to achieve within the set of cities receiving aid. The program budget is directly related to the share of fiscal disparities that the program offsets; the higher the budget, the greater this share.

These choices can be formalized in a simple aid formula. First, let G^* indicate the baseline need-capacity gap, which is defined as the lowest gap that a city can have and still receive aid. Selecting G^* corresponds to the first choice discussed above. Then the basic formula for an equalizing aid program is simply:

$$A_i = b(G_i - G^*) \quad \textit{if } G_i > G^*$$
$$= 0 \qquad\qquad \textit{otherwise}$$

here A_i is the aid received by city per capita i and b is the share of a city's need-capacity gap above the baseline that is offset by aid.[21] With this formula, cities with gaps below G^*, receive no aid, whereas other cities are treated equally in the sense that a constant portion of their gap above the baseline is eliminated.

The value of b is determined by the budget of the aid program. This can clearly be seen by equating the budget amount, say B, with the sum of the aid payments across cities. Each city's aid payment is A_iN_i, where N_i is the population of city i. Thus,

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[21]Earlier we focused on relative not absolute need-capacity gaps. It does not matter which version is included in the aid formula. If relative gaps are used, the baseline gap must be expressed in relative terms and either approach yields exactly the same aid amounts.

$$B = \sum_i b(G_i - G^*)N_i$$

where the summation includes only those cities with gaps greater than the base line. Solving this equation for b yields:

$$b = \frac{B}{\sum_i (G_i - G^*)N_i}$$

The numerator of this expression in the program budget and the denominator is the population-weighted sum of deviations from the baseline gap. This equation reveals that for a given baseline gap, the share of fiscal disparities that the program offsets, *b*, is directly proportional to the program budget, *B*. By doubling the amount appropriated for the program, in other words, the state doubles the share of fiscal disparities that the program offsets. To put it another way, if policymakers want to achieve twice as much equalization, as measured by *b*, they must spend twice as much money. Another less obvious implication of this equation is that for a given budget, raising the value of the baseline gap, G^*, that is, restricting the number of cities that receives aid, also raises the value of *b*.

Comparison with Previous LGA Formulas

In some ways, the approach we advocate in this report can be viewed as a logical next step in the evolution of Minnesota's LGA program. This evolution is clearest with respect to the definition of a city's expenditure need. By defining the base or average expenditure need in terms of spending financed by all revenue sources other than user charges, this report continues the historical trend of expanding the definition of expenditure need to include more than spending financed by the property tax alone. More importantly, our approach builds on the logic of the

1988 changes by proposing a measure of expenditure need that is independent of actual spending in a city. However, our measure has a firmer conceptual foundation and more explicitly accounts for the factors outside the control of city officials that exert a systematic influence on city spending.

With respect to revenue-raising capacity, our preferred income-with-exporting approach makes a break with the tax-base approach, versions of which have been used in previous Minnesota LGA formulas. As noted in earlier chapters, we prefer the income-based approach because of its focus on the ability-to-pay of city residents. Although it differs from previous LGA formulas, we believe that the income-with-exporting approach is fully consistent with Minnesota's long tradition of concern for the progressivity of its property tax system with respect to resident income.

In terms of aid design, our approach has the advantage of being conceptually simpler than the current approach and of providing no incentives for cities to spend more to get aid. The concept of providing aid to offset, at least in part, the gap between a city's expenditure need and its revenue-raising capacity is intuitively appealing and simple to grasp. The fact that our proposed need-capacity gap reflects only those factors outside the control of local officials means that it achieves its equalization goals without providing any undesirable incentive effects.

Results with the Proposed LGA Formula

In this section we explore hypothetical LGA programs based on our approach. Table 19 shows the proportion of existing fiscal disparities, *b*, that could be offset given the need-capacity gaps we have estimated for 1988. The rows of this table correspond to different values of the baseline gap and the columns correspond to different budgets. Moving down a column indicates the impact of raising the baseline gap while keeping the program budget constant. With a $100 million budget, for example, lowering the baseline gap from $20 per capita to $-20 per capita

cuts the share of disparities that are offset from 100 to 59 percent. Moving across a row indicates the impact of increasing the budget while holding the baseline gap constant. With a baseline gap of zero, for example, increasing the budget from $33 million to $100 million raises the share of disparities that are offset from 25.2 to 76.3 percent. Thus, Minnesota can offset virtually any share of existing fiscal disparities it wants, depending on the number of cities it decides to include in the program and the amount appropriated for the program.

It should be pointed out, that in 1988 the LGA program gave over $250 million to the 179 cities considered here. Moreover, the total LGA budget was increased substantially in 1989. A budget of this magnitude could offset a large percentage of the current fiscal disparities across these cities, even if most cities were included in the program. As shown by the third entry from bottom in the right-most column of Table 19, a program with a baseline gap of $-40 per capita and a budget of $200 million would offset 94 percent of the fiscal disparities across the 130 most troubled cities.

Note that the entire LGA budget need not be used for equalizing purposes. With a $200 million budget, for example, $67 million could be set aside for a flat per capita grant to all cities with the remaining $133 million distributed to the, say, 107 cities with the highest need-capacity gaps. In this example, 66.7 percent of the fiscal disparities among these 107 cities could be offset.

These conclusions are illustrated in Figures 4 and 5. Figure 4 shows the impact of altering the baseline gap with a budget of $100 million. The steepest line shows how aid per capita changes as the relative-need capacity changes when the baseline gap is $20 per capita. This line corresponds to the entry in the second row and $100 million column of Table 19. The flattest line involves a baseline gap of $-40 per capita, as in the eighth row and $100 million column of Table 19. Figure 5 shows the impact of increasing the program's budget, holding the

FIGURE 4

ALTERNATIVE STATE AID PROGRAMS WITH A $100 MILLION BUDGET

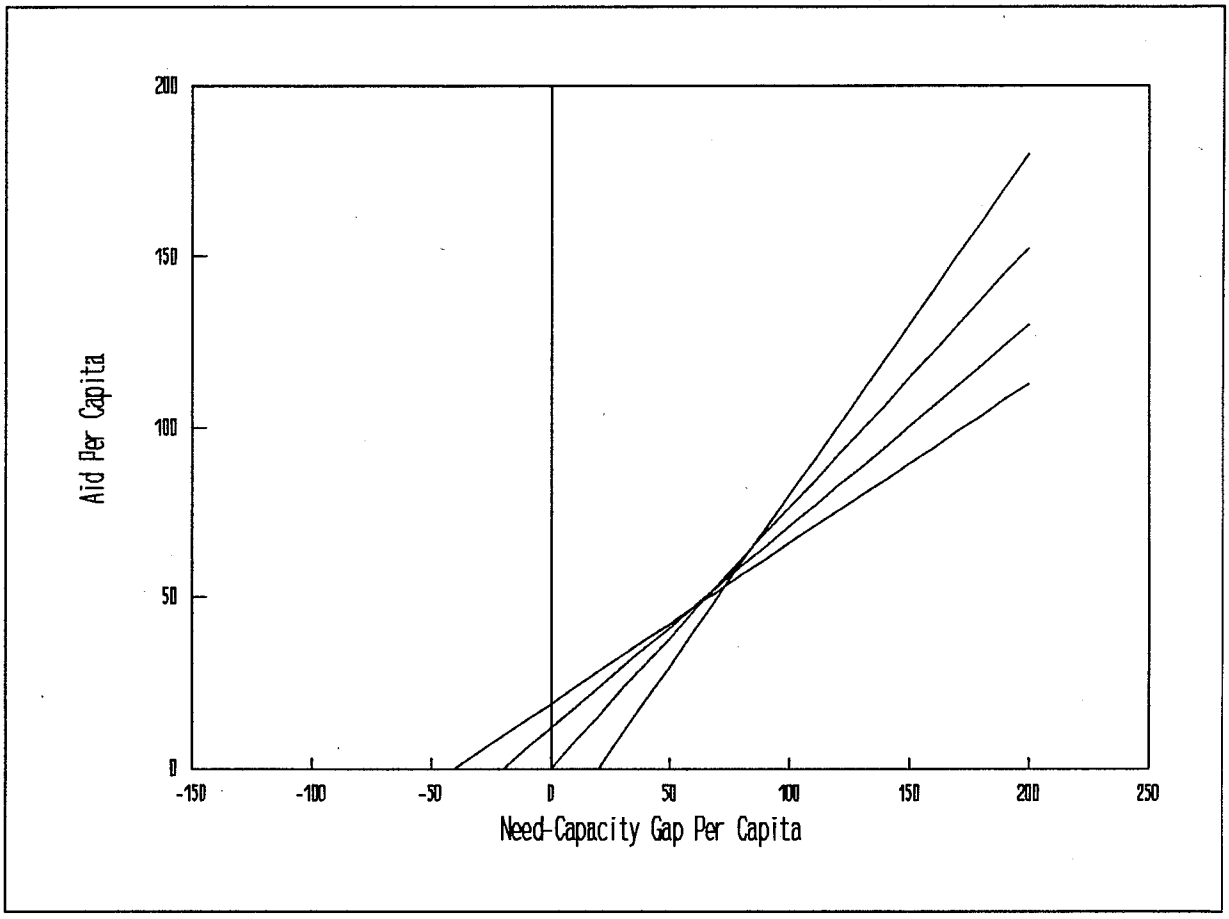

FIGURE 5

ALTERNATIVE STATE AID PROGRAMS FOR CITIES WITH A NEED-CAPACITY GAP ABOVE $0

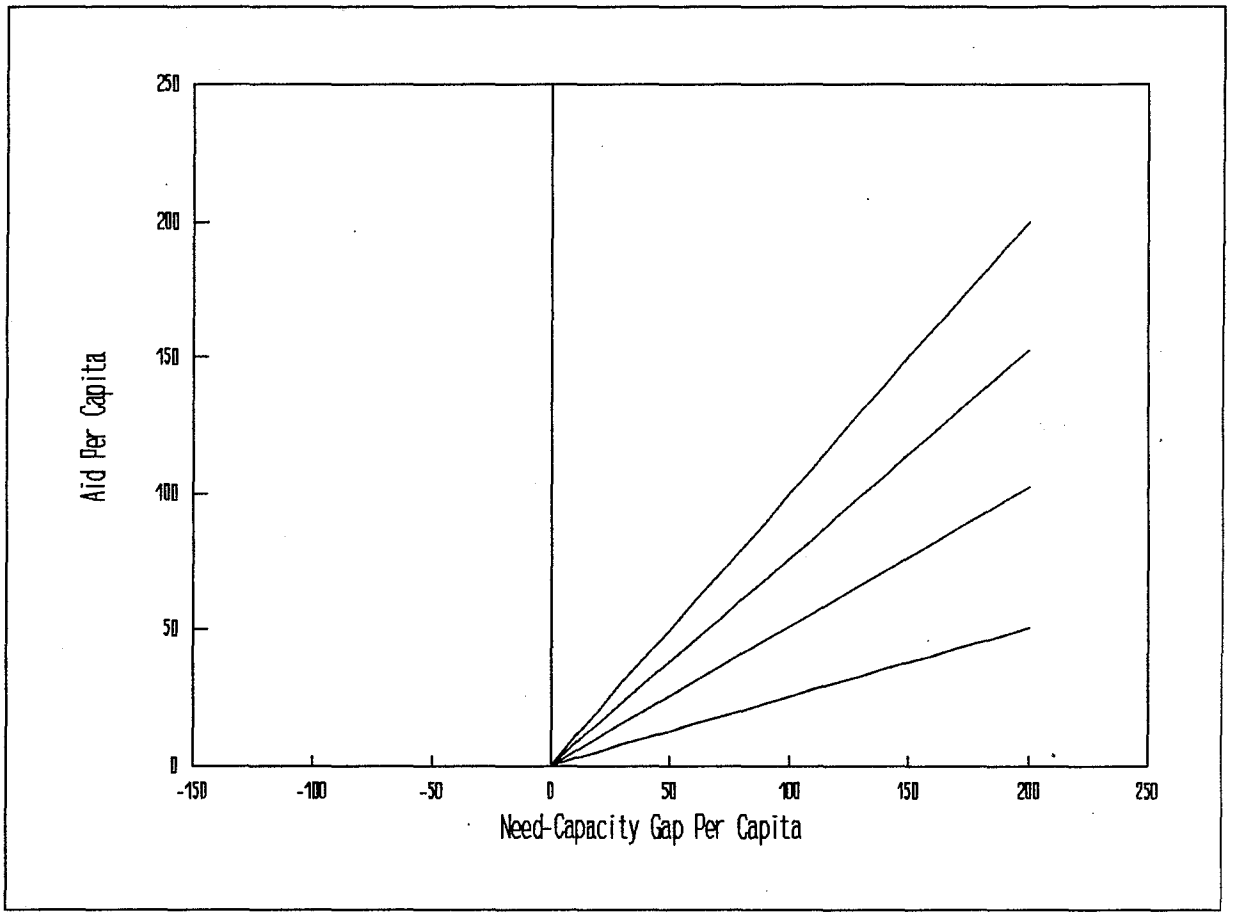

TABLE 19

ALTERNATIVE STATE AID PROGRAMS, INCOME-WITH-EXPORTING APPROACH

Baseline N-C Gap	Number of Cities Receiving Aid	Percent of Need-Capacity Gaps Offset for a State Budget in Millions of:					
		$33	$67	$100	$133	$167	$200
30	69	39.9	80.9	100.0+	100.0+	100.0+	100.0+
20	76	33.9	68.8	100.0+	100.0+	100.0+	100.0+
10	86	29.1	59.0	88.1	100.0+	100.0+	100.0+
0	97	25.2	51.1	76.3	100.0+	100.0+	100.0+
-10	107	22.0	44.7	66.7	88.7	100.0+	100.0+
-20	114	19.5	39.5	59.0	78.4	98.4	100.0+
-30	124	17.3	35.2	52.5	69.8	87.7	100.0+
-40	130	15.5	31.5	47.0	62.5	78.5	94.0
-50	139	14.0	28.4	42.3	56.3	70.7	84.6
-60	145	12.7	25.7	38.4	51.0	64.1	76.7

baseline gap constant at $0 per capita. The higher the budget, the steeper the line relating relative need-capacity gap and aid. The steepest line, for example, corresponds to a budget of $133 million, that is, to the entry in the fourth row and the $133 million column of Table 19.

Equivalent results for a need-capacity gap defined with the tax-base approach to capacity are presented in Table 20. As noted earlier, the average gap is over $20 higher with this approach than with the income-with-exporting approach. To make Table 20 comparable to 19, therefore, the baseline gaps (which define the rows) are all $20 higher.

As explained earlier, the relative fiscal position of the largest cities is better with the tax-base approach than with the income-with-exporting approach. Because the largest cities inevitably make such a large claim on the budget, this difference in their relative fiscal condition implies that a given overall budget goes farther in offsetting the measured gaps when the tax-base approach is used than when the income-with-exporting approach is used. A $100 million program that give aid to the 114 most troubled cities, for example, offsets 59.0 percent of the gaps measured with the income-with-exporting approach and 97.4 percent of the gaps measured with the tax-base approach.

This result should not be interpreted to mean that employing the tax-base approach would allow Minnesota to offset a greater share of the existing fiscal disparities across cities. The offsets in Table 20 are not relevant unless policymakers decide that the tax-base approach provides the most appropriate measure of a city's true fiscal capacity. As explained earlier in this report, we believe that the income-with-exporting approach is more appropriate because it compares the revenue different cities could raise at the same tax burden on their residents. If policy makers agree with this position, the offsets in Table 19, which are based on the income-with-exporting approach, indicate the true constraints on state policy.

TABLE 20

ALTERNATIVE STATE AID PROGRAMS
TAX BASE APPROACH

Baseline N-C Gap	Number of Cities Receiving Aid	Percent of Need-Capacity Gaps Offset for a State Budget in Millions of:					
		$33	$67	$100	$133	$167	$200
30	66	100.0	100.0	100.0+	100.0+	100.0+	100.0+
20	79	82.1	100.0	100.0+	100.0+	100.0+	100.0+
10	89	63.0	100.0	100.0+	100.0+	100.0+	100.0+
0	103	50.0	100.0	100.0+	100.0+	100.0+	100.0+
-10	110	39.4	80.0	100.0+	100.0+	100.0+	100.0+
-20	114	32.2	65.3	97.4	100.0+	100.0+	100.0+
-30	122	27.0	54.9	81.9	100.0+	100.0+	100.0+
-40	128	23.2	47.0	70.2	93.3	100.0+	100.0+
-50	132	20.2	41.0	61.1	81.3	100.0+	100.0+
-60	134	17.8	36.2	54.1	71.9	90.3	100.0+

Updating Need-Capacity Gaps

All the analysis in this report is based on 1988 data, the latest year for which complete data were available for the regression analysis used to estimate city cost indexes. If Minnesota chooses to use the need-capacity gaps as the basis for distributing local government aid to cities, the gaps should be updated annually. In general, the updating process is straightforward, although more than one option is available for updating the measure of expenditure need.

Expenditure Need. Recall that a city's expenditure need for each of four spending functions is calculated as the product of average spending per capita for the specific function, Q, multiplied by the city's cost index for that function, C_i, and, in the case of transportation spending, by a city-specific service responsibility index, SR_i. The city's total expenditure need is the sum of its expenditure needs for the four functions.

The easiest way to update expenditure need is to update the Qs, which are the average per capita spending on each function, without changing the city-specific cost and service responsibility indexes. This procedure simply changes the expenditure need for each category of spending by the same percentage in each city. It is an appropriate short-run procedure to the extent that the relative cost characteristics of cities, such as population, population density, or cost of living, do not change much over short periods of time.

The annual calculation of Q may involve some complications. As discussed in Chapter 2, we adjusted the State Auditor's data in a variety of ways to assure comparability in spending across cities. At a minimum it would be desirable for the state to make any adjustments that can easily be made based on the State Auditor's data base. Examples of this type of adjustment include the subtraction of general-fund spending on garbage collection, airports, and police contracts. More problematic are the complex adjustments we made for spending by enterprise funds. However, most of the adjustments made for individual cities have little impact on

spending averaged over all cities. The state may want to do some analysis based on the 1988 data in this report to determine the effect of these adjustments on average spending in each category.

In addition to updating the *Q*s, the state may also want to update each city's cost index by using more recent data on city cost factors. According to this approach, the state would use the coefficients from the equations reported in Chapter 2 but would substitute more recent values for each cost factor in simulating a city's hypothetical spending. In this way, each city's cost index and hence its expenditure need would be updated to reflect changes in city characteristics that affect the cost of providing public services. This is our recommended method for updating city expenditure need.

The most complete procedure for updating expenditure need is to re-estimate the expenditure regressions; however, such re-estimation should not be necessary for several years. The systematic relationships between city characteristics and city spending captured by the regression are likely to change slowly over time. Hence, in our view, the state should invest the resources and time needed for re-estimation only on a periodic basis, such as every five years.

Revenue-Raising Capacity. Updating revenue-raising capacity from own sources is straightforward. Whether the state uses the income-with-exporting or the tax-base approach, the necessary data are readily available on a timely basis. State policymakers need simply substitute more recent figures for the 1988 data used in this report.

In connection with the income-with-exporting approach, state policymakers presumably would not change on an annual basis the export ratios by property type. State policymakers could either use the export ratios reported in Chapter 3 or could modify them to account for factors that we did not consider. In any case, our expectation would be that once the export ratios for each property type were determined, they would not be changed over time. However,

each city's overall export ratio would be updated to account for changes in the composition of its property tax base.

Recent changes in state aid to cities may modify somewhat the treatment of aid in the calculation of revenue-raising capacity, but present no conceptual problems. In calculating a city's revenue-raising capacity, the policymakers need simply make a judgement as to which of the aid programs should be included as part of a city's revenue-raising capacity, which should be viewed as a candidate for consolidation into a more general equalizing program, and which are too project-specific to be included.

Conclusion

Because it does not systematically account for expenditure need or other general-purpose aid programs to cities, the 1988 LGA formula was not very effective at directing aid toward the cities in the poorest fiscal condition. By using the approach proposed here, however, the extent of equalizing achieved through the LGA program could be dramatically increased. Indeed, even a smaller budget than the current one could offset a large share of the current fiscal disparities across cities in the state.

We cannot determine the appropriate baseline gap or degree of equalization for Minnesota. These choices must be made by policymakers in the state. As a result, we also cannot determine the amount of money state should spend on a local government aid program. However, our analysis does reveal what the state would have to spend to achieve any given degree of equalization within a given set of cities. Thus, one way to think about the appropriate LGA budget is that it is the amount of money needed to achieve the desired degree of equalization in the selected set of cities--plus the amount required to achieve any objectives other than equalization that policymakers select.

APPENDIX A

VERIFICATION AND ADJUSTMENT OF THE STATE AUDITOR'S EXPENDITURE DATA

The city data base compiled by the State Auditor is of high quality. Most cities provide accurate and timely data on their expenditures and revenues. Although data on total expenditure are highly accurate, some inconsistencies exist in the way individual city governments classify certain expenditure items. A close examination of the spending data indicates that a number of cities report large expenditure under three miscellaneous expenditure categories: "unallocated pension contributions," "unallocated insurance and judgements," and "all other current expenditures." Observing large expenditure in the miscellaneous category at least raises the suspicion that some of this expenditure is misclassified, and should in fact be classified as public safety, economic and social services, or transportation expenditure.

The LGA staff studied this potential misallocation problem in considerable detail using two different approaches. The first approach, referred to as *adjustment*, applied to the 1988 State Auditor's data a formula for allocating miscellaneous expenditure back to specific categories of expenditures. The formula was developed by the Office of the Legislative Auditor based on the findings of a detailed study they conducted of 1987 financial records for a sample of cities. Through application of the formula, 55 of the 179 cities with populations over 2,500 had their expenditure adjusted. Although the application of the allocation formula was successful in reducing expenditure in the miscellaneous category, we concurred with the assessment of the LGA staff that shifting spending between categories based on a formula raises the possibility that substantial amounts of true miscellaneous spending would be incorrectly allocated to other spending categories.

The second approach, referred to as *verification*, involved the careful examination by an LGA Study staff member of the original financial reports submitted to the State Auditor to determine whether some of the spending appearing in the State Auditor's data base as miscellaneous expenditure could be reallocated to other expenditure categories. For the 179 cities with populations exceeding 2,500, miscellaneous expenditure averaged 4.31 percent of total current expenditure. The financial records of the 66 cities with above average miscellaneous expenditure were targeted for detailed analysis. On the basis of information on the State Auditor's reporting form or from city financial reports, it was possible for about half of the 66 cities to allocate miscellaneous expenditures to specific functions. For example, for the City of Waseca ambulance expenses were reallocated from the "miscellaneous expenditure" to the "police and ambulance" category. In Corcoran and Falcon Heights, spending on recycling was reallocated to the "other sanitation" category. In many cases it was determined that the classification of spending under miscellaneous was appropriate, as the spending in fact could not be categorized under any of the specific spending categories listed on the Auditor's data form. For some cities miscellaneous spending also included unallocated pension and insurance expenditures. In some cases these expenditures, for example, for city general liability insurance, are unallocable to specific spending categories, while in other cases, for example, when all public employee pension payments are lumped together, it would be extremely difficult to correctly allocate them.

This study uses data based on the verification approach. As a result of the careful verification process carried out by the LGA Study staff we are confident that the resulting city data set is of high quality, and that in almost all cases total spending has been accurately assigned to one of the four spending categories. It should be emphasized that any remaining errors in the data are unlikely to have any impact on the calculation of expenditure need and the need-capacity

gap. Recall that expenditure data for individual cities do **not** play a direct role in the calculation of expenditure need. The actual spending data are used only in the regression analysis. An error in the spending data for one city will have a negligible impact on the regression coefficients and hence, have no impact on the cost index and expenditure need calculated for each city.

APPENDIX B

ENTERPRISE FUNDS USED TO ADJUST AUDITOR'S SPENDING DATA
(Grouped into Spending Categories)

Public Safety
- Ambulance
- Emergency Services
- Fire Equipment
- Fire

Transportation
- Mass Transit
- Transit
- Parking
- Parking Meters
- Municipal Parking
- Parking Systems
- Street Lights
- Storm Sewers
- Storm Drainage
- Storm Water

Services--Parks and Recreation
- Swimming Pool
- Arena
- Arena Facility
- Civic Center Arena
- Ice Arena
- Sports Facility
- Community Center
- Community Building
- Arts Center
- Edinborough Park
- Recreational Facilities
- Recreation and Park
- Athletic Programs
- Hall
- Recreation Area
- Gun Range
- Park View Center
- Senior and Handicapped
- Special Recreation
- Fitness Center
- Auditorium

Services--Housing
- Housing Authority
- Apartments
- Giles Housing
- Low Rent Housing
- Home Energy Conservation

Services--Economic Developmemt
- Economic Development
- Growth and Development
- Development Company

Services--Sanitation
- Recycling
- Solid Waste
- Land Fill
- Burning
- Pest Control

Services--Health
- Medical Facility
- Clinic
- John Wimmer Clinic
- Medical Office Building

Services--Library
- Library Trust Fund

Administration
- Municipal Building
- Deputy Registrar
- License Bureau
- Motor Vehicle Registration

APPENDIX C

CONTROL VARIABLES USED IN THE EXPENDITURE REGRESSIONS

This appendix describes the control variables used in the expenditure regressions. The term *control variable* refers to all independent variables in the regressions except those identified as cost factors. The regression results, including the estimated coefficients of the control variables are presented in Appendix D. The variables described in this appendix are divided into three broad categories: determinants of the preferences or demands of city residents for public services; intergovernmental aid and transfer variables; and variables reflecting institutional factors, such as a city's form of government.

Demand and Preference Variables

This section describes four variables which reflect resident preferences for city government public spending.

Per Capita Income (PERINC87)

A large literature of expenditure studies suggests that per capita income is an important determinant of public spending, with residents of cities with higher average income generally demanding higher levels of public spending. The data on per capita income are available from the Bureau of the Census on a biannual basis.[1] The source of the data is the Census Bureau's

[1]The Census income data include income from wages and salaries, farm and nonfarm self employment, interest, dividends, rents, Social Security and Railroad Retirement benefits, veterans' and welfare payments, pensions, unemployment compensation, and alimony. The data, however, do not include income from realized capital gains, the imputed rent from homeownership, or the value of in-kind government programs, such as Medicaid.

Current Population Reports, Series P-26. Studies by the Bureau of the Census indicates that these data are quite accurate for local governments with populations over 2,500 persons.

Tax Price (TAXPRI6)

Tax price is defined as the cost to an individual in terms of extra taxes of increasing city public expenditures by one dollar per capita. Under the assumption that the property tax is the marginal revenue source for city governments, the tax price faced by any individual taxpayer depends on the value of his or her property (measured in assessed value terms) relative to the total property tax base of the city. Thus, an individual's tax price will tend to be low when the assessed value of his or her property is small relative to that of other city residents, or when nonresidential property makes up an important part of a city's total property tax base. Tax prices will also be low when higher level governments provide substantial amounts of matching aid, i.e., aid tied to the level of city spending. As grants to city governments in Minnesota are not distributed using matching aid, the major determinant of tax prices is the composition of the property tax base within each city.[2]

Both economic theory and a large empirical literature suggest that lower tax prices will lead to greater demand on the part of city residents for city services. The challenge arises in specifying the tax price variable. One approach assumes that city government fiscal decisions reflect the preferences of a single decisive voter. This voter may, but need not be, the voter with the median income in the city. According to this approach, the tax price would be the one faced by the decisive voter. An alternative approach is to assume that city fiscal decisions reflect a bargaining process among various residents or groups of residents. The strength of each group's

[2]In principle tax prices are also influenced by individuals' ability to itemize deductions on their federal and state income tax returns. If property taxes are deductible, tax prices will be reduced by a percentage amount equal to the taxpayers' marginal income tax rate.

bargaining power may reflect factors other than their voting power, such as economic power. Consistent with this approach, the tax price would be specified as a weighted average of the tax prices of all voters where the weights represent the relative political influence of each voter or voting group. In practice our tax-price term reflects a number of compromises that reflect the absence of individual household data and our desire to keep the formulation relatively simple and straightforward.

If household-level data were available, one could measure true marginal tax prices as the extra property tax payment necessary to finance an extra dollar of public spending per capita.[3] However, as only city-level data are available, only an average tax price can be defined for each city. An average tax price can be measured as net residential property tax payments (or assessed value) as a proportion of total property tax payments (or assessed values).

We can write the average tax price (TP) for city i as follows:

$$TP_i = \frac{RAV_i - \frac{\left(HC_i + TC_i\right)}{t_i}}{TAV_i - PL_i - TIF_i - C_i + D_i}$$

[3]In addition to the problems created by limited data, the calculation of marginal tax prices is further complicated by the existence of several property tax credits. Homeowners receive homestead credits equal to 54 percent of the gross tax levied on the first $68,000 of residential market value, with a maximum credit of $700. In addition to the homestead credit, homeowners in the state's "Iron Range" are eligible for a taconite credit. A taconite credit of either 57 or 66 percent of gross property tax (subject to a ceiling), is calculated after the homestead credit has been deducted.

where

RAV_i = assessed value of all residential property,

t_i = city mill rate,

HC_i = homestead credit,

TC_i = taconite credit,

TAV_i = total assessed value,

PL_i = 10 percent of power line valuation,

TIF_i = TIF assessed value,

C_i = fiscal disparities contribution value, and

D_i = fiscal disparities distribution value.

The numerator of the tax price variable (**TAXPRI6**) is the assessed value of residential property after accounting for classification and for tax credits. Residential assessed value is the sum of total residential homestead assessed value, total farm homestead assessed value, and total apartment assessed value. The two tax credits are divided by the total mill rate in the city to convert them to equivalent assessed values. The denominator of the tax price term is defined as the total taxable value in each city. This taxable value calculation reflects the classification of property, but does not net out homestead and taconite credits because city governments are fully compensated for the payments of these credits by the state government. The TIF assessed value and 10 percent of the value of high-voltage electric power transmission lines are subtracted because they are not subject to taxation by the city. In addition, for cities within the Twin Cities metropolitan area, total assessed value is adjusted for the net impact of fiscal disparities by subtracting out contributed value and adding distribution values.

An alternative approach to the measurement of tax price was proposed by an *ad hoc* committee of the City LGA Study Group.[4] The committee begins with the observation that the marginal tax price differs for homeowners receiving the maximum homestead credit, for homeowners below the maximum and with residential assessed value below $68,000, and for those below the maximum but with residential assessed values in excess of $68,000.[5] In principle a tax price variable could be constructed by first calculating the average tax price for all homeowners in each of these three groups, and then taking a weighted average of these three average tax prices, where the weights are the proportions of a city's total number of homesteads in each group. To carry out this calculation data are needed on the sum of residential assessed values for all homesteads receiving the maximum credit, and the sum of assessed values for those receiving less than the maximum credit divided into the portions below and above $68,000. Unfortunately, assessed values cannot be divided into the proportion belonging to homeowners receiving the maximum credit and to those below the maximum.[6] Hence, we cannot implement this alternative approach.

Rental Assessed Value/Total Assessed Value (RENTER)

If tenants typically perceive that they are not bearing their share of the property tax burden, they will underestimate the costs that they bear of any increase in city spending. This implies that, all else equal, tenants will tend to demand higher levels of public spending than

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[4]The proposal is described in detail in a memorandum to the authors from the Ad Hoc Committee on Tax Price dated December 17, 1990.

[5]Although the discussion here focuses on the homestead credit, a similar approach can be applied to taconite credits.

[6]By not including nonhomestead residential property, the tax price measure proposed by the *ad hoc* committee also implicitly assumes that tenants do not bear any property tax burdens.

homeowners. In cities where tenants comprise a relatively large proportion of city population, spending may therefore be higher than in cities with a smaller proportion of tenants.

Unfortunately, no data are available on the proportion of either city residents or housing units that are renter-occupied. The closest approximation to this proportion is the market value of nonhomestead residential property to total residential market value.

Size of Household (HHSIZE)

Because the relationship between the population and the number of households varies across cities, it may be important to control for household size by including a variable defined as the city population divided by the number of households. Once household size has been controlled for, an increase in population is virtually equivalent to an increase in the number of households.

Intergovernmental Aid and Transfers Variables

City government spending is obviously influenced by the receipt of intergovernmental aid and transfers from other governments. The variables listed below represent the various types of intergovernmental flows received by city governments in Minnesota.

State General Purpose Aid (APCGEN)

General purpose aid from the state government is composed of Local Government Aid (LGA) which provides unrestricted aid to all cities, and taconite relief aid which provides general-purpose aid to cities in the Iron Range. As grants increase the fiscal resources available to city governments, they are expected to increase city government spending. In addition, grants may substitute for locally-raised revenues. Thus, it is expected that a one dollar increase in grant revenue will result in less than one dollar of increased municipal spending. As the expenditure

variables (the dependent variables) are all expressed in per capita terms, the grant variables are also defined as grant amounts per capita.

Highway Aid (APCHIGH)

Every type of local government in Minnesota receives grant revenue from the state government earmarked for road maintenance and construction. For city governments, these grants are called state highway grants.

Most cities have within their boundaries not only their own roads, but also state and county roads. In a number of cases, city governments have agreed to provide maintenance and snow plowing on these state, county or other local roads. City governments are compensated for these expenditures in two ways. In some cases state and county governments contract with city governments to maintain the noncity roads. A dummy variable for contracts with county governments was included in the transportation spending regression, but it proved to be statistically insignificant. In other cases, the city is compensated for maintaining county or township roads through county or local highway grants. The highway aid variable is thus the sum of state, county, and local highway grants to cities.

Tax Increment Financing Implicit Aid (TIFADD)

One advantage of a tax increment financing (TIF) district from the standpoint of city governments is that it allows the city (or more precisely, the development agencies of the city) to "capture" revenue from school districts and county governments. This occurs because all taxes levied on the increases in assessed value within a TIF district flow to the TIF district. The portion of this captured revenue that would have gone to county governments is similar to city taxes in that it is paid by city residents and by nonresidents only to the extent that the property tax is exported to nonresidents. However, the portion of captured revenue that would have gone to school districts is analogous to state aid to the city because the state reimburses school districts

for revenue lost to TIF districts. Although this tax revenue is earmarked for economic development in the TIF district, as long as these economic development expenditures would have occurred in the absence of the creation of TIF districts, they serve to free up city government revenues for use on other projects. We call the value of this captured revenue, TIF implicit aid, and measure it as the school tax rate times the per capita assessed value of the tax base in the TIF district.

Miscellaneous State Aid (APCMISC)

This variable includes grants that are not included in the previous two categories. The variable is calculated by summing the following lines from the State Auditor's city data base: other state grants and aids, other county grants, other local units grants, and local IRRRB grants. This variable includes state aid to help finance fire department pensions funds, which is listed below as a separate variable. However, these two variables do not both appear in any regressions.

Federal Community Development Block Grant Aid (PFEDCDBG)

The federal Community Development Block Grant (CDBG) program provides grants to a number of Minnesota cities. The state's largest cities receive annual CDBG grants on a formula basis. Other smaller cities receive CDBG grants only for special projects and upon application to the federal government. All CDBG grants are included in this per capita grant variable.

Other Federal Grants (PFEDOTH)

This variable includes all other federal grants received by city governments.

Enterprise Fund Transfers (PTRANIN)

For cities with electricity and liquor store enterprise funds, transfers from these enterprise funds to the general fund are included as control variables on the grounds that such transfers provide general-purpose revenue for the city.

Fire Aid (APCFIRE)

The state uses fire aid to provide partial funding of pensions for fire fighters. This variable does not come from the Auditor's data but rather from a separate fire data file.

Institutional Variables

Certain institutional characteristics of city governments can have a substantial impact on the magnitude and pattern of city spending. The following variables reflect some of these institutional characteristics.

Types of City Government (PLAN2, PLAN3, and PLAN4)

Minnesota cities may choose among several forms of governmental organization. Many cities, including most of the state's largest cities are governed under terms of home rule charters. Cities without home rule charters can choose among three alternative statutory forms of government. The standard plan mandates a weak mayor-council form of government with many elected officials. Option A is an adaptation of the standard plan. It maintains the weak mayor-council plan, but provides for an appointive clerk, treasurer, and assessor, and an elective fourth council member. Option B mandates a council-manager form of government. Home rule cities are used as the base to which the other three types of statutory cities are compared.

Each of the three PLAN variables is an indicator variable that takes on the value one if the city has the indicated type of statutory plan and zero otherwise. PLAN2 is for statutory cities

with option A, PLAN3 is for statutory cities choosing option B, and PLAN4 indicates statutory cities using the standard plan.

Composition of Fire Fighters (FIPERSAL)

Because Minnesota cities differ in the extent to which they use salaried and nonsalaried fire fighters, the percentage of fire fighters who are salaried (FIPERSAL) is included as a control variable in the public safety equation. A higher proportion of salaried fire fighters is likely to be associated with higher spending on public safety, all other factors held constant.

Note that there are more than 30 missing values for this variable within the 179 city sample. We set these missing values equal to 0 based on the assumption that these cities had no salaried fire fighters.

Outside Contract for Police Services (POLOUT)

When cities contract out for police services, they may spend less than if they provided the service themselves. The variable takes on the value 1 if the city contracts for police and otherwise is 0.

Enterprise Fund Dummies (EADDTRAN and EADDADMN)

As discussed in Chapter 2, city spending as reported by the State Auditor is adjusted by the spending reported in associated enterprise funds. In general we believe this is an appropriate procedure. However, because we are concerned that in a few instances these adjustments may be inappropriate, we have included in the transportation and administration expenditure regressions a dummy variable that takes on a value of one if the city's spending on that function was adjusted upward for enterprise fund spending. Similar dummy variables were tried in the public safety and the economic and social services regressions, but proved to be statistically insignificant.

APPENDIX D

REGRESSION STRATEGY

An analysis of expenditure need requires an estimate of the impact of environmental factors on the cost of public services. Such an estimate can be obtained from a multiple regression analysis of city spending on environmental cost factors, but only if one carefully controls for other factors that affect city spending, such as income, tax-price, aid, and institutions. Thus, our regression strategy is designed to identify regressions in which the results for cost variables make sense and in which we are confident that we have, to the extent possible with available data, controlled for noncost determinants of spending.

To be specific, our strategy is as follows:

- First, we divided spending into four categories: safety, transportation, economic and social, and administration and miscellaneous. The detailed definitions of the resulting dependent variables are presented in the text. Note that three of these dependent variables are in per capita form and the fourth (for transportation) is expressed per lane-mile of city-owned streets or highways.

- Second, we ran regressions with a comprehensive set of control and cost variables. Although this set varied somewhat from one regression to the next, all appropriate control and cost variables for each type of spending were included. The control variables are described at length in Appendix C and the cost variables are described in Chapter 2.

- Third, we tried a few variations in the functional form or variable list for the cost factors to determine which ones made the most sense. In some regressions, for example, we compared the results using private employment per capita with those using both manufacturing employment and commercial employment. We also tried the natural logarithm of population instead of population and looked at quadratic specifications for the density and population change variables. We ultimately selected cost variables (and functional forms) that both made sense conceptually and that were statistically significant. In a few cases, we retained cost variables with a strong conceptual foundation that were not quite statistically significant by conventional standards.

- Fourth, we deleted a few control variables that were both consistently far from statistical significance and not strongly supported on conceptual grounds. We always left income and tax price in the regressions, for example, because many

> previous studies have found them to be important. In contrast, we excluded intergovernmental aid variables that were not directly related to the dependent variable and that were insignificant with the wrong sign. Note that most control variables were retained, even if they were not statistically significant. Our strategy is to err on the side of controlling too much, rather than controlling too little, to ensure that the coefficients of the cost variables are not picking up the effects of excluded control variables with which they are correlated.

The regression results for each spending category are presented in the Tables D-1 to D-4. These regressions work quite well, with reasonably high explanatory power and numerous statistically significant coefficients. (Significant coefficients are those with a t-statistic above 2.0.)

A note on sample size: The regressions include all cities in Minnesota with a 1988 population above 2,500--with two exceptions. International Falls and South International Falls are excluded because, thanks to their 1988 consolidation, the data for these two cities are separate in the financial information (the dependent variables) and combined in all the other data (the controls and cost variables).

To provide further insight into this strategy, Table D-5 presents cost variables that were included in preliminary regressions but rejected either because they were not statistically significant or because there was some ambiguity about their link to public service costs.

One special case is worth mentioning. The coefficient of population is positive and statistically significant in the safety regression, but its significance disappears if Minneapolis and St. Paul are left out of the sample. Thus, we are unable to determine whether spending is higher in the Twin Cities because of diseconomies to population scale (a cost factor) or some unidentified demand or institutional variable. Because we cannot sort this out we do not include population in the safety regressions. Leaving the Twin Cities out does not affect any other cost variable in any of the regressions.

TABLE D-1

PUBLIC SAFETY REGRESSION

Dependent Variable: EX2SAFE

Independent Variable	Estimated Coefficient	Standard Error	t-Statistic
ONE	-1.25411e+02	42.37133	-2.95981
PERINC87	4.59404e-03	7.53435e-04	6.09746
TAXPRI6	-61.56069	28.67639	-2.14674
RENTER	0.31984	0.35348	0.90485
APCGEN	0.29041	7.07577e-02	4.10428
APCFIRE	0.65294	0.90397	0.72230
FIPERSAL	0.471.75	6.42360e-02	7.34404
PLAN2	0.55130	4.39315	0.12549
PLAN3	-32.19964	16.64315	-1.93471
PLAN4	-32.19964	16.64315	-1.93471
POLOUT	-20.41692	6.06852	-3.36440
PCACCID	4.65431	1.80940	2.57229
CRIME	0.14720	3.94038e-02	3.73563
HAGE40UP	0.53529	0.18347	2.91765
PRICE2	1.23918	0.44830	2.76416
Number of Observations	179		
R^2	0.72784		
Corrected R^2	0.70461		
Sum of Squared Residuals	8.41707e+04		
Standard Error of the Regression	22.65471		
Mean of Dependent Variable	1.00540e+02		

TABLE D-2

TRANSPORTATION REGRESSION

Dependent Variable: PERMILE

Independent Variable	Estimated Coefficient	Standard Error	t-Statistic
ONE	3.25718e+03	7.51983e+03	0.43315
PERINC87	-0.12312	0.20147	-0.61109
TAXPRI6	-9.01954e+02	7.79111e+03	-0.11577
HHSIZE	2.45872e+03	1.55408e+03	1.58211
APCMSC	3.24526	5.24227	0.61906
APCGEN	28.43926	17.13139	1.66007
APCHIGH	94.09154	15.63551	6.01781
TIFADD	87.82768	26.04498	3.37215
PLAN2	-5.30413e+02	1.27368e+03	-0.41644
PLAN3	3.35445e+03	1.95778e+03	1.71339
PLAN4	-8.93849e+02	4.53639e+03	-0.19704
EADDTRAN	3.64728e+03	1.84436e+03	1.97754
DENSITY	3.55074e+03	8.05825e+02	4.40634
DENSQ	-4.96164e+02	1.10701e+02	-4.48200
POP88	0.26016	2.90488e-02	8.95584
DELPOP	79.44272	42.89896	1.85186
DEGREE	-0.88206	0.46438	-1.89944
OWNLANE	-19.29691	6.31012	-3.05809
Number of Observations	179		
R^2	0.66606		
Corrected R^2	0.63080		
Sum of Squared Residuals	5.99426e+09		
Standard Error of the Regression	6.10176e+03		
Mean of Dependent Variable	1.29209e+04		

TABLE D-3

ECONOMIC AND SOCIAL PROGRAM REGRESSION

Dependent Variable: EXXESOC

Independent Variable	Estimated Coefficient	Standard Error	t-Statistic
ONE	-2.30400e+2	67.47891	-3.41439
PERINC87	3.29154e-03	1.86786e-03	1.76219
TAXPRI6	-1.49313e+02	73.54656	-2.03019
APCMSC	3.14631e-02	4.96296e-02	0.63396
APCGEN	0.43218	0.19266	2.24317
PFEDCDBG	-0.26801	0.58256	-0.46005
PFEDOTH	0.76618	0.13342	5.74238
PTRANIN	0.56247	0.28563	1.96924
TIFADD	0.84623	0.23755	3.56225
PLAN2	-3.97690	12.18625	-0.32634
PLAN3	-0.27489	18.56854	-0.01480
PLAN4	-22.47827	42.80208	-0.52517
DENSITY	9.07236	2.88901	3.14030
HAGE40UP	1.28477	0.47183	2.72295
LPOP88	25.14101	6.29529	3.99362
DELPOP	1.56988	0.93355	1.68161
DELPOPSQ	-2.64320e+02	1.36488e+02	-1.93658
Number of Observations	179		
R^2	0.55709		
Corrected R^2	0.51335		
Sum of Squared Residuals	5.36643e+05		
Standard Error of the Regression	57.55529		
Mean of Dependent Variable	1.07605e+02		

TABLE D-4

ADMINISTRATION AND MISCELLANEOUS REGRESSION

Dependent Variable: EXXADMN

Independent Variable	Estimated Coefficient	Standard Error	t-Statistic
ONE	-1.61554e+02	1.13108e+02	-1.42831
PERINC87	4.13229e-03	2.02511e-03	2.04052
TAXPRI6	-79.86509	74.79448	-1.06779
RENTER	0.49338	0.86429	0.57084
APCMSC	0.31297	5.14228e-02	6.08630
APCGEN	0.55535	0.18669	2.97473
PFEDCDBG	0.93535	0.50665	1.84615
PTRANIN	0.13480	0.30715	0.43888
TIFADD	0.22169	0.25400	0.87280
PLAN2	-6.81075	12.43519	-0.54770
PLAN3	-17.50900	18.99201	-0.92191
PLAN4	-36.40459	44.84870	-0.81172
EADDADMN	54.62338	37.70525	1.44869
LPOP88	-20.49801	6.19695	-3.30776
DELPOP	3.80507	0.94693	4.01831
DELPOPSQ	-3.52436e+02	1.40168e+02	-2.51438
PRICE2	3.52755	1.21453	2.90445
PSUBFAM	2.67320e+04	8.96728e+03	2.98107
Number of Observations	179		
R^2	0.39271		
Corrected R^2	0.32859		
Sum of Squared Residuals	5.61881e+05		
Standard Error of the Regression	59.07575		
Mean of Dependent Variable	1.18039e+02		

TABLE D-5

REJECTED COST VARIABLES

Public Safety Total calls to fire department per capita Percentage of total land area in city that is not water or marsh Total congestion on all city streets Population in 1988 Change in population, 1983-1988 Manufacturing employment per capita Commercial employment per capita Population density Percentage of population in college Percentage of population in health care facility Percentage of population in prison Percentage of property that is seasonal Poverty rate in 1980	**Economic and Social Programs** Private employment per capita Manufacturing employment per capita Commercial employment per capita Construction employment per capita Percentage of population in college Percentage of population in health care facility Annual snowfall Heating degree days Poverty rate in 1980 Percentage of property that is seasonal Housing price index Lane miles of city streets per capita
Transportation Manufacturing employment per capita Cost-of-living index Annual snowfall Percentage of total land area in city that is not water or marsh Private employment per capita Manufacturing employment per capita Commercial employment per capita Nonlocal government employment per capita Construction employment per capita Non-city-owned lane miles as a percentage of the total	**Administration and Miscellaneous** Population density Annual snowfall Heating degree days Percentage of population in college Percentage of population in health care facility Percentage of population in prison

APPENDIX E

SPECIAL ASSESSMENTS

The heavy use of special assessments to finance infrastructure in many Minnesota cities raises thorny problems for the measurement of a city's revenue-raising capacity. In light of the empirical and conceptual complexities associated with the treatment of special assessments, our chosen approach, namely to treat revenues from special assessments as comparable to revenues from the property tax, appears to be a reasonable compromise.

Minnesota cities use special assessments for two major purposes: to construct infrastructure such as streets, sidewalks, or sewer lines needed to accommodate new development in a community, and to maintain and upgrade existing city infrastructure. The revenue from special assessments is restricted primarily to the financing of infrastructure (with some minor use for current spending such as street sweeping). Reliance on special assessments is heavy in many cities, especially those experiencing rapid growth. In 1988, for example, revenue from special assessments accounted for more than 25 percent of total city revenue in 26 cities with populations greater than 2,500. Moreover, in most of these cities, revenue from special assessments exceeded that from property taxes.

Special assessments resemble user charges in that they are paid by the beneficiaries of the new or reconstructed infrastructure. Given this resemblance, one possibility is to treat special assessments the same way that we treat user charges, namely by netting them out of the expenditure side and ignoring them on the revenue side in the calculation of need-capacity gaps. In fact, an argument can be made that it would be desirable to go one step further and to net out such spending for the purposes of estimating cost indexes across cities. This approach would address the vexing problem that in some cases private developers construct the infrastructure

without any city financing. By subtracting from city spending all spending financed by special assessments, cities that rely on developer financing would be treated the same as those that rely on special assessments. However, the fact that neither type of city would be treated fully comparably to cities that finance part of their infrastructure out of general revenues provides a strong argument against this approach.

Moreover, data limitations make it difficult to subtract from city expenditure the spending financed by special assessments. The state auditor's data do not distinguish spending amounts by their revenue source. Hence, the only way to net out spending from special assessments would be to subtract special assessment revenue from total expenditure without attention to functional area. In our view, this approach would be undesirable in that it would make it impossible to estimate separate cost indexes by functional area. In addition, this spending adjustment would be complicated by the fact that our spending measure is based not on current capital spending, but rather on capital spending averaged over a four-year period, and that often special assessments in one year are used to pay for capital outlays in a previous year.

Given that the spending financed by special assessments is included in total expenditure, and consequently to some extent in the measures of city expenditure need, how should special assessments be incorporated into a city's revenue-raising capacity? One possibility is to treat them as a separate revenue source. For both conceptual and practical reasons, we believe this approach is undesirable.

Consider first the implications of separate treatment within the context of the tax base approach to measuring revenue-raising capacity. According to that approach, a city's ability to raise revenue from its own sources would be measured as a weighted average of its property tax base and its special assessment "base," with the weights being city-average tax rates on each base. Even if the practical difficulties of determining an appropriate base for special assessments

are put aside, the approach is flawed in that it takes no account of the fact that a city with greater access to special assessments (perhaps because it is a growing community) is likely to reduce its use of property taxes. In other words, the tax base approach takes no account of the substitutability between revenue sources. Simply adding up potential revenue from the property tax and that from special assessments would overstate the amount of revenue-raising capacity in cities with large special assessment "bases."

To clarify this issue further, consider two cities that have exactly the same property tax base per resident but one is a growing city with a lot of new development and the other is a stable city. The substitutability argument implies that it would be a mistake to treat the growing community as if it had the same amount of capacity to generate property tax revenue as the stable city plus an additional amount equal to its special assessment "base" times an average special assessment "rate." Nonetheless, one might still be tempted to argue that the two cities have different capacities to raise revenue on the grounds that it is politically easier for a city to raise revenue from new or potential residents than from established residents. Stated differently, some might argue that growing cities are willing to impose a higher average tax burdens or to impose higher average equivalent property tax rates[1] on their residents (both established and new) simply because a portion of the burden is put on new residents who do not have much input into the tax decision.

While there may be some factual validity to this political argument, two considerations argue against assigning different revenue-raising capacities to the two cities. The first is that we believe that differences in the political ease of raising taxes should not in general be included in

[1]The term equivalent property tax rate here is intended to denote the rate that would be calculated as the sum of property tax revenue plus special assessment revenue divided by the property tax base.

a measure of revenue-raising capacity that will be used in a grant-in-aid formula. We doubt there would be much support for an aid formula that rewarded cities with more aid simply because it was politically difficult for them to raise revenue.

The second reason relates to the difficulty of implementing the approach in a reasonable way. Not only would an acceptable potential base for special assessments have to be defined, but in addition, the property tax base would have to be adjusted downward in cities with large special assessment bases in order to minimize the danger of overstating the revenue-raising capacity in those cities. In our opinion, the best measure of a base for special assessments would be something like the taxable value of new construction undertaken during the previous two or three years. However, even this measure is hard to implement empirically and is not quite right since special assessments are often used for maintaining existing city infrastructure as well as for financing new infrastructure.

The bottom line is that the conceptual argument for treating special assessments as a separate revenue source is not sufficiently compelling to overcome the practical difficulties of implementing such an approach. This type of reasoning, combined with the observation that the burden of special assessments is often closely related to property values, led us to combine special assessments with property taxes in the calculation of a city's revenue-raising capacity. As discussed in the text, we implemented the tax base approach by assuming that the relevant tax base was simply the property tax base and we defined total property tax revenues to include special assessments. To implement the income-with exporting approach, we calculated export ratios based on the components of the property tax base and, in calculating the standard burden, included special assessments as part of the property tax revenues.

APPENDIX F

City	Expenditure Need	Income-with-Exporting Approach		Tax-Base Approach	
		Revenue-Raising Capacity	Relative Need-Capacity Gap	Revenue-Raising Capacity	Relative Need-Capacity Gap
AFTON	504.11	296.04	60.38	268.76	61.25
ALBERT LEA	410.27	270.18	-7.59	206.77	29.40
ALEXANDRIA	430.40	202.88	79.83	223.79	32.50
ANDOVER	458.87	234.89	76.29	169.57	115.20
ANOKA	441.50	287.52	6.30	264.74	2.66
APPLE VALLEY	515.84	279.34	88.82	232.08	109.66
ARDEN HILLS	362.05	310.90	-96.53	357.31	-169.36
AUSTIN	441.51	241.72	52.10	174.11	93.29
BAXTER	425.91	228.95	49.27	233.80	18.00
BAYPORT	451.26	256.23	47.35	242.83	34.32
BELLE PLAINE	464.33	238.35	78.30	161.94	128.29
BEMIDJI	462.45	205.09	109.68	178.69	109.66
BENSON	432.01	200.44	83.89	130.95	126.96
BIG LAKE	438.14	253.60	36.86	220.45	43.59
BLAINE	422.47	269.39	5.39	209.63	38.74
BLOOMINGTON	473.01	349.26	-23.93	450.58	-151.67
BLUE EARTH	384.03	239.73	-3.39	158.87	51.05
BRAINERD	481.06	189.61	143.76	171.24	135.71
BRECKENRIDGE	368.16	225.00	-4.52	147.71	46.34
BROOKLYN CENTER	399.47	276.19	-24.40	300.45	-75.09
BROOKLYN PARK	485.94	288.82	49.44	271.53	40.31
BUFFALO	494.16	305.49	40.98	262.31	57.74
BURNSVILLE	547.49	309.60	90.21	324.01	49.37
CALEDONIA	409.83	182.77	79.38	106.83	128.89
CAMBRIDGE	432.81	228.10	57.03	242.44	16.26
CANNON FALLS	483.09	254.69	80.72	228.18	80.80
CHAMPLIN	480.96	270.25	63.02	192.01	114.84
CHANHASSEN	465.60	510.79	-192.88	535.71	-244.22
CHASKA	448.15	338.30	-37.84	312.35	-38.31
CHISHOLM	357.48	327.79	-117.99	227.45	-44.07
CIRCLE PINES	443.46	263.38	32.39	168.76	100.60
CLOQUET	370.16	262.61	-40.13	204.01	-7.96

APPENDIX F (CONT)

City	Expenditure Need	Income-with-Exporting Approach		Tax-Base Approach	
		Revenue-Raising Capacity	Relative Need-Capacity Gap	Revenue-Raising Capacity	Relative Need-Capacity Gap
COLUMBIA HEIGHTS	345.62	308.33	-110.39	284.52	-113.00
COON RAPIDS	469.14	273.94	47.52	223.91	71.12
CORCORAN	428.06	215.35	65.03	192.20	61.75
COTTAGE GROVE	409.97	292.10	-29.81	215.52	20.34
CROOKSTON	442.96	317.32	-22.04	245.83	23.03
CRYSTAL	361.30	275.59	-61.98	213.37	-26.18
DAYTON	363.54	245.86	-30.00	162.89	26.55
DEEPHAVEN	439.88	430.23	-138.02	431.68	-165.90
DELANO	423.69	244.52	31.49	203.46	46.13
DETROIT LAKES	417.92	266.88	3.36	244.28	-0.47
DILWORTH	366.04	170.00	48.36	95.60	96.34
DULUTH	453.67	290.99	15.00	213.38	66.19
EAGAN	503.70	275.64	80.38	294.77	34.83
EAST BETHEL	434.94	242.18	45.08	164.85	95.99
EAST GRAND FORKS	403.08	234.83	20.57	185.35	43.63
EDEN PRAIRIE	486.58	401.31	-62.41	505.27	-192.79
EDINA	429.95	441.63	-159.37	541.08	-285.24
ELK RIVER	455.71	442.75	-134.73	403.73	-122.13
ELY	358.35	256.86	-46.19	167.54	16.71
EVELETH	356.08	367.45	-159.05	246.06	-64.09
EXCELSIOR	404.42	246.74	10.00	313.71	-83.39
FAIRMONT	404.29	272.32	-15.71	203.87	26.32
FALCON HEIGHTS	390.64	312.18	-69.23	307.97	-91.43
FARIBAULT	461.12	248.21	65.22	197.03	89.99
FARMINGTON	485.21	294.28	43.24	232.39	78.71
FERGUS FALLS	395.25	292.58	-45.01	229.90	-8.75
FOREST LAKE	475.84	231.31	96.85	234.44	67.30
FRIDLEY	384.49	288.77	-51.97	298.53	-88.15
GLENCOE	425.10	290.84	-13.42	225.09	25.90
GOLDEN VALLEY	403.75	418.80	-162.74	537.27	-307.63
GOODVIEW	306.38	235.00	-76.31	161.04	-28.76

City	Expenditure Need	Income-with-Exporting Approach		Tax-Base Approach	
		Revenue-Raising Capacity	Relative Need-Capacity Gap	Revenue-Raising Capacity	Relative Need-Capacity Gap
GRAND RAPIDS	395.16	256.09	-8.61	228.49	-7.44
GRANITE FALLS	371.07	287.52	-64.14	222.86	-25.90
HAM LAKE	403.52	243.48	12.36	155.10	74.32
HASTINGS	519.04	267.80	103.56	234.27	110.67
HERMANTOWN	343.11	250.01	-54.59	157.39	11.61
HIBBING	257.31	350.16	-240.53	250.88	-167.68
HOPKINS	387.19	373.27	-133.77	452.58	-239.50
HUGO	460.56	230.08	82.80	186.00	100.45
HUTCHINSON	437.74	292.81	-2.76	259.18	4.46
INDEPENDENCE	486.95	234.71	104.55	243.96	68.89
INTERNATIONAL FAL					
INVER GROVE HEIGH	495.80	258.38	89.74	218.87	102.83
JACKSON	409.77	220.05	42.05	139.76	95.91
JORDAN	412.17	285.30	-20.81	172.31	65.76
KASSON	371.08	209.05	14.35	132.39	64.59
LA CRESCENT	372.64	191.09	33.87	120.16	78.38
LAKE CITY	412.90	221.40	43.81	181.97	56.82
LAKE ELMO	396.28	275.54	-26.94	218.34	3.84
LAKEVILLE	507.47	293.97	65.82	268.29	65.08
LE SUEUR	375.87	243.71	-15.52	166.12	35.65
LINO LAKES	460.02	257.56	54.78	180.50	105.42
LITCHFIELD	402.49	462.44	-207.63	408.34	-179.95
LITTLE CANADA	405.24	247.58	9.98	251.02	-19.88
LITTLE FALLS	483.37	192.65	143.04	144.40	164.87
LONG PRAIRIE	401.83	240.88	13.26	181.65	46.08
LUVERNE	371.91	214.62	9.61	131.20	66.61
MAHTOMEDI	526.53	262.57	116.28	218.77	133.66
MANKATO	466.84	366.15	-46.99	340.48	-47.74
MAPLE GROVE	482.79	304.14	30.97	260.94	47.75
MAPLEWOOD	418.08	250.54	19.86	303.79	-59.81
MARSHALL	385.41	261.26	-23.54	226.19	-14.89

APPENDIX F (CONT)

City	Expenditure Need	Income-with-Exporting Approach		Tax-Base Approach	
		Revenue-Raising Capacity	Relative Need-Capacity Gap	Revenue-Raising Capacity	Relative Need-Capacity Gap
MEDINA	495.53	337.79	10.06	420.24	-98.81
MELROSE	387.71	190.95	49.08	129.72	83.89
MENDOTA HEIGHTS	482.55	379.51	-44.64	437.81	-129.36
MINNEAPOLIS	639.72	374.22	117.82	448.45	17.16
MINNETONKA	461.91	347.99	-33.76	453.59	-165.78
MINNETRISTA	490.67	259.26	83.73	324.91	-8.34
MONTEVIDEO	411.73	221.26	42.78	149.96	87.66
MONTICELLO	543.83	516.11	-119.96	978.03	-608.30
MOORHEAD	405.73	259.28	-1.23	202.10	29.53
MORA	390.23	218.88	23.67	190.58	25.55
MORRIS	393.00	274.34	-29.02	192.59	26.30
MOUND	426.23	279.83	-1.29	268.45	-16.33
MOUNDS VIEW	340.11	240.73	-48.30	179.73	-13.72
MOUNTAIN IRON	241.38	361.91	-268.22	270.85	-203.58
NEW BRIGHTON	342.42	285.73	-90.99	252.52	-84.21
NEW HOPE	363.28	271.36	-55.77	290.30	-101.12
NEW PRAGUE	496.04	207.77	140.59	164.01	157.93
NEW ULM	422.94	290.75	-15.49	216.60	32.24
NEWPORT	458.30	292.77	17.85	338.62	-54.43
NORTH MANKATO	409.92	339.39	-77.15	285.96	-50.15
NORTH OAKS	440.61	396.85	-103.93	493.48	-226.98
NORTH ST PAUL	383.14	259.13	-23.67	210.88	-1.84
NORTHFIELD	415.38	203.92	63.77	147.49	93.78
OAK PARK HEIGHTS	469.76	373.47	-51.39	461.14	-165.48
OAKDALE	463.62	285.24	30.70	226.16	63.36
OLIVIA	387.85	215.57	24.60	149.04	64.71
ORONO	420.92	345.80	-72.56	472.05	-225.23
ORTONVILLE	301.32	212.30	-58.67	123.44	3.78
OSSEO	372.38	294.55	-69.85	308.46	-110.19
OWATONNA	419.72	245.78	26.25	188.94	56.68
PARK RAPIDS	413.62	178.19	87.75	181.51	58.01

APPENDIX F (CONT)

City	Expenditure Need	Income-with-Exporting Approach		Tax-Base Approach	
		Revenue-Raising Capacity	Relative Need-Capacity Gap	Revenue-Raising Capacity	Relative Need-Capacity Gap
PINE CITY	417.50	196.71	73.11	192.21	51.18
PIPESTONE	349.82	225.41	-23.27	131.94	43.77
PLAINVIEW	362.54	191.18	23.67	130.13	58.30
PLYMOUTH	531.47	322.58	61.20	371.32	-13.96
PRINCETON	412.55	261.85	3.02	246.23	-7.79
PRIOR LAKE	474.01	280.88	45.46	218.42	81.49
PROCTOR	308.25	202.99	-42.42	113.09	21.05
RAMSEY	410.98	269.07	-5.78	180.18	56.70
RED WING	421.36	414.60	-140.92	554.37	-307.11
REDWOOD FALLS	396.61	225.12	23.81	143.51	79.00
RICHFIELD	359.10	315.86	-104.45	301.54	-116.55
ROBBINSDALE	401.20	333.05	-79.53	302.97	-75.87
ROCHESTER	472.70	303.75	21.26	275.76	22.84
ROCKFORD	339.08	207.11	-15.71	136.93	28.05
ROSEMOUNT	475.17	313.89	13.60	317.08	-16.01
ROSEVILLE	367.19	328.12	-108.61	380.16	-187.08
SARTELL	336.14	243.83	-55.37	232.25	-70.22
SAUK CENTRE	422.65	176.11	98.85	128.19	120.35
SAUK RAPIDS	452.72	197.80	107.23	168.25	110.37
SAVAGE	425.65	376.09	-98.12	355.14	-103.59
SHAKOPEE	429.31	428.79	-147.16	523.51	-268.30
SHOREVIEW	436.63	280.70	8.24	245.42	17.10
SHOREWOOD	429.86	313.28	-31.10	367.92	-112.16
SLEEPY EYE	423.54	212.76	63.11	137.81	111.63
SOUTH INTERNATION					
SOUTH ST PAUL	445.65	334.84	-36.88	278.14	-6.59
SPRING LAKE PARK	369.76	263.08	-41.00	223.97	-28.32
SPRING VALLEY	376.44	215.41	13.35	132.16	70.18
ST ANTHONY	372.57	349.73	-124.84	344.84	-146.37
ST CLOUD	462.55	228.04	86.82	216.92	71.53
ST JAMES	427.20	184.22	95.30	124.05	129.05

APPENDIX F (CONT)

City	Expenditure Need	Income-with-Exporting Approach		Tax-Base Approach	
		Revenue-Raising Capacity	Relative Need-Capacity Gap	Revenue-Raising Capacity	Relative Need-Capacity Gap
ST JOSEPH	307.65	104.95	55.01	68.15	65.39
ST LOUIS PARK	425.02	316.89	-39.56	355.75	-104.83
ST PAUL	568.89	323.05	98.15	331.44	63.35
ST PAUL PARK	398.44	260.14	-9.38	180.70	43.64
ST PETER	429.31	162.18	119.45	97.39	157.82
STAPLES	440.25	159.09	133.47	82.29	183.86
STEWARTVILLE	341.74	191.04	3.02	134.01	33.63
STILLWATER	526.67	275.54	103.45	232.73	119.84
THIEF RIVER FALLS	409.03	252.49	8.86	182.98	51.95
TWO HARBORS	330.31	223.68	-41.05	123.48	32.73
VADNAIS HEIGHTS	445.51	233.43	64.40	246.17	25.24
VIRGINIA	402.65	398.32	-143.35	315.38	-86.84
WACONIA	505.28	294.14	63.46	292.78	38.39
WADENA	378.80	215.71	15.41	155.85	48.85
WAITE PARK	434.46	179.01	107.76	197.79	62.56
WASECA	404.33	224.70	31.95	163.85	66.37
WAYZATA	442.51	441.38	-146.55	669.00	-400.60
WELLS	380.24	247.07	-14.51	156.14	50.00
WEST ST PAUL	429.13	284.77	-3.32	289.69	-34.66
WHITE BEAR LAKE	420.78	271.41	1.69	212.38	34.29
WILLMAR	436.33	202.78	85.87	165.03	97.19
WINDOM	381.67	294.56	-60.57	193.04	14.53
WINONA	488.94	235.38	105.87	184.43	130.40
WOODBURY	474.94	274.37	52.88	252.34	48.49
WORTHINGTON	382.27	253.43	-18.84	187.70	20.47

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KEY CONCEPTS FOR MEASURING CITY FISCAL CONDITION

Fiscal Condition = Expenditure Need - Revenue-Raising Capacity
($ per capita) ($ per capita)

= Need-Capacity Gap

Poor fiscal condition is indicated by a large positive gap.

Expenditure Need = The amount of money a city must spend to provide the same quality public services as the average city.

Revenue-Raising Capacity = The amount of money a city can raise through the property tax at a standard tax rate or tax burden on its residents.

EXPENDITURE NEED

Definition

The expenditure need in city i, EN_i, can be written as follows:

$$EN_i = Q\ SR_i\ C_i$$

where Q = the dollars per capita required to provide average-quality public services in a city with average service responsibilities and average costs of providing public services.

SR_i = an index of the service responsibilities of the city i relative to those of the average city.

C_i = an index of the costs of providing services in city i relative to those of the average city.

Expenditure need is estimated for four classes of public services:

Public Safety
Transportation
Economic and Social Programs
Administration and Miscellaneous

Service Responsibilities

Service responsibilities are assumed to be the same in all cities for public safety, economic and social programs, and administration and miscellaneous.

For transportation, service responsibilities are based on city-owned lane miles of streets and roads per capita relative to the average city.

Public Service Costs

Public service costs depend on city characteristics, such as the cost of living and the crime rate. Cities with less favorable characteristics must spend more to obtain the same quality of public services, for reasons outside their control.

The impact of cost characteristics on spending is separated from the impact of other factors using a standard statistical procedure called multiple regression analysis.

The city characteristics included in the calculation of the cost indexes are listed in Table 2.

TABLE 2

COST FACTORS BY SPENDING CATEGORY

Public Safety
- Proportion of 1980 housing built before 1940
- Accidents on all city roads per resident
- Cost of living in the city's county
- Crime rate (total reported crimes per 1,000 people)

Transportation Spending Per Mile
- 1988 Population
- Lane miles owned by the city (reduces costs)
- Heating degree days (reduces costs)
- Population density (and density squared)
- Change in population

Economic and Social Services
- Population density
- Proportion of 1980 housing built before 1940
- 1988 population (in logarithmic form)
- 5-year rate of population change (and rate squared)

Administration
- 1988 population (in logarithmic form)
- 5-year rate of population change (and rate squared)
- Cost of living in the city's county
- Number of subsidized family housing units per capita

REVENUE-RAISING CAPACITY

Definition

Overall revenue-raising capacity equals revenue-raising capacity from own sources augmented by selected state and local aid received.

Two Approaches to Own-Source Capacity

Own-source capacity is estimated in two ways.

The income-with-exporting approach. The first approach is to define own-source revenue-raising capacity as the amount of revenue each city could raise through the property tax if it imposed a standard tax burden on its residents (defined to be taxes as a percentage of income). With this approach, a city's capacity depends on the per capita income of its residents and on its ability to export its tax burden to nonresidents.

The advantage of this approach is that it explicitly focuses on the well-being of city residents. Its key disadvantage is that the required "export ratios" are difficult to estimate.

The tax-base approach. The second approach is to define own-source revenue-raising capacity as the amount of revenue each city could raise if it imposed a standard property tax rate. With this approach, a city's capacity depends on the size of its property tax base (excluding credits).

The advantage of this approach is that it is easy to calculate and is familiar to policymakers in Minnesota. Its key disadvantage is that it does not hold resident tax burdens constant across cities.

Other issues. With both approaches, the standard burden or rate reflects special assessments and tax increments, as well as the property tax levy; moreover, capacity through the property tax is augmented by net fiscal disparities distributions, tax increments from school districts, and transfers from electric utilities and liquor stores.

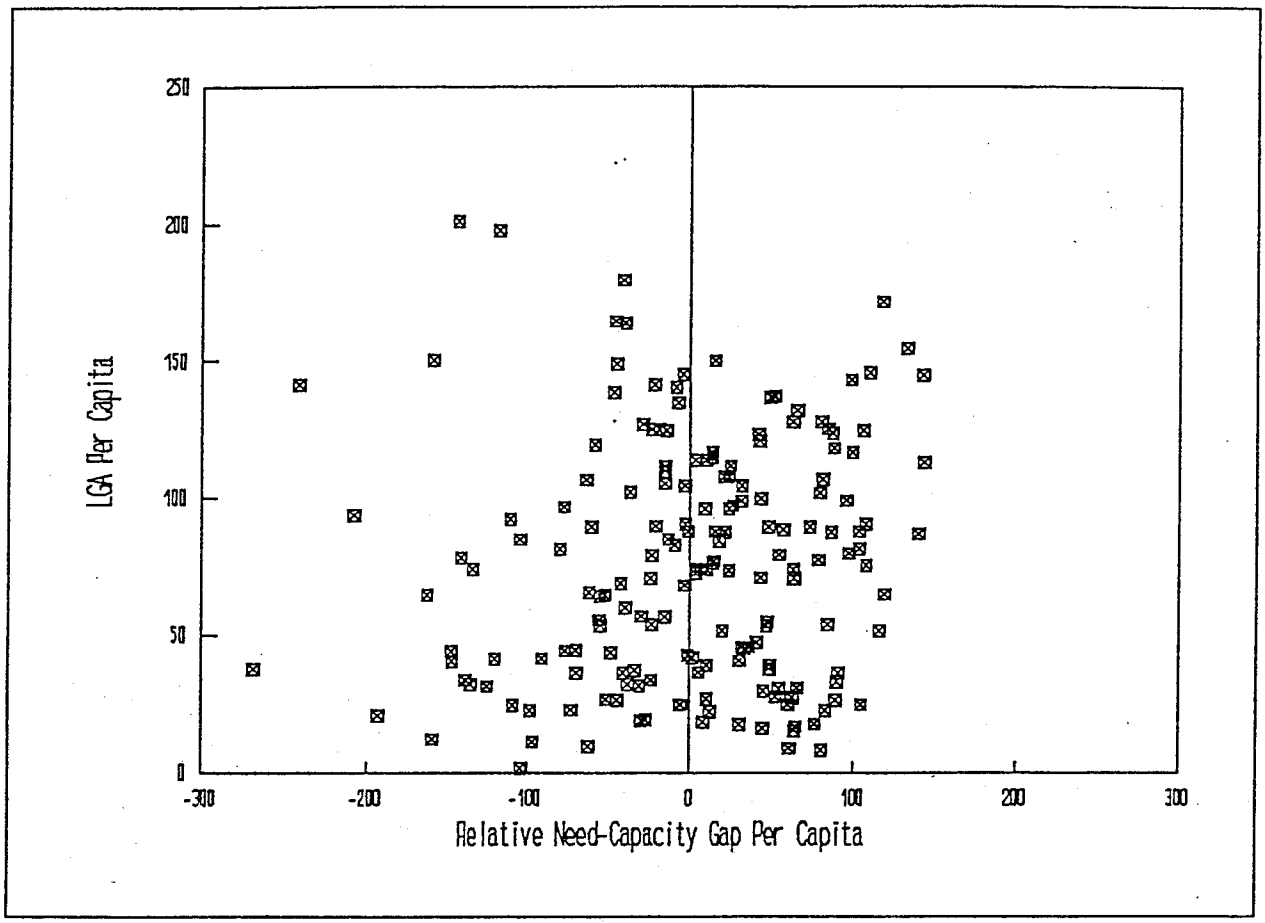
The Role of Existing State Aid

A city's general-purpose aid per capita is included in its overall revenue-raising capacity. Examples of general-purpose aid are CDBG from the federal government (for entitlement cities only), state homestead credits and taconite aid (now transition aid), state disparity reduction aid, and state and county highway aid.

Aid given to cities for narrow purposes, such as federal CDBG for non-entitlement cities, county aid other than highway aid, and IRRRB aid, is not considered part of a city's overall revenue-raising capacity. Because they are candidates for consolidation into a new equalizing grant program, LGA and Equalization Aid also are not added to a city's revenue-raising capacity.

FIGURE 2

1988 LGA AND THE NEED-CAPACITY GAP, INCOME-WITH-EXPORTING APPROACH



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DESIGNING AN EQUALIZING AID PROGRAM

Definition

An **equalizing aid program** is one that gives more aid to cities that are in poorer fiscal condition than others for reasons outside their control. Such differences in fiscal condition are called **fiscal disparities** and are measured by the **need-capacity gap**.

The 1988 LGA program was not an effective equalizing program in this sense. See Figure 2.

Designing an Equalizing Aid Formula

In designing a cost-effective equalizing aid formula, state policymakers must make the following two choices:

1. How targeted should the aid program be? This choice corresponds to selecting the set of cities that will receive aid.

2. How much of the existing fiscal disparities across cities should be offset with aid? This choice corresponds to deciding how much equalization to achieve.

These two choices determine the budget required for an equalization aid program.

-- The greater the selected number of cities, the greater the budget required to obtain a given degree of equalization.

-- The greater the selected degree of equalization, the greater the budget required to serve a given number of cities.

We calculate that if the state wants to offset 75 percent of the fiscal disparities across the 130 cities (out of 179) with the poorest fiscal condition, it would have to spend about $167 million. For other examples, see Table 19.

Bringing in Other Objectives

Equalizing objectives can easily be combined with other objectives selected by state policymakers. For example, the illustrative equalizing program given above, which would cost $167 million, could be combined with a flat per capita grant of $25 to all 179 cities, which would cost $73 million, for a total budget of $240 million.

TABLE 19

ALTERNATIVE STATE AID PROGRAMS, INCOME-WITH-EXPORTING APPROACH

Baseline N-C Gap	Number of Cities Receiving Aid	Percent of Need-Capacity Gaps Offset for a State Budget in Millions of:					
		$33	$67	$100	$133	$167	$200
30	69	39.9	80.9	100.0+	100.0+	100.0+	100.0+
20	76	33.9	68.8	100.0+	100.0+	100.0+	100.0+
10	86	29.1	59.0	88.1	100.0+	100.0+	100.0+
0	97	25.2	51.1	76.3	100.0+	100.0+	100.0+
-10	107	22.0	44.7	66.7	88.7	100.0+	100.0+
-20	114	19.5	39.5	59.0	78.4	98.4	100.0+
-30	124	17.3	35.2	52.5	69.8	87.7	100.0+
-40	130	15.5	31.5	47.0	62.5	78.5	94.0
-50	139	14.0	28.4	42.3	56.3	70.7	84.6
-60	145	12.7	25.7	38.4	51.0	64.1	76.7

TABLE 10

COST AND RESPONSIBILITY INDEXES

	Safety Cost	Transportation		Economic and Social Cost	Administration and Miscellaneous Cost
		Cost	Responsibility		
All Cities Over 2,500					
Average	1.00	1.00	1.00	1.00	1.00
Minimum	0.69	0.10	0.22	0.23	0.23
Maximum	1.48	5.05	3.49	2.77	1.82
Standard Deviation	0.13	0.50	0.47	0.32	0.34
Illustrative Cities					
Minneapolis	1.46	5.05	0.26	2.77	0.40
St. Paul	1.35	4.73	0.22	2.44	0.50
Fridley	1.05	1.21	0.66	1.07	0.64
Bloomington	1.00	1.52	0.87	1.35	0.61
Eagan	0.94	2.01	0.63	0.81	1.53
St. Cloud	1.19	1.29	0.68	1.62	0.63
Worthington	0.90	1.00	0.94	1.05	0.60
Bemidji	1.48	0.70	1.18	1.12	0.89
Buffalo	1.00	1.19	0.67	1.14	1.64
Chisholm	1.04	0.67	1.12	1.03	0.50
By Population					
> 25,000	1.06	1.62	0.70	1.37	0.87
7,500 - 25,000	1.03	0.96	0.92	1.07	0.99
2,500 - 7,500	0.96	0.85	1.15	0.84	1.04
By Income					
> 15,000	0.99	1.07	1.12	0.95	1.11
$10,000 - $15,000	1.00	1.04	0.92	1.04	1.00
< $10,000	1.00	0.75	1.21	0.89	0.87
By Assessed Value Per Capita					
> $7,000	1.04	1.22	1.03	1.01	1.10
$4,000 - $7,000	1.01	0.98	0.96	1.02	1.06
< $4,000	0.95	0.84	1.04	0.95	0.82

TABLE 11

EXPENDITURE NEED, 1988

	Public Safety	Transportation	Economic and Social Programs	Administration and Miscellaneous	Overall Expenditure Need
All Cities Over 2,500					
Average	98.41	116.39	100.68	107.32	422.79
Minimum	68.31	20.04	23.50	24.70	241.38
Maximum	145.77	217.95	279.06	195.23	639.72
Standard Deviation	13.26	32.71	31.73	36.61	56.53
Illustrative Cities					
Minneapolis	143.62	174.16	279.06	42.88	639.72
St. Paul	133.34	136.08	245.81	53.66	568.89
Fridley	103.50	104.43	107.61	68.95	384.49
Bloomington	98.55	173.25	136.18	65.04	473.01
Eagan	92.37	165.11	81.54	164.68	503.70
St. Cloud	116.67	114.58	163.50	67.80	462.55
Worthington	88.29	123.10	105.99	64.89	382.27
Bemidji	145.77	107.77	113.15	95.76	462.45
Buffalo	98.20	104.72	115.03	176.21	494.16
Chisholm	101.92	98.66	103.47	53.43	357.48
By Population					
> 25,000	104.00	130.35	137.79	93.21	465.35
7,500 - 25,000	101.73	107.58	107.77	106.58	423.66
2,500 - 7,500	94.33	119.03	84.81	111.88	410.05
By Income					
> $15,000	97.70	136.15	96.02	119.62	449.49
$10,000 - $15,000	98.64	112.53	104.49	107.77	423.42
< $10,000	98.12	112.76	89.43	93.14	393.46
By Assessed Value Per Capita					
> $7,000	102.61	128.58	102.15	117.61	450.96
$4,000 - $7,000	99.01	113.58	103.12	113.58	429.28
< $4,000	93.68	110.44	95.23	87.61	386.97

TABLE 13

REVENUE-RAISING CAPACITY EXCLUDING AID, INCOME-WITH-EXPORTING APPROACH, 1988

	k* Times Income	Export Ratio	Fiscal Disparities Ratio	Tax Increment Financing Addition	Electricity and Liquor Transfers	Revenue-Raising Capacity
All Cities over 2,500						
Average	113.05	0.73	0.06	14.78	7.53	221.15
Minimum	57.88	0.37	-0.28	0.00	0.00	84.69
Maximum	273.39	2.99	0.78	134.04	107.23	499.42
Standard Deviation	33.62	0.29	0.16	20.06	15.99	61.51
Illustrative Cities						
Minneapolis	116.84	0.78	-0.05	51.53	0.00	253.58
St. Paul	111.55	0.74	0.13	30.55	0.00	239.37
Fridley	126.72	0.92	-0.12	33.75	1.70	263.27
Bloomington	154.58	0.86	-0.17	34.64	0.00	296.03
Eagan	133.50	0.81	-0.09	2.43	0.00	233.08
St. Cloud	93.87	0.81	0.00	9.42	1.54	181.18
Worthington	105.62	0.72	0.00	10.38	14.76	207.29
Bemidji	74.35	0.85	0.00	2.77	16.58	156.98
Buffalo	100.67	0.61	0.00	46.54	64.10	272.22
Chisholm	84.30	0.69	0.00	0.00	0.00	142.28
By Population						
> 25,000	132.86	0.75	-0.02	23.71	3.50	254.01
7,500 - 25,000	112.41	0.72	0.09	16.21	7.99	226.23
2,500 - 7,500	108.07	0.72	0.05	10.91	8.39	208.05
By Income						
> $15,000	173.09	0.63	-0.04	24.90	1.95	298.70
$10,000 - $15,000	106.28	0.74	0.09	13.94	8.46	216.95
< $10,000	81.70	0.77	0.00	7.50	9.43	161.58
By Assessed Value Per Capita						
> $7,000	152.24	0.83	-0.05	25.58	2.31	288.98
$4,000 - $7,000	106.43	0.69	0.12	14.86	8.20	215.31
< $4,000	90.07	0.68	0.05	4.77	11.09	171.61

TABLE 17

THE NEED-CAPACITY GAP, INCOME-WITH-EXPORTING APPROACH, 1988

	Expenditure Need	Revenue-Raising Capacity	Need-Capacity Gap
All Cities Over 2,500			
Average	422.79	275.11	147.68
Minimum	241.38	104.95	-120.54
Maximum	639.72	516.11	291.45
Standard Deviation	56.53	67.95	78.12
Illustrative Cities			
Minneapolis	639.72	374.22	265.50
St. Paul	568.89	323.05	245.84
Fridley	384.49	288.78	95.71
Bloomington	473.01	249.26	123.76
Eagan	503.70	275.64	228.07
St. Cloud	462.55	228.04	234.50
Worthington	382.27	253.43	128.84
Bemidji	462.45	205.09	257.36
Buffalo	494.16	305.50	188.67
Chisholm	357.48	327.79	29.69
By Population			
> 25,000	465.35	311.42	153.93
7,500 - 25,000	423.66	287.73	135.93
2,500 - 7,500	410.05	255.64	154.15
By Income			
> $15,000	449.49	341.08	108.41
$10,000 - $15,000	423.42	271.77	151.57
< $10,000	393.46	224.56	168.90
By Assessed Value Per Capita			
> $7,000	450.96	334.85	116.11
$4,000 - $7,000	429.28	268.58	160.66
< $4,000	386.97	234.45	152.52

Legislative Commission on Planning and Fiscal Policy

Decision Package

Mandate to Study
Local Government Financial Reporting

March 14, 1991

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Legislative Commission on Planning and Fiscal Policy
Decision Checklist

___ 1. Agreement to proceed with mandated study.

___ 2. Agreement to publish Phase I Request for Proposal.

___ 3. Approval of Phase I RFB: deliverables, tasks, timetable.

___ 4. Tentative approval of Phases II and III.

___ 5. Approval of project organization.

___ 6. Approval of project timetable.

Statutory Mandate

A study of local government financial reporting has been mandated under two statutory subdivisions relating to the activities of the Legislative Commission on Planning and Fiscal Policy (1990 chap. 3.885):

> Subd. 5. [DUTIES.] (a) The commission shall: (...) (10) conduct a continuing study of state-local finance, analyzing and making recommendations to the legislature on issues including levels of state support for political subdivisions, basic levels of local need, balances of local revenues and options, relationship of local taxes to individuals' ability to pay, and financial reporting by political subdivisions. In conducting this study, the commission shall consult with the governor, the staff of executive branch agencies, and the governor's advisory commission on state-local relations (emphasis added) .

The concern with local financial reporting is expanded and clarified by the following:

> Subd. 8 [POLITICAL SUBDIVISION REPORTING.] No later than November 15, 1991, the commission shall make recommendations to appropriate standing committees of the legislature on any changes in uniform accounting and financial reporting methods necessary to assure public and legislative oversight of expenditures by cities, counties, towns, and special service districts. The recommendations shall consider opportunities for on-line access by appropriate state officers to political subdivision accounts. In preparing these recommendations, the commission shall consult with the state auditor, the legislative auditor, and the commissioners of finance and revenue (emphasis added).

Legislative Commission on Planning and Fiscal Policy
Request for Proposals:
Local Government Financial Reporting in Minnesota

I. Introduction

Given the steady decline in federal support for state and local services, and the consequent need to more efficiently utilize limited state and local resources, there has been increasing concern among state policy-makers over the financial information reported by local units of government (counties, cities, townships, school districts, and special service districts). Legislators and state agencies are often unsure whether the information available to them is accurate, complete, timely, and accessible enough to consistently facilitate the design and implementation of effective public policy.

In response to such concerns, a study of local government financial reporting has been mandated under two statutory subdivisions relating to the activities of the Legislative Commission on Planning and Fiscal Policy (1990 chap. 3.885 subd. 5 & 8); specifically, a study of the ways in which financial reporting by local government units may be improved, both in terms of the information reported and the means (including technology) by which it is reported.

II. Background

There are a number of factors which underscore the need for a study of local government financial reporting in Minnesota. First, accounting and financial reporting methods used by units of local government are diverse. Some prefer cash-based accounting, while others prefer some form of accrual basis. Some units adhere to generally accepted accounting principles (GAAP), while others do not.

Secondly, state agencies require local government financial reports which vary widely in type and number. The State agencies most typically requiring financial reports by units of local government are the Department of Revenue, the Department of Education, and the State Auditor's Office. Between them, some 50 different local government financial report types are required each year. Given the number of local government units in Minnesota (some 87 counties, 1804 townships, 855 cities, 529 school and education-related districts,

and 312 special service districts), it has been estimated that the annual financial report total falls between 15,000 and 20,000.

Third, there is diversity in the quality of local government financial reports. A number of recent studies suggest that, because of inconsistencies in the way some data are reported, no local financial reports should be accepted uncritically.

Fourth, because different state agencies specify diverse forms and formats for the same sorts of local financial data (e.g., details of sundry revenue and expenditure types), units of local government may file reports which are essentially redundant, resulting in much wasted motion.

Fifth, there are human issues which must be considered. For example, individual differences in training and perception may lead local financial officers to report similar items in dissimilar manners; individual differences in attitude toward the state-local financial relationship, the financial reporting process, or workplace technology, can effect the attention paid to the quality, efficiency, and timeliness of local financial reports.

Sixth, the technology which units of local government employ for financial reporting (paper forms, computer disk, computer tape, or direct on-line data transfer) also reflects substantial diversity. Each medium carries with it, in varying degrees, unique possibilities for error, data contamination, or even data loss.

Seventh (and finally), there is the question of financial data accessibility. Despite the volume of financial reports filed with state agencies annually, legislators and agency managers frequently claim that they do not have all the information necessary to design and implement effective public policy, and are hard-pressed to obtain it. Even though a wealth state agency finance information is available, relatively little is known about the finances of local government.

In light of the legislative mandate noted above, these factors argue convincingly for a comprehensive study of the process of local government financial reporting to state agencies (including relevant aspects of information policy and technological development policy) and the design of a plan for a statewide approach to local government financial reporting. Such a study would be Phase I of a three-phase process: Phase II would consist of refinements in the plan for a statewide local government financial reporting

system and a pilot implementation at 20 - 40 county, city, and township sites across Minnesota. Phase III would result in full implementation of the statewide financial reporting system designed in Phase I and piloted in Phase II. Separate funding and Requests for Proposal will be required for each phase.

III. Proposal Requirements

As noted above, there are five major local government types typically involved in financial reporting to State agencies in Minnesota: cities, townships, counties, school districts, and special service districts. Since school districts are, to a great extent, already part of a well-defined system for financial reporting (UFARS, regional ESV centers, Department of Education, etc.), Phase I should target cities, townships, counties, and special service districts, although possibilities for integrating school districts over time may be suggested.

At a minimum, proposals for Phase I should outline respondent qualifications to carry out such a project; and should describe means, strategies, and cost estimates by jurisdiction type (cities, townships, counties, and special service districts) requisite for delivery of each of the four following items:

1. Conceptual Framework
   - A. Inventory of current and projected financial information needs, based upon a survey of state agency managers, concerned legislators, local government officials, and their respective staffs.

   - B. Inventory of financial reports required of cities, townships, counties, and special service districts, including supporting documents wherever possible. Identify state and local preferences for reporting formats and media.

   - C. Critical review and analysis of recent research & development projects related to local government finance, information policy, and information technology conducted in Minnesota and other states. Discussion of implications for the present study.

   - D. A conceptual model for improved local government financial reporting which will mutually benefit state and local units.

2. Human Impact Analysis

A. Survey of state and local government personnel to determine perceptions of and attitudes toward the state-local financial reporting relationship, extant workplace technology, and the proposed implementation of a new financial reporting system.

B. Evaluation of user skill levels among a sample of state and local government personnel.

C. Strategies for: "marketing" a new financial reporting system among end-users; end-user orientation/training; and assimilation of new approach into extant systems.

3. Technological Architecture

A. Description and evaluation of technology currently used in the local government financial reporting process based upon surveys of state agencies, units of local government, and technology vendors.

B. Analyis of mechanical requirements for a local government financial reporting system: data interchange standards, system capabilities, hardware, software.

C. Identification and evaluation of viable technological alternatives.

D. Design for a local government financial reporting system which will logically facilitate Phase II (pilot implementation) and Phase III (statewide implementation).

4. Local Government Financial Reporting System

Based upon the above, describe an overall implementation strategy for a local government financial reporting system in Minnesota including, but not limited to, the following:

A. Clear, detailed rationale, proceeding from the following perspectives:

- Information management
- Human relations
- Applied technology
- Management responsibilities

B. Timetable

C. Requisite resources

Strategy must include plan outlines for Phase II (pilot implementation) and Phase III (statewide implementation).

As required by statute, Phase I must be completed no later than November 15, 1991.

IV. Reserved Rights

This Request for Proposals in no way obligates the Legislative Commission on Planning and Fiscal Policy to complete the project as described above. The Commission reserves the right to reject any and all proposals, to wave minor irregularities in proposals, and to withdraw this solicitation at the pleasure of a majority of Commission members.

V. Costs Incurred

The Legislative Commission on Planning and Fiscal Policy is not liable for any expenses incurred by respondents in preparing and submitting proposals.

VI. Governing Law

The Legislative Commission on Planning and Fiscal Policy is not governed by the laws on purchasing that apply to agencies in the executive branch. However, the Legislative Commission on Planning and Fiscal Policy will attempt to honor the same principles of equity and fair competition that apply to executive branch purchases

Any agreement for the purchase of goods and services in response to this request for proposals will be interpreted under the law of the State of Minnesota. Any action relating to such an agreement must be instituted and prosecuted in the district court in Ramsey County, Minnesota, and each party to the agreement waives the right to change of venue.

VII. Schedule

Respondent questions will be addressed at a pre-bid conference to be held on Friday, April 19, 1991. Unanswered questions will be considered by the Commission and its designees, who will provide written response.

All proposals must be received by the Legislative Commission on Planning and fiscal Policy by 4:00 PM on Friday, May 3, 1991. Late proposals will not be accepted.

The Commission will attempt to complete the proposal evaluation process by May 24, 1991. Only the successful respondent will be directly notified. Phase I will begin once a contract for services is negotiated and executed. Questions regarding this Request for Proposals may be directed to:

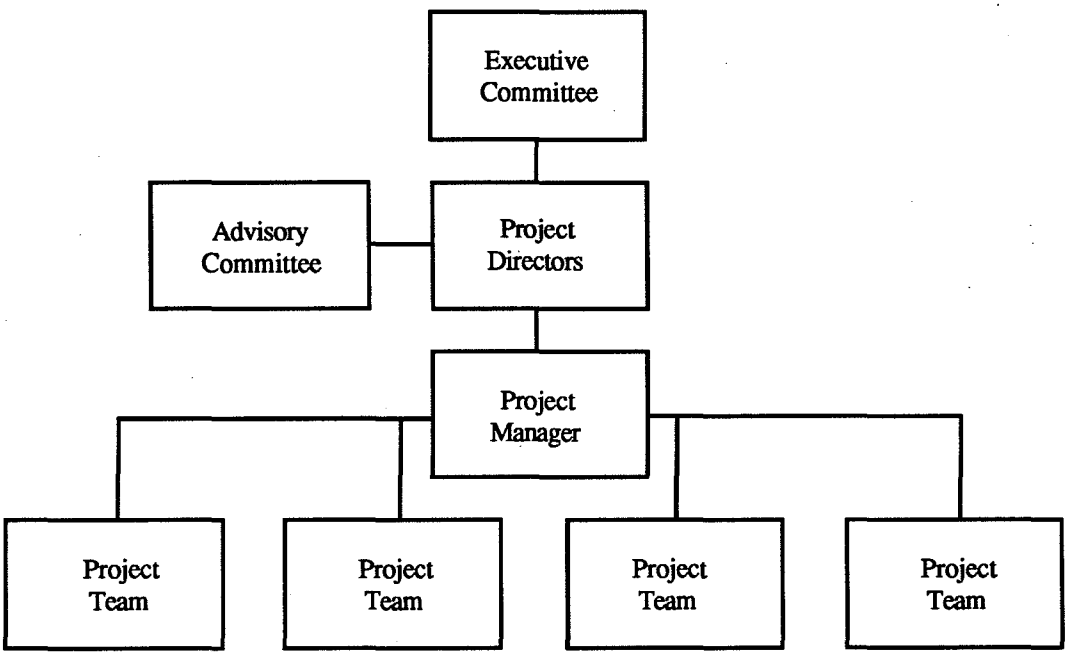
William R. Sims Senate Counsel & Research (612) 296-0134

Fifteen (15) copies of each proposal should be submitted by 4:00 PM, Friday, May 3, 1991 to:

Legislative Commission on Planning and Fiscal Policy
c/o William R. Sims
Senate Counsel & Research
G-17 State Capitol
St. Paul, MN 55155

Local Government Financial Reporting

Project Organization Model



Local Government Financial Reporting
Project Organization

Group	Role
Executive Committee	
* Legislative Commission on Planning and Fiscal Policy	* Authorize project * Meet monthly for project status review * Provide broad oversight
Advisory Committee (one representative each) * Intergovernmental Information Systems Advisory Council (IISAC) * State Auditor's Office * Legislative Auditor's Office * House Research * Senate Research * Department of Finance * Department of Revenue * Minnesota Association of Townships * Association of Minnesota Counties * League of Minnesota Cities	* Meet biweekly for project status review * Provide input and general direction
Project Directors * Senate Majority Leader designee * House Speaker designee * Consultant Project leader	* Coordinate project * Oversee completion of required deliverables
Project Manager * Consultant designee	* Oversee day-to-day project activities * Supervise project teams

Group	Role
<u>Project Teams</u> (from each as required) * Consultant designees * Intergovernmental Information Systems Advisory Council (IISAC) * State Auditor's Office * Legislative Auditor's Office * Department of Finance * Department of Revenue * Minnesota Association of Townships * League of Minnesota Cities * Association of Minnesota Counties	* Provide technical and functional expertise required for completion of project tasks

Local Government Financial Reporting
Project Timetable

Action	Date
Meeting: Legislative Commission on Planning and Fiscal Policy	March 22, 1991
Publish RFP notice in *State Register*	April 5, 1991
Select Project Directors	April 5, 1991
Select Advisory Committee	April 5, 1991
Meeting: Advisory Committee – Pre-bid Conference	April 19, 1991
Phase I proposals due	May 3, 1991
Score proposals	May 17, 1991
Meeting: Commission Designees & Advisory Committee – Select and notify contractor	May 24, 1991
Complete contract negotiations	June 7, 1991
Begin Phase I	June 10, 1991
Complete Phase I	November 15, 1991

Foundation for a Study of

Local Government Financial Reporting in Minnesota

William R. Sims
Senate Counsel & Research
January 1991

Preface

The following addresses the need for a study of local government financial reporting to offices and agencies of the State of Minnesota, suggests lines of inquiry along which such a study might be based, sketches a methodology for implementing the study, and outlines the kinds of solutions the study would hope to identify.

Introduction

In light of the steady decline in federal support for state and local services, and the consequent need to more efficiently utilize limited state and local resources, there has been increasing concern among state policy-makers over the financial information reported by local units of government (counties, cities, townships, school districts, and special service districts). Legislators and state agencies are often unsure whether the information available to them is accurate, complete, timely, and accessible enough to consistently facilitate the design and implementation of effective public policy.

In response to such concerns, a study of local government financial reporting has been mandated under two statutory subdivisions relating to the activities of the Legislative Commission on Planning and Fiscal Policy (1990 chap. 3.885):

> Subd. 5. [DUTIES.] (a) The commission shall: (...) (10) conduct a continuing study of state-local finance, analyzing and making recommendations to the legislature on issues including levels of state support for political subdivisions, basic levels of local need, balances of local revenues and options, relationship of local taxes to individuals' ability to pay, and financial reporting by political subdivisions. In conducting this study, the commission shall consult with the governor, the staff of executive branch agencies, and the governor's advisory commission on state-local relations (emphasis added).

The concern with local financial reporting is expanded and clarified by the following:

> Subd. 8 [POLITICAL SUBDIVISION REPORTING.] No later than November 15, 1991, the commission shall make recommendations to appropriate standing committees of the legislature on any changes in uniform accounting and financial reporting methods necessary to assure public and legislative oversight of expenditures by cities, counties, towns, and special service districts. The recommendations shall consider opportunities for on-line access by appropriate state officers to political subdivision accounts. In preparing these recommendations, the commission shall consult with the state auditor, the legislative auditor, and the commissioners of finance and revenue (emphasis added).

The focus for the study required here is most evident in the phrases, uniform accounting and financial reporting methods, and opportunities for on-line access. The first phrase would include such things as accounting standards (definitions, functions, categories, etc), reporting forms, item types actually reported, and methods/systems employed in the reporting process. The second phrase suggests computer/telecommunications technology in use or available for local government financial reporting. What appears to be at issue then, is a study of the ways in which financial reporting by local government units may be improved, both in terms of the information reported and the means (including technology) by which it is reported. There appear to be policy implications for information and technology management which should also be considered.

Background

One would be hard-pressed to describe the accounting and financial reporting methods currently used by units of local government in Minnesota as "uniform". On the contrary, it appears that the term best applied to the present status of financial reporting to state agencies by cities, counties, townships, school districts, and special service districts might be "diverse". This diversity expresses itself in a number of ways. First, the local government financial reports required by state agencies vary widely in type and number (for detail, see Table 1, Figure 1, and Figure 2, all appended). In general:

> Townships typically file single financial reports with the State Auditor's office and with the Department of Revenue.

Cities normally submit multiple (3-5) reports to the State Auditor's office and the Department of Revenue.

Counties usually provide multiple (14 or more) financial reports for use by the State Auditor's office and the Department of Revenue

School districts may file multiple (17 or more) financial reports with the Department of Education, the State Auditor's office, and the Department of Revenue.

Special service districts, which may fall in a single jurisdiction or across several, report to the State Auditor's office and the Department of Revenue (the number of reports varying by district).

By conservative estimate, each year between 15,000 and 20,000 financial reports are filed with state agencies by units of local government in Minnesota (see Appendix: Figure 2).

There is not only diversity in the quantity of local government financial reports filed with state agencies, but in the quality of such reports, as well. The recent studies published by the Office of the Legislative Auditor, "School District Spending" (February 1990) and "Local Government Spending" (March 1990), suggest that, because of inconsistencies in the way some data are reported by school districts and cities, no financial reports should be accepted uncritically. An analysis of 110 city financial statements conducted by Senate Counsel & Research staff as part of a larger study of local government aid formulas (Ladd, Yinger & Reschovsky; in progress) confirms the existence of such reporting inconsistencies. The data quality problem is compounded by the fact that some local government units adhere to generally accepted accounting principles (GAAP), while others do not.

In addition to data quality difficulties, there is much potential for wasted motion in the reporting process. Because different state agencies specify diverse forms and formats for the same sorts of local financial data (e.g., details of sundry revenue and expenditure types), units of local government may file reports which are essentially redundant. As early as 1984, the Governor's Blue Ribbon Committee on Information Policy noted such redundancy and argued for its elimination, along with the substantial costs attendant to it (*Report* , November 1984).

There are also a number of human issues relevant to the question of local government financial reporting. Given individual differences in training and perception, local financial officers may report similar items in dissimilar manners (e.g., three cities might allocate similar recycling expenses on their City Financial Reporting Form to "Other Sanitation", "Other Current Expenditures", or to a recycling enterprise fund). Furthermore, given differences in attitude toward the state-local financial relationship, the financial reporting process, or the workplace technology employed in the process, the attention paid to the quality, efficiency, and timeliness of local financial reports tends to vary.

The technology which units of local government employ for financial reporting (paper forms, computer disk, computer tape, or direct on-line data transfer) also reflects substantial diversity. Each medium has advantages and disadvantages; each carries with it, to a greater or lesser extent, unique possibilities for error, data contamination, or even data loss. By way of example: paper forms can be rendered illegible or misfiled; diskettes and tape may be damaged by temperature, humidity, or magnetic field; direct transfer can be threatened by electronic disturbance or system malfunction. No reporting medium is risk-free. In addition, it is unclear whether one medium is to be preferred over another for a given financial report. Even if such were the case, it would be uncertain whether the preferred medium were being applied uniformly across units of local government.

Finally, there is the question of financial data accessibility. Despite the volume of financial reports filed with state agencies annually, state legislators and managers frequently claim that they do not have all the information necessary to design and implement effective public policy, and are hard-pressed to obtain it. Even though state budgetary policy is, in large measure, state-local budgetary policy[1], and even though there is available a wealth of information concerning state agency finance (detailed budgets, records of revenues and expenditures, etc.), comparatively little is known about the financial workings of local governments. Though the fundamental cause of such an "information vacuum" is not readily apparent, there are a number of possibilities:

* Actual data needs may be ill-defined;
* The most relevant data may not be reported;
* Media used to report data may be slow or unwieldy;

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[1] For example, the 1989 legislative session adopted a general fund budget totalling nearly $16 billion, almost $9.5 billion of which comprised direct and indirect property tax relief (cf. the Minnesota State Senate's 1989 *Fiscal Review*).

* Data may be too flawed for meaningful analysis;
* Required data may not be easily accessible; or
* Local attitude and motivation may inhibit reporting.

Given these concerns, and the legislative mandates cited above, it appears that the most adequate response would be a comprehensive study of the process of local government financial reporting to state agencies, including relevant aspects of information policy and technological development policy. Such a study is outlined below.

Scope of the Study

The approach suggested here might proceed along three discrete, yet related lines of inquiry:

1. Information needs of state government;

2. Current research in local government finance, information policy, and applied technology;

3. Human issues (at both state and local levels), including individual skills, attitudes, and perceptions.

Information needs

It will be critical to identify the information needs of state legislators and agencies. In general terms, for example, such needs might fall into the kinds of categories enumerated by Gold (1989):

* Beginning and ending cash balances
* Total revenue
* Tax revenue
* Tax bases
* Federal aid
* State aid
* User charges and miscellaneous revenue
* Expenditures
* Indebtedness
* Credit ratings

* Fiscal capacity
* Fiscal effort
* Needs
* Fiscal stress

Specifics would vary with the state entities requesting information and the units of local government supplying it. In addition to data categories, it will be necessary to determine what data formats are the most appropriate (i.e., a given report might more closely resemble a traditional financial statement, be more graphic or more prosaic in nature). The most useful reporting medium (paper, computer tape, diskette, etc.) would need to be identified, as would the time frames within which given data must become available.

Finance, information policy & technology

There are a number of recent studies originating in Minnesota and elsewhere[1] which deal with local government finance, state-local information policy, and/or applied technology. Such prior research should be carefully reviewed to provide an adequate foundation for the study. In order to identify ways in which innovative technology might improve the process of local government financial reporting, it will be necessary to assess the current status of information technology in Minnesota government; that is, to determine what sorts of hardware, software, and telecommunication capabilities are in place within and across state agencies, counties, cities, townships, school districts, and special service districts.

Human issues

Financial reporting by units of local government should also be considered from a human perspective. The attitudes and perceptions which state and local employees bring to the reporting process will determine, in a large measure, the ultimate success of the process. It will be important to identify individual attitudes and perceptions relating to: the state-local fiscal relationship, individual information needs, computer/ telecommunications technology in the workplace, and "quality control" (accuracy, efficiency, and timeliness of reporting). It will also be necessary to evaluate, however roughly, technology-user-skill levels among state and local personnel.

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[1] For example, the numerous discussions of the STARS telecommunications network or the Integrated Data Base proposed by the Department of Education; the Legislative Auditor's reports on school district and local government spending; information policy and technology studies conducted by the states of California, Indiana, Kansas, Ohio, South Carolina, and others. There are many small studies conducted nationwide by units of local government, as well. For a representative sample, see Bibliography, pp. 7-8.

Methodology (Specific Tasks)

Who is involved?

Identify primary and secondary stakeholders. Provide a clear rationale for the inclusion of each. Determine which legislators, legislative staff, administrative staff, agency managers, and local government association members should be formally involved in study planning and execution; and which of the above should be involved in a more advisory capacity.

What is needed?

Survey state agencies and key legislators to determine current and projected information needs. Prepare complete inventory of reports required of cities, townships, counties, school districts, and special service districts, including supporting documents wherever possible. Identify preferences for reporting formats and media.

Background I

Review and analyze recent research relating to local government finance, information policy, and information technology conducted in Minnesota. Discuss implications for the present study.

Background II

Review and analyze recent research relating to local government finance, information policy, and information technology conducted in states other than Minnesota. Discuss implications for the present study.

Human issues

A. Survey, either formally or informally, a sample of state and local government personnel to determine perceptions of and attitudes toward:

* State-local financial reporting relationship
* Workplace technology

B. Determine and evaluate user skill levels among a sample of state and local government personnel.

In-place technology

Describe and evaluate technology currently used in the local government financial reporting process. It will be necessary to:

* Survey state agencies
* Survey a sample of local government units
* Survey selected vendors

New technology

Identify application potential of emerging technology. It will be necessary to:

* Review current technology literature
* Survey technology-oriented state agencies
* Survey vendors

Goals and strategies

Based upon the tasks outlined above, formulate recommendations for the improvement of local government financial reporting to state agencies including, but not limited to, the following categories:

* Information management
* Human relations
* Applied technology
* Management responsibilities

As required by the statute cited above, the study would need to be completed no later than November 15, 1991

Critical Caveat

It should be noted that there has been no mention of the actual responsibilities for directing and conducting the study outlined above. The Legislative Commission on Planning and Fiscal Policy should determine whether the study should be conducted by an outside consultant, by a consortium of legislative and state agency staffs, or a combination of both.

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Who Reports What to Whom and Why?

Entity	Reports to	Financial Report Title	Per
City	State Auditor	City Financial Reporting Form - Large Cities	MS 6.74; 471.697
City	State Auditor	City Financial Reporting Form - Cities Under 2500	MS 6.74; 471.698
City	State Auditor	City Financial Reporting Form - Municipal Liquor Stores	MS 471.6985
City	State Auditor	Annual Financial Statement	MS 6.74; 471.697; 471.698
City	State Auditor	Lobbying Costs Reporting Form	MS 6.76
City	Revenue	Payable Overall Levy Limitation Form	Laws 1990 ch. 604 art. 3
City	Revenue	Certification of Compliance with Truth in Taxation	MS 275.065; 275.07
County	State Auditor	County Financial Reporting Form	MS 6.74
County	State Auditor	Lobbying Costs Reporting Form	MS 6.76
County	Revenue	Abstract of Assessment of Real and Personal Property	MS 270.11 subd. 2
County	Revenue	Abstract of Tax Lists and Certification of State Paid Property Tax Credits and Reimbursements	MS 275.29
County	Revenue	Abstract of Tax Settlements	MS
County	Revenue	Mini Abstract	MS
County	Revenue	Tax Increment Financing District Supplement	MS 469.175 subd. 6a
County	Revenue	Abstract of Assessment, Tax Lists, and Certification of State Paid Credits for Mobile Homes	MS 275.29
County	Revenue	Payable Property Tax Levies Report	MS 275.07 subd. 4
County	Revenue	Payable Overall Levy Limitation Form	Laws 1990 ch. 604 art. 3
County	Revenue	Certification of Calendar Year Base Amount Costs of Human Services Programs	MS 273.1398 subd. 5b
County	Revenue	Certification of Calendar Year Human Services Program Revenues From All Nonproperty Tax Sources	MS 273.1398 subd. 5b
County	Revenue	Certification of Compliance with Truth in Taxation	MS 275.065; 275.07
County	Revenue	Delinquent and Deferred Property Taxes and Special Assessments Report	MS 273.111; 273.112; 435.193
County	Revenue	Statement of Property Tax Payable	MS
Township	State Auditor	Township Financial Reporting Form	MS 6.74
Township	Revenue	Payable Overall Levy Limitation Form	Laws 1990 ch. 604 art. 3
School District	Education	Levy Limitation & Certification Form	MS 275.125 subd. 18
School District	Education	School Tax Report	MS 275.124
School District	Education	Technical College Levy Data Report	MS 275.125
School District	Education	Levy Data Report/1990 Payable 1991	MS 124; 124A; 275.125 Laws 1990, ch. 562, 604
School District	Education	Taconite Levy Limitation Reduction Form	MS 275.125 subd. 9 (4)
School District	Education	Debt Service Loan Application	MS 124.42
School District	Education	Levy Data Report Addendum for SE, SVH, and LEP Programs	MS 275.125; 124.273; 124.32; 124.574
School District	Education	Secondary Vocational Cooperative Revenue Certification	MS124.575
School District	Education	Education District Revenue Certification	MS 124.2721; Laws 1990 ch. 562 art. 6

Table 1. (cont.)

Entity	Reports to	Financial Report Title	Per
School District	Education	Fund Balance Pupil Unit Worksheet	MS 124A.26; 124.243 subd. 2
School District	Education	Fund Balance Estimation Worksheet	MS 124A.26; 124.243 subd. 2
School District	Education	School Tax Abatement Report	MS
School District	Education	Annual UFARS Report	MS 121.908 subd. 2
School District	Education	UFARS Audit Adjustments and Budget Amendments Report	MS 121.908 subd. 3a, 4
School District	Education	Audited UFARS Report	MS 121.908 subd. 3
School District	State Auditor	Final Audit Report	MS 4.74; 121.908 subd. 3
School District	State Auditor	Lobbying Costs Reporting Form	MS 6.76
School District	Revenue	Certification of Compliance with Truth in Taxation	MS 275.065; 275.07
Special District	State Auditor	Airport Commission Progress Report	MS 473
Special District	State Auditor	Drainage & Conservancy District Progress Report	MS 106A
Special District	State Auditor	Hospital District Progress Report	MS 397, 447
Special District	State Auditor	Housing & Redevelopment Authority Progress Report	MS 469
Special District	State Auditor	Lake Conservation District Progress Report	MS 103B
Special District	State Auditor	Lake Improvement District Progress Report	MS 103B
Special District	State Auditor	Library District Progress Report	MS 134
Special District	State Auditor	Lobbying Costs Reporting Form	MS 6.76
Special District	State Auditor	Port Authority Progress Report	MS 469
Special District	State Auditor	Regional Development Commission Progress Report	MS 462
Special District	State Auditor	Regional Railroad Authority Progress Report	MS 398A
Special District	State Auditor	Rural Water System Progress Report	MS 116A
Special District	State Auditor	Sanitation District Progress Report	MS 869; 478
Special District	State Auditor	Soil & Water Conservation District Progress Report	MS 103C
Special District	State Auditor	Tax Increment Financing District Report	MS 469.175 subd. 6
Special District	State Auditor	Transit Commission Progress Report	MS 473
Special District	State Auditor	Watershed District Progress Report	MS 103D.355 subd. 3
Special District	State Auditor	Watershed Management Progress Report	MS 103B
Special District	Revenue	Tax Increment Financing District Bonded Indebtedness Report	MS 469.175 subd. 6a
Special District	Revenue	Metropolitan Regional Transit Commission Certification of Compliance with Truth in Taxation	MS 275.065; 275.07
Special District	Revenue	Metropolitan Council Certification of Compliance with Truth in Taxation	MS 275.065; 275.07

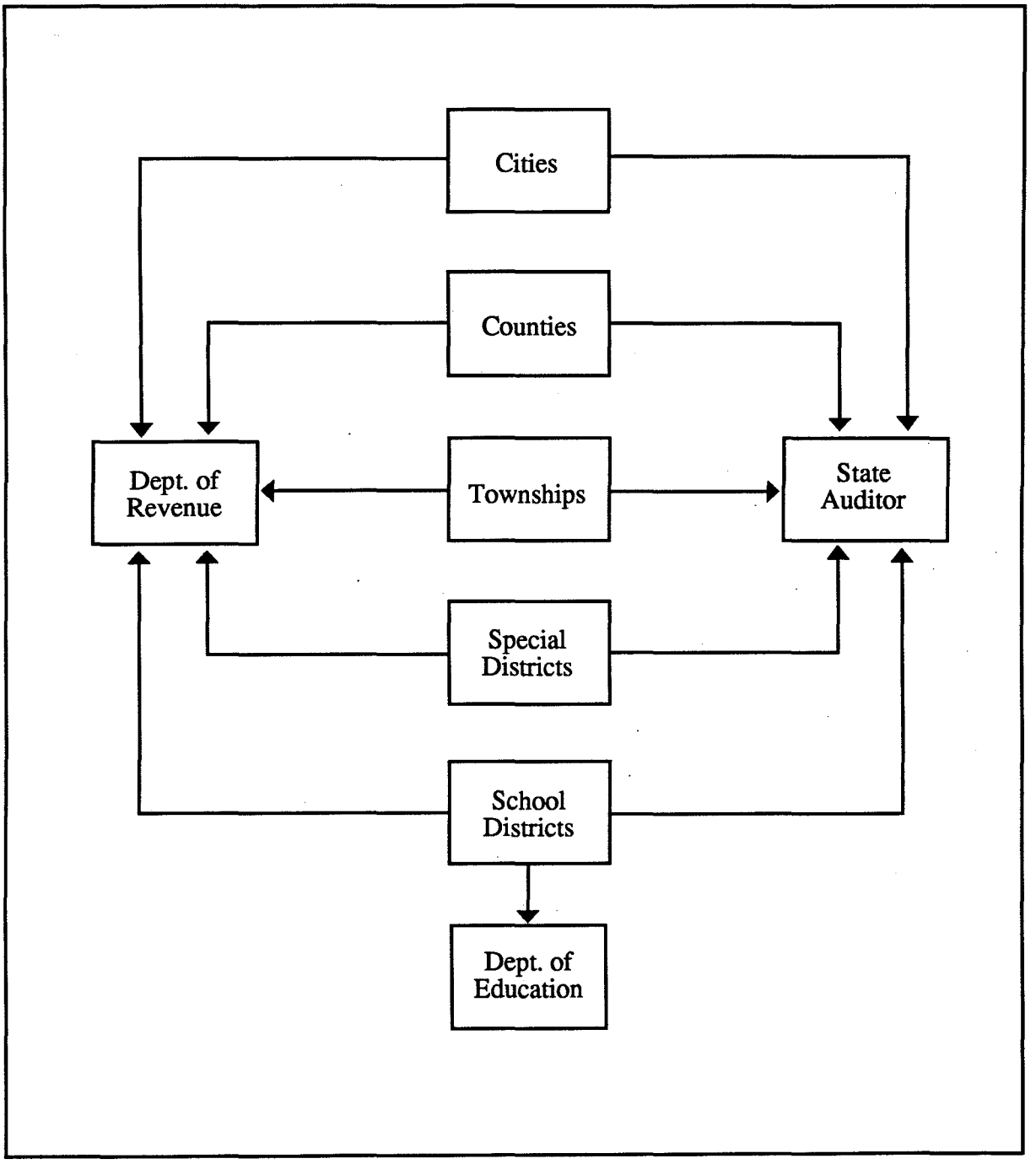

Figure 1. **Local-to-State Financial Data Flow**

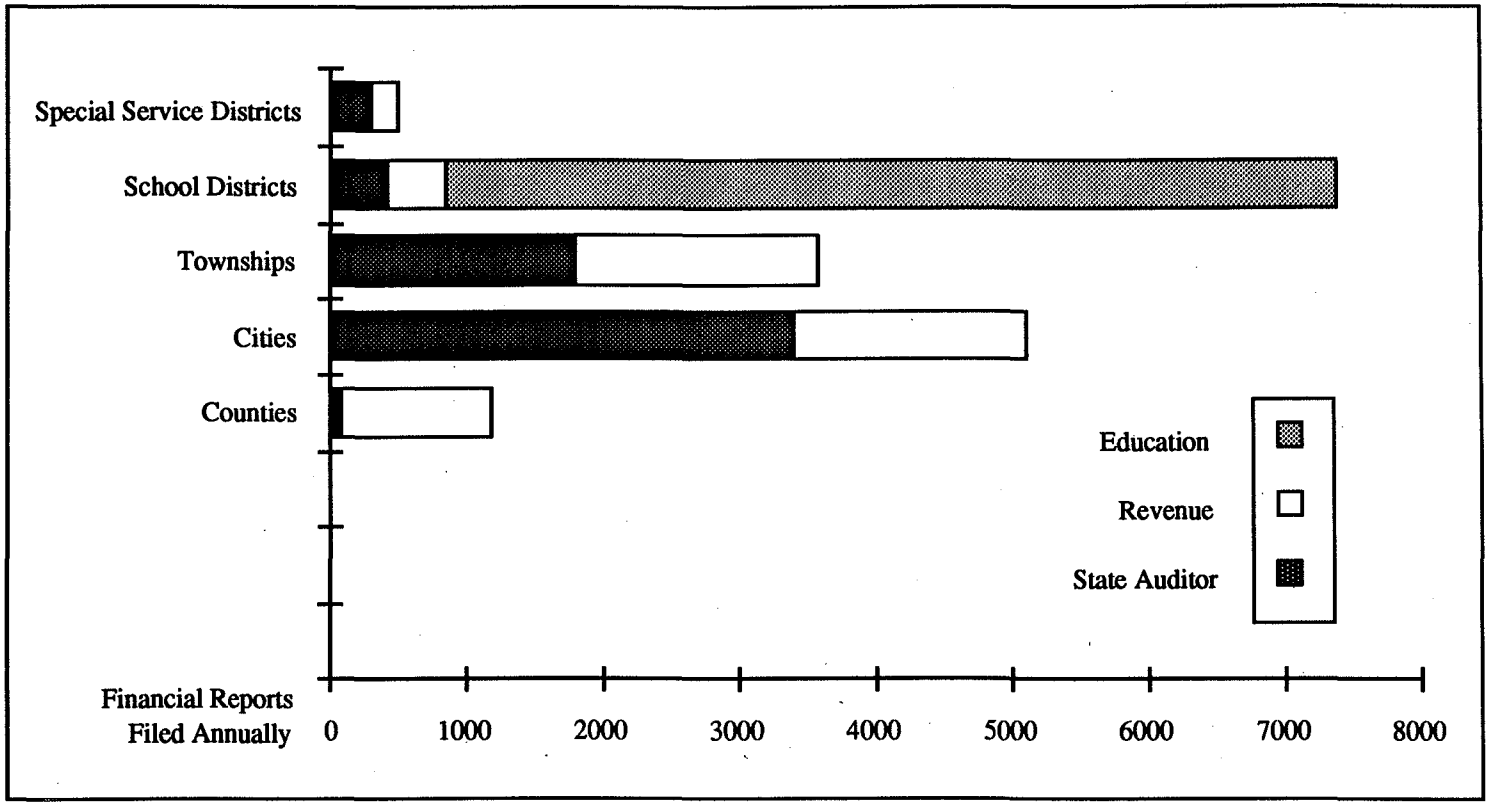

Figure 2. **Financial Reports Filed with State Agencies by Units of Local Government**

RFP Scoring Instructions

Using the following scoresheet, rate the proposal submitted by each respondent. The following scale should be applied:

RFP Rating Scale: 2 = Excellent 1 = Adequate 0 = Inadequate

Scoring should reflect raters' perceptions of proposal quality in terms of the deliverables outlined in the RFP. For each item, consider:

Does the respondent seem qualified to deal with the stated task?
Does the respondent seem to have a thorough understanding of the stated task?
Does the means/strategy proposed seem appropriate for the task?
Does the respondent provide sufficient detail?

RFP Scoresheet

Respondent _____

RFP Rating Scale: 2 = Excellent 1 = Adequate 0 = Inadequate

SCORE ITEM

Conceptual Framework

_____ A. Inventory of current and projected financial information needs, based upon a survey of state agency managers, concerned legislators, local government officials, and their respective staffs.

_____ B. Inventory of financial reports required of cities, townships, counties, and special service districts, including supporting documents wherever possible. Identify state and local preferences for reporting formats and media.

_____ C. Critical review and analysis of recent research & development projects related to local government finance, information policy, and information technology conducted in Minnesota and other states. Discussion of implications for the present study.

_____ D. A conceptual model for improved local government financial reporting which will mutually benefit state and local units.

Human Impact Analysis

_____ A. Survey of state and local government personnel to determine perceptions of and attitudes toward the state-local financial reporting relationship, extant workplace technology, and the proposed implementation of a new financial reporting system.

_____ B. Evaluation of user skill levels among a sample of state and local government personnel.

RFP Rating Scale: 2 = Excellent 1 = Adequate 0 = Inadequate

SCORE ITEM

_____ C. Strategies for: "marketing" a new financial reporting system among end-users; end-user orientation/training; and assimilation of new approach into extant systems.

Technological Architecture

_____ A. Description and evaluation of technology currently used in the local government financial reporting process based upon surveys of state agencies, units of local government, and technology vendors.

_____ B. Analyis of mechanical requirements for a local government financial reporting system: data interchange standards, system capabilities, hardware, software.

_____ C. Identification and evaluation of viable technological alternatives.

_____ D. Design for a local government financial reporting system which will logically facilitate Phase II (pilot implementation) and Phase III (statewide implementation).

Local Government Financial Reporting System

Describe an overall implementation strategy for a local government financial reporting system in Minnesota including, but not limited to, the following:

_____ A. Clear, detailed rationale, proceeding from the following perspectives:
- Information management
- Human relations
- Applied technology
- Management responsibilities

_____ B. Timetable

RFP Rating Scale: 2 = Excellent 1 = Adequate 0 = Inadequate

SCORE	ITEM
_____	C. Requisite resources
_____	TOTAL SCORE