

EVALUATING FISCAL STRAIN IN CITIES

by

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Submitted to the Department of Urban Studies and Planning
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ABSTRACT

Attempts have been made to explain the Fiscal Strain experienced by large American cities in terms of the changing demographic patterns of urban residents and the shift in tax bases of cities. These approaches explain the problems of Fiscal Strain in terms of uncontrollable expenses. An accounting approach to the study of Fiscal Strain, however, suggests that the problem is more likely to be on the revenue side. Case studies of Detroit and Boston bear out this hypothesis. Tax deficits and deficits in intergovernmental transfers create short-term cash-flow problems that eventually evolve into serious long-term Fiscal Strains. An accounting approach that disaggregates the Current Account of a city provides an effective way of identifying the sources of Fiscal Strain and, ultimately, testing solutions to the deficit problem.

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I became interested in this topic as a result of a Channel 5, WCVB-TV Boston, November 1976 editorial, which criticized a study evaluating Fiscal Strain among the thirty largest American cities. When I called Channel 5 for the reference, Philip Balboni and Michele Wasserman of the Editorial Department were good enough to allow me the use of their materials and facilities. From this, the dissertation unfolded. The M.I.T.-Harvard Joint Center for Urban Studies underwrote most of my research by granting me the Charles Andrew Stouffer Fellowship.

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INTRODUCTION

Concept of Fiscal Strain

During the New York City fiscal crises in the mid-1970s, the term "Fiscal Strain" was created to describe the financial problems plaguing large cities in the United States. This term was loosely understood to represent an imbalance between revenues and expenses. New York's declining fiscal resources were no longer able to support its ambitious level of welfare programs. Additionally, the level of welfare programs could not be reduced to match the loss of industry. Political bargaining among New York's vast network of union, ethnic, and minority groups maintained the level of service demands without an adequate match in funds. Thus, New York's problem of imbalance between revenues and expenses was political as much as financial. Because of this, the belief that city deficits are associated with large welfare programs became the basis for a great deal of essay and research focusing on Fiscal Strain.

The one indicator generally accepted as the barometer of Fiscal Strain is the balance of a city's Current Account. This balance is calculated by subtracting all actual expenses from revenues for the current fiscal year.¹

¹Municipal Finance Officers' Association of the

A financially sound city should be able to provide services, pay employees, and fund self-initiated social programs from monies collected through the city's mix of revenues, all of which are accounted for in the Current Account. When an imbalance between revenues and expenses occurs and is not due to seasonal fluctuations in tax receipts, a city is living beyond its means and can be said to be fiscally strained.

Bankers who loan the city money to cover seasonal fluctuations in revenues allegedly refuse money to cover current, daily operations. In order to circumvent this, cities sometimes inflate assets on financial statements claiming that more money is coming in than is truthfully expected. The bank now loans that money to the city, and a deficit is created that will not be recognized for many years. Thus, the imbalance between revenues and expenses is covered up by an accounting technique as opposed to an increase in revenues or a decrease in expenses. The balance in the Current Account shows no sign of a deteriorating fiscal position. As a barometer of Fiscal Strain, the Current Account balance is misleading, revealing no deficit

United States and Canada, Governmental Accounting, Auditing, and Financial Reporting (Chicago, Illinois: National Committee on Governmental Accounting, 1976), pp. 157, 161. Funds in the Current Account are expended for operating purposes during the current fiscal period. The Current fund is synonymous with the General Fund, which is further defined as accounting for the ordinary operations of a governmental unit that are financed from taxes and other general revenues.

or acts of accounting impropriety. Thus, the concept of Fiscal Strain should focus on how the financial system structurally creates and covers up deficits. The conventional wisdom, however, simplistically depicts Fiscal Strain as the outgrowth of political demands and the burgeoning level of welfare and social programs.

Objective

The objective of this dissertation is to expand the present concept of Fiscal Strain by creating and testing a method for the evaluation of Fiscal Strain in large American cities. The mechanics of this method trace the flow of municipal funds beginning with the creation of a budget through the resolution of any deficit. This process not only locates where strain begins, but also illustrates how strain builds and manifests itself in other areas of the budget. The evaluation of this development process is crucial in determining the severity of strain and the creation of strategies to overcome these fiscal problems.

This method is vastly different from other quantitative studies because it assesses Fiscal Strain through an accounting treatment and not econometric modelling. While models associate operating deficits with socio-economic variables, this thesis discredits the use of models for Fiscal Strain analysis and focuses on the financial statements alone to detect fiscal problems. The purpose of this

method is to construct an early warning system, which is based on the disaggregation of the Current Account into four separate budget statistics. Once these sources of Fiscal Strain have been located, it is possible to create strategies to overcome them. The objective of strategy development is admittedly too large to be completed here. What is attempted is the creation of a method to analyze the municipal budget and Fiscal Strain.

This type of analysis is useful to both public and private sectors. The public sector must learn to manage funds without running a deficit and how to overcome a deficit when running one. Private financiers can use this research to learn how to evaluate quickly the creditworthiness of a municipality. Bankers can assess risk of short- or long-term loans by this historical tracing of funds. Thus, the disaggregating of the Current Account into four components aids both public and private sectors.

Organization

The organization of this thesis is somewhat unconventional. The basis of this research lies in Appendices A and B. These studies were first initiated several years ago as an outgrowth of the literature on Fiscal Strain. I, quite honestly, felt that the econometric model built in Appendix A, A Fresh Look at the Alleged Socio-Economic Correlations of Fiscal Strain, would become the thrust of

the thesis. But by simulating an econometric model in the literature, I was able to retest the significance of individual variables and evaluate the predictive capacity of the model.

The tests did not agree with the literature that large operating deficits are associated with large welfare programs, blacks, or low-income population. The only significant regressors were the level of disposable income and the amount of debt per capita. The results of this research cast doubt on the conventional wisdom. There were also several indications in the data analysis that the actual dataset may be poorly constructed.

Because of these results, I felt I needed to do basic research in municipal finance to find out what was going wrong. Since the language of municipal budgets is accounting, I studied the theory of municipal accounting and report on it in Appendix B, Overview of Municipal Accounting. This is a dry study of the accounting techniques underlying municipal accounting. Through a network of funds, cities account for all financial transactions. Only one, the General Fund, measures the financial solvency of a city and is looked to as the measure of Fiscal Strain. This study enabled me to understand the accounting structure and its complexities. In combination with the study in Appendix A, these studies gave me the knowledge and perspective to create the framework of analysis that is presented

as a preface to the case studies.

Chapter 2, Case Study: Detroit, Michigan, finds, after applying the framework to Detroit, that, at the basis of Detroit's annual deficit, there is a budget that projects Expenses greater than Revenues, thus automatically creating a deficit at the start of the fiscal year. A severe deficit in intergovernmental transfers on the Revenue side worsens the original deficit as does the underreserving of Contingent Liabilities on the Expense side.

Chapter 3, Case Study: Boston, Massachusetts, finds Boston suffering from a very large deficit in the Revenue side's tax component. Underreserving of delinquencies and abatements creates this deficit and is caused by poor forecasting of Revenues and an antiquated statute requiring Boston to limit its reserves. With the information from both Boston and Detroit, all four types of deficits as defined by the framework in Exhibit #2.0 appear.

Chapter 4, Incongruities Between Census and Audit Data, compares data sources for their accuracy, consistency, and adequacy. The startling finding here is that the Census data are not valid for Fiscal Strain research, thus casting doubt on all previous studies. Although the Audit data are usable, corrections are made to build a more accurate dataset. Attempts to make the Census data usable are impossible because there is no consistency in collecting statistics across cities.

Chapter 5, Findings and Recommendations, reviews the material and makes recommendations as to how to overcome the problems that emerged in both Detroit and Boston. It was found in both cities that deficits arise from poor forecasting of revenues. This finding discredits most studies in the literature because only Expense-side problems are ever discussed as the cause for large operating deficits. Thus, the framework for analysis as shown in Exhibit #2.0 is proved to be useful for Fiscal Strain analysis.

CHAPTER 1

LITERATURE REVIEW

Many scholars have tried to identify the sources of Fiscal Strain. While reading the literature on Fiscal Strain, I found three different approaches to the study of this area: (1) qualitative studies that offer descriptive explanations of the causes of Fiscal Strain, based on the authors' perceptions of how New York City went broke; (2) numerical analyses, usually written by municipal analysts (of investment banks, commercial banks, and mutual funds), enumerating the rules of thumb they use for assessing the creditworthiness of a city; (3) quantitative studies that use econometric models to explain Fiscal Strain relative to the socio-economic, fiscal, and demographic characteristics of the population. This section departs from convention by including work I did in preparation for this thesis. Results from these econometric models change the research design, methodology, and data source usually seen in Fiscal Strain studies. The totally unexpected results thus change the entire nature of Fiscal Strain research.

Descriptive Qualitative Studies

Most qualitative studies are in agreement as to the underlying causes of Fiscal Strain: (1) changing socio-

economic characteristics in cities; (2) national economic difficulties; (3) inequitable fiscal federalism; (4) opportunistic political bargaining; and (5) unions and collective bargaining.¹

The traditional argument in this group of studies centers on the flight of the middle class to the suburbs, leaving the center city with lower-income residents, who have high demands for services, and a deteriorating tax base. Industries relocated to find land to build larger plants. Some relocated to the south and west because of cheap land and lower labor costs. Fiscal Strain, to the analysts who espouse this argument, is caused by the changing socio-economic character of urban populations.

The impact of cyclical variations in employment and inflation has been hardest in large cities. New York City, which relies on sales and income taxes more than on property taxes, loses substantial revenue during a recession but must maintain even greater service levels. From this standpoint,

¹Roger E. Alcala and Helen Bodian, "New York's Fiscal Crisis and the Economy"; George Steinlieb and James W. Hughes, "Metropolitan Decline and Inter-Regional Job Shifts"; Congressional Budget Office, "New York City's Fiscal Problems"; Eli B. Silverman, "New York City Revenues: The Federal and State Role" in Fiscal Crisis of American Cities, eds. Roger E. Alcala and David Mermelstein (New York: Vintage Books, 1977), pp. 30, 145, 285, and 339, respectively; Archibald Robertson and Lucian Vecchio, "A Legal History of Expense Budgeting in New York City," Fordham Urban Law Journal IV (1975):1; Colin Blaydon and Steven Gilford, "Financing the Cities: An Issue Agenda," Duke Law Journal (1976):1057; Roger Starr, "New York's Crisis--and Washington's," 66 Commentary 6 (December 1978):49-57.

Fiscal Strain in cities can be blamed on national economic difficulties. All descriptive studies are set against this background.

Revenue-sharing and other matching federal grants benefit some cities more than others. For example, New York City receives less aid per person than the rest of the State of New York.² From this standpoint, Fiscal Strain is the product of unfair design of our intergovernmental fiscal aid system. This explanation has been appearing more frequently in recent years.

The election of political candidates requires coalitions of voters with a mix of different needs. When a city has been abandoned by the middle class and is populated primarily by low-income persons, politicians must cater to the needs of the electoral majority. Promises are made many of which either create new programs for the majority or upgrade existing ones even though the tax base may remain at the same level or deteriorate. An imbalance of funds occurs, the cause seeming to be bargains aimed at achieving short-term political gains.

Some of the literature on Fiscal Strain places blame on the unions for demanding higher wages from the city. A different view is given by William Tabb.³ He suggests that

²Donna Shalala and Carol Bellamy, "A State Saves a City," Duke Law Journal (1976):1119.

³William Tabb, "Blaming the Victim" in Fiscal Crisis

the city has robbed the unions by underfunding pensions. The city uses the money for other projects but provides little security for pensions. In either case, collective bargaining or the demands of public employee unions are blamed for Fiscal Strain.

Investment Analysis Research

Investment banking houses, commercial banks, and mutual funds are fairly consistent in the variables they use as indicators of Fiscal Strain. When analyzing any municipality, bankers collect statistics for a particular city and then compare statistics across cities. Each financial institution determines what rules of thumb its analysts use. Because bankers are leery of making trade secrets public, only a partial list of variables follows.⁴ The only

of American Cities, eds. Roger E. Alcaly and David Mermelstein (New York: Vintage Books, 1977), p. 137.

⁴Dell H. Stevens, "An Approach to the Evaluation of Tax Free Bonds," notes prepared for lectures at L. F. Rothschild, Unterberg, Towbin, New York, 2 November 1977; The First National Bank of Boston and Touche Ross & Co., Urban Fiscal Stress: A Comparative Analysis of Sixty-Six United States Cities (New York: Touche Ross & Co., 1979); interviews with: Joel Mandelbaum, Investment Banker, Lehman Kuhn Loeb, New York, March 1977; Ruth Corson, Assistant Vice President, Municipal Bond Analyst, E. F. Hutton & Co., Boston, Massachusetts, January 1978; Donna Simonetti, Municipal Bond Analyst, Fidelity Municipal Bond Fund Inc., Boston, Massachusetts, January 1978; Linda E. Demkovich and Neal R. Pierce, "Urban Report/New York's Fiscal Woes May be Catching," National Journal, 8 November 1975; Charles T. Noona, "Municipal Bond Analysis and Establishing a Municipal Filing System," Journal of Commercial Bank Lending 60 (February 1978):40-46.

VariablesEconomic Conditions

Change in Population
 Percentage change in single-family housing starts
 Manufacturing capital spending
 Change in manufacturing employment ratio
 Percentage change in manufacturing capital spending
 Median family income

Social Conditions

Percentage minority population
 Percentage families below low-income level
 Unemployment rate
 Percentage pre-1939 housing stock

Structural Conditions

Population density

<u>Financial Variables</u>	<u>Mean Value</u>	<u>Standard Deviation</u>	<u>Lowest Value</u>	<u>Highest Value</u>
Revenue				
Ratio of local taxes to personal income (tax effort)	5.65%	2.26%	1.92%	13.42%
Local taxes per capita	\$265.02	\$106.41	\$ 98.76	\$556.36
Intergovernmental revenue as a percentage of total revenue	34.60%	12.24%	5.02%	64.00%
Debt				
Total debt per capita	\$516.86	\$268.59	\$121.66	\$1,193.84
Interest per capita	\$ 23.19	\$ 14.30	\$ 5.32	\$ 89.69
Municipal capital spending per capita, five-year average, 1971-1975	\$ 82.73	\$ 48.47	\$ 20.55	\$223.25
Expenses				
Fire expense per capita	\$ 29.55	\$ 10.32	\$ 9.48	\$ 56.42
Education expenses per capita (total from all sources)	\$236.94	\$ 60.24	\$120.45	\$395.08
Health expenses per capita (total from all sources)	\$ 7.56	\$ 9.07	\$ 0.00*	\$ 47.11
Welfare expenses per capita (total from all sources)	\$ 5.52	\$ 14.81	\$ 0.00*	\$ 92.22
Ratio of city full-time-equivalent employment to total local employment	3.98%	2.23%	0.95%	10.58%
Average city employee annual income	\$7,746	\$1,606	\$4,158	\$12,319
Current operating expenses per capita	\$484.61	\$120.27	\$270.40	\$928.39

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

category for which statistics are published is Financial. These averages and other statistics were processed from a survey of sixty-six cities by the First National Bank of Boston.⁵

The major contribution bankers and municipal analysts make to the literature is the specification or calibration of the descriptive reasons given for Fiscal Strain. For example, the concept of changing populations is defined by analysts. First, what does "changing" mean? Which groups and how many people are moving, who and how many people are staying? How is this seen in employment and income statistics? These statistics become barometers of a deteriorating tax base. Some may be experienced before others; knowledge of these patterns based on data from other cities with stressed economies allows the municipal analyst to assess not only present conditions, but also to predict what may happen, given historical precedent. The statistics give a clearer picture of the "changing" demography. A feeling about or a perception of "changing" is pinned down and defined. It is important to do so as it enables a comparison of all cities across the nation to be drawn.

The financial variables illustrate this best. An analyst is always concerned about the amount of debt outstanding. This represents fixed costs of repayment over the

⁵First National Bank et al., Urban Fiscal Stress.

next years. The absolute values of some may seem large, but the per capita rate first makes it comparable to other cities when it is then compared to the average and range. As displayed in the chart, the mean value of total debt per capita is \$516.86. If the city is within the standard deviation of \$14.30, it is undertaking debt at an "average" rate --the accepted "normal" rate for all cities. The assessment of risk involves comparative analysis, comparison of which can only be done by quantifying descriptive reasons.

Muller further attempts to correlate fiscal factors to Fiscal Strain by assessing and quantifying the direction of change--growing or declining--a city is experiencing.⁶ Characteristics that distinguish growing cities from declining cities include patterns of migration, spatial expansion, and their changes in employment. Muller explains that large cities, at some point, stop growing, and, without further potential of annexation, the process of aging catches up with the city, and the undesirable characteristics observed in declining areas begin to appear. The biggest problem within these characteristics is the situation of providing human services equal to those that have been incrementally established on a tax base that can no longer support them.

Muller finds that a declining city can only

⁶Thomas Muller, Growing and Declining Urban Areas: A Fiscal Comparison, rev. ed. (Washington, D.C.: The Urban Institute, 1976).

stabilize by annexing other tax bases. Because of the declining city's high service costs, contiguous tax bases are reluctant to annex. Muller concludes that, while a loss in population by itself does not necessarily point to severe fiscal difficulties, it appears to be an indicator of future problems. As a danger signal, Muller uses a 10 percent increase in net out-migration over a five-year period. Since Muller correlates the cost of public services with the degree of the decline in cities, there is an automatic problem with out-migration since the tax base decreases.

Because of Muller's excellent research design and appropriate statistical analyses, his above-mentioned book tests well the qualitative arguments of Fiscal Strain in a fashion acceptable to statistical analysts. What these statistics and "rules of thumb" do not do is to determine which rules of thumb are statistically significant, a term used to signify what variables are, indeed, important to Fiscal Strain analysis. Many variables have been listed in the previous chart. It is possible that the association between some of these variables and Fiscal Strain is just not important. Assumptions and beliefs of the past are now tested in econometric and statistical analyses.

Quantitative Research--Econometric Modeling

Gramlich, Ghazalah, and Clark-Rubin-Pettler-Zimmerman have conducted detailed regression analyses of fiscal

factors.⁷ The factors they have tested are:

1. Economic
 - a. Disposable Income
 - b. Median Household Income
 - c. Percentage of population earning less than \$5,000/year
 - d. Percentage of population earning more than \$10,000/year
2. Demographic
 - a. Population
 - b. Density
 - c. Percentage non-white
 - d. Region
3. Financial Data
 - a. Debt per capita
 - b. Revenue sharing

Gramlich and Ghazalah perpetuate the idea that low-income groups and blacks are associated with large welfare programs, which, in turn, contribute to large operating deficits. Gramlich introduces a new concept, the "Marginal Account"--marginal in the sense that it does not normally drain revenue from the city government.⁸ It includes:

Welfare
Higher education

⁷Edward Gramlich, "The New York Fiscal Crisis: What Happened and What is to be Done?" American Economic Review (May 1976):418; I. A. Ghazaleh, "The Fiscal Problem in Urban Areas," paper presented at XXIV International Meeting, Institute of Management Sciences, Honolulu, Hawaii, 19 June 1979; Joan K. Martin, "Predicting Fiscal Strain in Cities," unpublished paper, MIT, Cambridge, Massachusetts, June 1977; Terry Nichols Clark et al., "How Many New Yorks?" Unpublished working paper, University of Chicago, Chicago, Illinois, June 1976; George E. Peterson, "Finance" in The Urban Predicament, eds. William Gorham and Nathan Glazer (Washington, D.C.: The Urban Institute, 1976).

⁸Gramlich, p. 418.

Transit
Public hospitals
Public housing
Pension contributions

Gramlich asserts that it is this set of accounts that is affected by the percentage of non-white and low-income groups. The deficit ensuing in the Marginal Account then causes a deficit in the Current Account or operating balance.

Using the same data as both Gramlich and Ghazalah (whose research designs and analyses are similar), I have tested and reject the notion of Marginal Accounts by explaining that Marginal Accounts have always displayed deficit positions. Simple exploratory data analysis using x versus y plots indicates no relationship between deficits in Marginal and Current Accounts.⁹ By simulating the regression models touted by Gramlich and Ghazalah, I was able to test the significance of the individual independent variables attempting to explain deficits in the Current Account. Surprisingly, a model built by only two variables, Disposable Income (DI) and Debt per capita (DEBT), was chosen as the "best."¹⁰ The individual regressors, DI and DEBT, were tested significant at the 95 percent level, and the overall R^2 was .86.

⁹Appendix A.

¹⁰"Best" as chosen by the computer program as a combination of R^2 and C_p . Further explanation in Appendix A.

Traditional Fiscal Strain descriptors, percentage low-income (LOINC) and percentage non-white (NONWH), added nothing to improve the R^2 of the original two-variable model. As individual regressors, each was weak as each t score dropped below a 75 percent level of significance. Even the purportedly strong demographic variable South (STH), as a representative of regional location, fared poorly. Thus, the three variables seen on everyone's list of Fiscal Strain indicators, LOINC, NONWH, and STH, were not significant in building a predictive model. Doubt is cast on most of the conventional wisdom.

Constructing and testing these econometric models led me to believe that something was wrong with the Census data used by Gramlich, Ghazalah, and me. A knowledge of accounting gave me the insight to study the flows of the budget, revenues, and expenses. Understanding the relationship between the sources and uses of funds led me to hypothesize that managers were not overspending as thought but that revenues were not coming in as expected.

Because of the individualistic accounting practices of cities, revenue and expense flows cannot really be explained by econometric modeling. Accounting bases differ across cities, thus, one city records a revenue as received while another city may not do so until actual receipt. In order to understand a deficit, a researcher should know whether the money has been received, whether it is likely

to be received, or whether it is a delinquency just remaining in the budget to inflate assets. The amount of information needed to portray a city accurately in econometric modeling is overwhelming.

Only one other source in the literature supported this theory, a theory that may have nothing to do with the number of poor or black in the city. Hooper examines eleven sources of revenue as to their proportional variability of the total municipal revenue.¹¹ The property tax was significantly related to overall revenue variability while other forms of tax had no significant association to overall revenue variability.

The relationship between overall revenue variability and federal transfers was found to be statistically significant. Hooper postulates that federal transfers seem to increase the revenue variability of the municipalities, both by their dependence upon it and by its variable nature. Hooper also finds the variability of state transfers as a proportion of overall revenue to be almost twice as high in the largest cities as compared to the smallest cities. For municipal services such as airports, schools, hospitals, parking facilities, and sewer and water charges, the data indicated no significant relationship to overall revenue

¹¹Frederic A. Hooper, Jr., "Revenue Variability and Municipal Debt," DBA dissertation, Harvard Graduate School of Business Administration, 1979.

variability. The fact that schools are included in this list provokes a new look at the traditional causes of Fiscal Strain.

By using a dataset of over 2,500 municipalities, Hooper was able to test both size and location as associated with revenue variability. He concluded that revenue variability differs greatly both with size of the municipality and with the state in which the municipality is located. He further found that the more variable municipalities were not such because they had chosen poorly among revenue sources but because their revenue sources were more variable. Hooper suggested that either the tax structure or the environment (forces outside this dataset) of the more variable municipalities are the cause of their high variability rather than any actions of the municipality's management.

My course of study and research continues this argument that revenue variability is significantly associated to Fiscal Strain. I look in detail at the three sources of revenue--Tax, Transfer, and Debt--not only to chart variability over the years but to discover how deficits begin, how they are covered up, and how they are paid. The hypothesis at the base of this is that large operating deficits are due to revenue deficits.

PREFACE TO CASE STUDIES

Theoretical Framework

This thesis attempts to create a new tool for budget analysis by breaking the budget into components, which allows the analyst to trace the flow of funds more effectively. Revenue and expense balances are disaggregated into the major sources and uses of current funds. Exhibit #2.0, "Disaggregating Municipal Budget Deficits," illustrates this process and serves as a framework for analysis.

On the Expense side, a deficit means that a manager has spent more than was budgeted, either because of sloppy administration or because programs could not be implemented successfully at the cost levels estimated. Deficits can appear in either the original appropriation or additional appropriations. Theoretically, additional appropriations can only be made if no deficits have occurred in the original budget. Most people misconstrue Current Account deficits as being Expense-related because it appears that the manager has knowingly spent more than was available. What often happens, however, is that the city's various sources of Revenues fail to materialize when expected and not that the manager spends more than was intended.

In Exhibit #2.0, three types of Revenue deficits can

EXHIBIT #2.0

DISAGGREGATING MUNICIPAL BUDGET DEFICITS

REVENUES

EXPENSES

Taxes

Appropriations

Property Taxes/Other Taxes

The mix of taxes varies across cities. Inaccuracies in the estimation of delinquencies for each type of tax contributes to faulty reserves and a deficit position.

If managers spend more than expected as itemized in the original appropriation budget, a deficit occurs.

Any additional appropriations authorized after the start of the new fiscal year that are not backed by additional revenues will cause a deficit.

Transfers

When expected intergovernmental transfers are not received, but programs have already been implemented, the city loses what it spent to initiate programs.

Debt

A city can issue Bond Anticipation Notes if it is waiting for interest rates in the capital market to drop. When rates do not drop, the city must either pay the higher bond rate or continue to hold out in the high-priced money market.

If estimate > actual, then deficit
If estimate < actual, then surplus

If estimate < actual, then deficit
If estimate > actual, then surplus

arise when the sources of Revenue are over-estimated. The first potential Revenue deficit in Exhibit #2.0 is Taxes. Because the Tax component is the single largest source of Revenue for most cities, it is of the greatest concern. Fiscal Strain analysis is complicated by the fact that the mix of local taxes used to raise operating Revenues varies across cities. Whatever the mix, a city is responsible for accurately forecasting and reserving for delinquencies in each category.

When reserves are underestimated, city accountants sometimes inflate the Taxes Receivable estimates to convince bankers to lend them money for short periods. They claim that Revenue shortfalls are the result of seasonal fluctuations. However, if the Revenue shortfall is not erased by additional income, the short-term notes, Tax Anticipation Notes (TANs), are "rolled over" and accumulate annually. Thus, programs on the Expense side are not running deficits; rather, Revenues are not being received at the expected rate or level. Under these circumstances, shortfalls should be labeled Tax deficits, not Expense deficits.

The Transfer component measures the difference between the monies that state and federal agencies were expected to share with the city and those that were actually received. Municipalities may begin programs upon the incorrect assumption that funds will arrive later in the Fiscal Year. If funds are not appropriated, a city must pay for

the program with its own funds. A deficit arises immediately whether or not the program is cancelled. The city may have funded the program with Revenue Anticipation Notes (RANs), loans issued by banks for this specific type of cash shortage. The banks risked their funds on the city's assurance that Revenues from other governmental units would arrive.

Cities also issue tax-free securities, either General Obligation (GO) Bonds or Revenue Bonds. The latter are used for capital expenditures such as highway or hospital construction. Bond Revenues are used to pay off the debt. GO bonds are paid back through general tax Revenues rather than through specific fees or income generated by projects themselves. The cost of GO and Revenue bonds is directly related to interest rates in the bond market.

If interest rates are high, a city may have to take out Bond Anticipation Notes (BANs) while waiting for the interest rates to drop. The higher price cities pay for short-term BANs may be worth it over the long run if interest rates drop. Problems occur, however, when a city begins construction on a project and the market does not drop. The higher-priced rate can cause the deficit, the of which depends on how much higher the cost of the debt is than was originally estimated.

If the city decides not to issue the debt because the interest rates are too high, the city has lost a major

portion of its budget. This poses problems because the total of the three Revenue components--Tax, Transfer, and Debt--was set to match the Expenses component at the beginning of the Fiscal Year. Even if only one of the Revenue components drops its position, the entire budget is affected causing an imbalance between Revenues and Expenses. Similarly, if the Expense component rises over its estimate, the budget falters.

This framework of analysis attempts to demonstrate how the operating deficit was created structurally--which side and which account. It hopefully will put to rest two issues in the study of Fiscal Strain: (1) the simplistic explanation that Expenses exceeded Revenues because managers were spending more than was budgeted and (2) the political explanation that minorities and low-income populations are necessarily correlated with large operating deficits. These issues will now be tested through application of the framework to the following case studies of Detroit and Boston.

CHAPTER 2

CASE STUDY: DETROIT, MICHIGAN

The following analysis of Detroit's financial statements does not provide a view as flattering as Detroit had intended in those statements. All information for this analysis is taken from published exhibits describing Detroit's financial solvency.¹ This information was reconciled to provide an analysis of the overall Current Account and its four subsidiary accounts. Detroit's major problem is an overwhelming and accumulating deficit in the Transfer component on the Revenue side of the Balance Sheet. The extent of this deficit provokes the following question to keep in mind while assessing Detroit's solvency: How does the city pay for the tremendous projected Revenue deficit?

The "Analysis of Changes in Fund Balance," Exhibit #2.1, reports a balance of (\$36,884,556) at year-end June 30, 1976. The deficit seems to arise from expenditures being greater than receipts, but Detroit does not provide a picture in this one exhibit of what exactly costs more than

¹Data collection for Detroit was relatively straightforward. The Annual Financial Reports were easily obtained for the years 1970-1977 from the Municipal Finance Library in Detroit. It is unfortunate that my research was rushed by a time deadline imposed by the city. The library was being closed due to a lack of funds, perhaps an omen of what was to come.

EXHIBIT #2.1
CITY OF DETROIT--GENERAL FUND, ANALYSIS OF CHANGES IN FUND BALANCE
Years Ended June 30, 1976 and June 30, 1975

	Year Ended June 30, 1976	Year Ended June 30, 1975
BUDGETARY SURPLUS (DEFICIT)		
Balance at Beginning of Year	\$ (16,352,461)	\$ 14,445,768
Additions (deductions):		
Total Revenue (Exhibit A-3)	\$524,263,088	\$527,356,741
Less Capital Revenue	<u>21,208,290</u>	<u>29,792,077</u>
Total Expenditures (Exhibit A-5)	\$46,980,996	\$62,987,349
Less Capital Expenditures	<u>23,216,431</u>	<u>38,554,589</u>
	(20,709,767)	(26,868,096)
(Increase) Decrease in Net Balances Forward	<u>177,672</u>	<u>(3,930,133)</u>
Balance at End of Year	<u>(36,884,556)</u>	<u>(16,352,461)</u>
APPROPRIATED SURPLUS (Excluding Capital)		
Balance at Beginning of Year	24,239,366	20,309,233
Transfers to Hospital Fund	(1,749,586)	-----
Increase (Decrease) in Net Balances Forward	<u>(177,672)</u>	<u>3,930,133</u>
Balance at End of Year	<u>22,312,108</u>	<u>24,239,366</u>
RESERVE FOR OTHER ASSETS		
Balance at Beginning of Year	43,380,827	40,669,180
Increase (Decrease) in Other Assets	<u>(1,208,872)</u>	<u>2,711,647</u>
Balance at End of Year	<u>42,171,955</u>	<u>43,380,827</u>
Total Fund Balance (Excluding capital)	<u>\$ 27,599,507</u>	<u>\$ 51,267,732</u>
APPROPRIATED SURPLUS (Capital)		
Balance at Beginning of Year	\$ 66,438,611	\$ 75,201,123
Additions (deductions):		
Revenue	21,208,290	29,792,077
Expenditures (Exhibit A-7)	(23,216,431)	(38,554,589)
Transfers to Street Fund	(857,450)	-----
Transfers to Hospital Fund	<u>(150,000)</u>	<u>-----</u>
Balance at End of Year	<u>\$ 63,423,020</u>	<u>\$ 66,438,611</u>

The accompanying notes are an integral part of the financial statements.

expected. Some cities are more explicit than others in this regard. The question is thus if the alleged \$36,884,556 deficit was really caused by overspending as is suggested from this one statement.

Expenses

The "Statement of Appropriations and Expenditures," Exhibit #2.2, shows the managers to be \$134,032,494 under their budget of \$681,013,490. Table #2.1 calculates expenses from 1970 to 1978. Mr. John Davis, Chief Accounting Officer, City of Detroit, asserts that the non-reserving for contingent liabilities is one of Detroit's major financial problems.² Until recently, these liabilities were not reserved for in any way, but they are mentioned in the footnotes to the General Fund.³ For example, \$803.6 million are claimed by citizens for improper police behavior. Lawsuits against the Department of Transportation, the Water Board, the Sewage Disposal System, the Department of Housing, the Detroit General Hospital, and the Community and Economic Development Department contribute to the staggering grand total of \$1,184.5 billion contingent liabilities for the General Fund. The remaining \$5.9 million are claimed

²Interview with John L. Davis, Chief Accounting Officer, Detroit, Michigan, 20 June 1979.

³City of Detroit, Michigan, Annual Financial Report: Fiscal Year Ending 30 June 1976; notes to General Fund, Note H.

EXHIBIT #2.2
CITY OF DETROIT--GENERAL FUND
STATEMENT OF APPROPRIATIONS AND EXPENDITURES
Years Ended June 30, 1976 and June 30, 1975

Department or Activity	Revised Appropriations	Actual Expenditures (Exhibit A-6)	Actual Over (Under)	Actual Prior Year
Executive Agencies:				
Arts	\$ 3,346,801	\$ 2,422,725	\$ (924,076)	\$ 2,165,468
Budget	894,281	938,382	44,101	962,125
Buildings and Safety Engineering	7,384,781	7,500,847	116,066	7,656,930
City Engineering	3,275,706	3,139,319	(136,387)	3,167,021
Civic Center	23,354,478	9,591,068	(13,763,410)	5,557,374
Community and Economic Development	12,194,343	6,656,697	(5,537,646)	6,947,492
Consumer Affairs	355,666	536,282	(19,384)	566,315
Corrections	6,536,567	6,152,785	(383,782)	6,524,017
Council of the Arts	50,369	39,421	(10,948)	15,117
Data Processing	3,677,843	5,272,473	(405,370)	5,189,687
Environmental Protection and Maintenance	86,699,745	72,593,812	(14,105,933)	73,241,031
Finance	11,936,194	11,316,024	(620,170)	11,599,974
Fire	60,348,293	59,363,741	(984,552)	57,498,015
Health	48,234,658	34,252,159	(13,982,499)	26,430,698
Historical	2,386,725	1,196,917	(1,189,808)	1,126,765
Hospital (Note A) .....	.....	.....	.....	39,249,055
Human Rights	640,767	637,105	(3,662)	(76,126)
Law	2,813,102	2,915,074	101,972	3,222,988
Mayor's Office	4,498,011	3,435,654	(1,062,357)	2,436,036
Parking Enforcement	1,671,127	639,874	(1,031,253)	1,075,395
Personnel	4,627,059	4,314,015	(313,044)	3,808,451
Planning	3,166,024	1,574,180	(1,591,844)	1,057,772
Police	175,288,053	174,421,747	(866,306)	160,429,147
Public Information	1,196,663	1,083,719	(112,944)	1,207,407
Public Lighting	62,823,187	35,986,093	(26,837,094)	45,564,540
Recreation	39,191,939	29,713,231	(9,478,708)	25,662,346
Senior Citizens	427,931	275,333	(152,598)	174,404
Transportation - Planning and Traffic Engineering Division	3,662,522	3,058,576	(603,946)	2,889,140
Youth	1,175,744	976,506	(199,238)	496,595
Zoological Park	4,079,933	3,606,180	(473,753)	3,576,915
Total Executive Agencies	580,138,512	485,609,939	(94,528,573)	502,174,341
Legislative Agencies:				
Auditor General	1,275,954	1,232,610	(43,344)	1,131,672
City Clerk	647,116	620,304	(26,812)	486,184
City Council	1,064,201	1,041,937	(22,264)	1,054,169
City Planning Commission	308,799	164,395	(144,404)	84,683
Election Commission	1,642,512	1,322,810	(319,702)	1,918,812
Ombudsman	367,736	349,996	(17,740)	234,602
Zoning Appeals Board	290,064	306,042	15,978	277,700
Total Legislative Agencies	5,596,382	5,038,094	(558,288)	5,187,822
Judicial Agencies:				
Recorder's Court - Criminal	5,210,443	5,352,476	142,033	2,714,283
Recorder's Court - Jury	93,034	94,905	1,871	87,208
Recorder's Court - Psychiatric	639,405	630,478	(8,927)	585,576
Recorder's Court - Traffic and Ordinance	7,009,110	6,441,644	(567,466)	6,327,995
Total Judicial Agencies	12,951,992	12,519,503	(432,489)	9,715,062
Non-Departmental	82,326,604	43,813,460	(38,513,144)	45,910,124
Total	\$681,013,490	\$546,980,996	\$(134,032,494)	\$562,987,349

The accompanying notes are an integral part of the financial statements.

TABLE #2.1
 EXPENSE DEFICIT WORKSHEET 1970-1978
 (Dollars in Millions)

Year	Expenses		Surplus/(Deficit)
	Estimated	Actual	
1970	380.5	384.8	(4.3)
1971	536.7	440.7	96.0
1972	545.2	447.6	97.6
1973	625.5	496.1	129.4
1974	666.5	533.7	132.8
1975	691.5	563.0	128.5
1976	681.0	547.0	134.0
1977	627.2	556.9	70.3
1978	740.6	682.2	58.4

Total $\sum = 842.7$ $\bar{x} = 93.6$

against other funds that, like the General Fund, are the responsibility of the City of Detroit.

The city tries to belittle the enormity of this liability by explaining:

The outcome of the above-mentioned lawsuits and various other lawsuits and claims against the City cannot presently be determined, and, accordingly, no provision for amounts, if any, arising from settlement thereof has been made in these financial statements. It has been the City's experience that the amounts of any judgments of settlements are substantially less than the amount of the lawsuits filed.⁴

The city, however, does not provide an accounting for the amounts for which it is judged liable. Simple arithmetic shows that, if only one percent is judged payable, a \$11.8 million bill will be placed on the General Fund. Five and ten percent projections are, respectively, \$59.2 and \$118.3 million. These numbers are large enough to bear upon the General Fund with the same importance as any one disaggregated deficit discussed in the Revenue section. If a conservative one percent figure is used to estimate the write-off, another category should be added to the framework under Expenses. Table #2.2 displays the impact of contingent liabilities on the General Fund deficit.

A more recent communication from Mr. Davis changed the picture for the future somewhat:

The City of Detroit budgets annually into a General

⁴City of Detroit, Michigan, Annual Financial Report: Fiscal Year Ending 30 June 1976 [hereafter cited as AFR Fiscal 1976]; notes to General Fund, Note H.

TABLE #2.2
CONTINGENT LIABILITIES 1976
(Dollars in Millions)

Fund	Surplus/(Deficit)	Total Contingent Liability	One Percent Reserve	Total Deficit
General ¹	(38.2)	1,184.3	(11.8) ⁴	(50.0)
Water ²	1.6	120.4	(1.2) ⁵	0.4
Sewer ³	0.4	21.6	(0.2) ⁶	0.2

Water and Sewer can take care of themselves.

Source: AFR Fiscal 1976.

¹Exhibit #1, General Fund Deficit.

²Exhibit Q-3. Water has operating surplus of \$1,634,588. Because this is a separate fund, the surplus cannot be transferred to the General Fund. Losses, however, are covered by the General Fund. If contingent liability is greater than surplus, the General Fund is charged. If not, all funds remain in Water Fund.

³Exhibit P-3. Sewer Fund has operating surplus of \$368,598. Because this is a separate fund, the surplus is not transferred to the General Fund.

⁴General Fund, Note H.

⁵Water Fund, Note G.

⁶Sewer Fund, Note F.

Fund Damage Claims Account. Since 1977-78, the City has also maintained a Public Liability Self-Insurance Fund. The first \$100,000 of any one claim is charged to the Damage Claims Account. Any amounts in excess of \$100,000 are charged to the Public Liability Fund.

Claims paid during the last four periods are as follows:

1976-77	\$1,951,959
1977-78	6,567,775
1978-79	6,353,957
1979-80 (8 months)	7,089,197

No correlation has been made between the contingency and ultimate liability. However, during the period mentioned, the percentage varied from 23/100 to 66/100 of one percent.⁵

Even though Davis calculates the highest liability to date as 66/100 of one percent, a one percent write-off as illustrated in Table #2.2 is more conservative. Since the percentage is growing over time, the one percent reserve will, on average, be more accurate.

Additional expenses, which are not accounted for in the General Fund, are the transactions of Water and Sewer Funds. Although they are independent authorities, ultimate liability lies with Detroit, that is, any deficit in these two funds is to be covered by the General Fund. This, of course, includes contingent liabilities. In Table #2.2, the conservative one percent of total contingent liabilities is used as a reserve for any adjudication against the city. The Water and Sewer funds have manageable liabilities of \$1.2 million and \$0.2 million because their respective surpluses of \$1.6 million and \$0.4 million cover the projected

⁵John L. Davis, Letter to Joan K. Martin, 31 March 1980, Detroit, Michigan.

expenses. The General Fund has such an enormous total contingent liability that the projected reserve adds \$11.8 million to an already high Current Account deficit of \$38.2 million rendering a total deficit of \$50.0 million. Although Water and Sewer have surpluses, they cannot be transferred back to the General Fund. However, as the surpluses are so low relative to the deficit, the reduction, if allowed, would almost be meaningless.

Revenues

As a first step, the "Statement of Revenue--Estimated and Actual," Exhibit #2.3, should be scanned for the inclusion of long-term capital. Since we are analyzing the Current Account, any revenues, other than current, obscure the analysis. Long-term capital deposited in the Current Account can easily cover up short-term losses. To illustrate, Exhibit #2.3 includes Sale of Bonds on the last line. This adds \$32,045,000 to the estimated revenues and \$16,485,000 to the actual receipts, a tidy sum if running a deficit elsewhere.

Table #2.3, "General Fund Deficit," separates the long-term capital from the total revenues to calculate the Current Account balance. Because the large cutback of \$134,032,494 in expenses was not large enough to prevent a deficit, it may be to Detroit's advantage to include Debt as a line item in the General Fund. Tax and Transfer revenues

EXHIBIT #2.3
CITY OF DETROIT--GENERAL FUND
STATEMENT OF REVENUE--ESTIMATED AND ACTUAL
Years Ended June 30, 1976 & June 30, 1975

Classification	Revised Estimated Revenue	Actual Revenue	Actual Over (Under)	Actual Prior Year
Executive Agencies:				
Arts	\$ 1,033,765	\$ 955,004	\$ (78,761)	\$ 120,353
Budget	55,945	119,812	63,867	260
Building and Safety Engineering	6,086,564	5,597,492	(489,072)	4,831,724
City Engineering	4,208,377	2,836,073	(1,372,304)	3,130,536
Civic Center	4,504,404	3,951,983	(552,421)	2,608,508
Community and Economic Development	9,512,267	5,730,498	(3,781,769)	5,072,943
Consumer Affairs	22,706	73,763	51,057	14,922
Corrections	5,794,081	5,550,357	(243,724)	5,732,178
Council of the Arts		2,128	2,128	
Data Processing	161,210	388,676	227,466	181,007
Environmental Protection and Maintenance	33,562,942	24,456,620	(9,106,322)	24,693,399
Finance	2,169,211	1,852,553	(316,658)	928,524
Fire	13,844,099	12,350,822	(1,493,277)	10,549,753
Health	32,438,540	22,298,070	(10,140,470)	12,474,871
Historical	423,649	356,953	(66,696)	78,142
Hospital (Note A)				24,084,396
Human Rights	3,440	103,347	99,907	
Law	1,021,522	248,880	(772,642)	809,449
Manpower Office	1,953,624	188,447	(1,765,177)	88,992
Mayor's Office	582,035	531,336	(50,699)	287,007
Personnel	2,296,688	1,935,569	(361,119)	356,464
Planning	2,912,766	1,054,972	(1,857,794)	288,531
Police	40,333,532	36,702,804	(3,630,728)	31,725,330
Public Information	736,454	494,016	(242,438)	533,909
Public Lighting	18,691,439	15,512,728	(3,178,711)	17,761,543
Recreation	16,592,232	17,138,300	546,068	6,453,400
Senior Citizens	226,194	119,155	(107,039)	
Transportation - Planning and Traffic Engineering Division	3,359,570	3,376,673	(32,897)	3,055,130
Youth	817,235	764,355	(52,880)	4,054,555
Zoological Park	2,311,900	2,205,350	(106,550)	1,922,660
Total Executive Agencies	205,656,391	166,846,736	(38,809,655)	162,038,466
Legislative Agencies:				
Auditor General	234,426	175,600	(58,826)	18,092
City Clerk	9,000	9,695	695	8,653
City Council		13,881	13,881	252
City Planning Commission	134,000		(134,000)	(62,228)
Election Commission	60,639	98,054	37,415	(18,570)
Zoning Appeals Board	39,000	48,031	9,031	34,330
Total Legislative Agencies	477,065	345,261	(131,804)	(19,471)
Judicial Agencies:				
Recorder's Court - Criminal	208,779	45,989	(162,790)	175,441
Recorder's Court - Traffic and Ordinance	10,079,123	6,878,108	(3,201,015)	7,024,558
Total Judicial Agencies	10,287,902	6,924,097	(3,363,805)	7,199,999
Non-Departmental	360,385,322	333,661,994	(26,723,328)	331,407,747
Sale of Bonds	32,045,000	16,485,000	(15,560,000)	26,730,000
Total Revenue	\$608,851,680	\$524,263,088	\$(84,588,592)	\$527,356,741

The accompanying notes are an integral part of the financial statements.

TABLE #2.3
GENERAL FUND DEFICIT, 1976

	Estimate \$	Actual \$	Estimate-Actual \$
<u>Total Deficit</u>			
Revenue	608,851,680	524,263,088	84,588,592
Expense	<u>681,013,490</u>	<u>546,980,996</u>	<u>134,032,494</u>
Deficit	(72,161,810)	(22,717,908)	(49,443,902)
<u>General Fund Deficit or Operating Deficit</u>			
Total Revenue	608,851,680	524,263,088	
Sale of Bonds	<u>32,045,000</u>	<u>16,485,000</u>	<u>15,560,000</u>
Net Revenue	576,806,680	507,778,088	69,028,592
Expense	<u>681,013,490</u>	<u>546,980,996</u>	<u>134,032,494</u>
Deficit	(104,206,810)	(39,202,908)	(65,003,902)

Source: City of Detroit, Michigan, Annual Financial Report, 30 June 1976, General Fund Statement.

also contributed to the deficit as they neither increased nor remained as forecast but fell \$84,588,592.

This suggests that revenue variability may exist on such a large scale that managers are unable to forecast correctly at the start of the fiscal year.⁶ This puts managers in the impossible position of being behind before even starting. In Fiscal Year 1976, if revenues were only \$22,717,907 higher, a break-even position could have been achieved. To place this in perspective, \$22,717,907 are only 3 percent of the original revenue estimate. If these 3 percent were received and expenditures were cut as evidenced, no deficit would have occurred. If only 3 percent can make the difference, the need for precision, let alone better forecasting, is demonstrated.

The Statement of Revenue also allows a calculation between the expected and actual Debt as discussed above in connection with Sale of Bonds. Detroit netted \$15,560,000 less than expected.

Property Tax

Exhibit #2.4, "Tax Levies and Tax Collections by Levies," aids in discerning the pattern of delinquencies. Under "Collections to June 30, 1976," it appears that a high percentage of collected taxes to tax levy is evidenced.

⁶Frederic A. Hooper, Jr., "Revenue Variability and Municipal Debt" (DBA dissertation, Harvard Graduate School of Business Administration, 1979).

EXHIBIT #2.4

TAX LEVIES AND TAX COLLECTIONS BY LEVIES
1967 to 1976

<u>Year Ended June 30</u>	<u>Tax Levy</u>	<u>Additions to Tax Levy (net)</u>	<u>Less Cancellations and Adjustments</u>	<u>Net Taxes Receivable</u>
1967	\$105,126,391	\$ 165,198	\$1,457,978	\$103,833,611
1968	115,249,079	276,544	902,841	114,622,782
1969	118,561,598	1,114,911	480,552	119,195,957
1970	125,307,310	795,347	609,140	125,493,517
1971	143,796,052	1,907,966	636,265	145,067,753
1972	152,052,921	864,612	869,345	152,048,188
1973	156,028,368	673,879	766,362	155,935,885
1974	175,123,408	712,215	669,931	175,165,692
1975	158,856,729	363,831	270,193	158,950,367
1976	165,135,739	258,854	149,731	165,244,862

<u>Year Ended June 30</u>	<u>Collections to June 30, 1976</u>		<u>Uncollected Balances at June 30, 1976</u>	
	<u>Amount</u>	<u>Ratio to Tax Levy</u>	<u>Amount</u>	<u>Ratio to Tax Levy</u>
1967	\$103,800,838	98.74%	\$ 32,773	.03%
1968	114,565,675	99.41	57,107	.05
1969	119,037,599	100.40	158,358	.13
1970	125,229,315	99.94	264,202	.21
1971	144,512,936	100.50	554,817	.39
1972	151,115,399	99.38	932,789	.61
1973	154,467,574	99.00	1,468,311	.94
1974	172,145,185	98.30	3,020,507	1.72
1975	154,501,633	97.26	4,448,734	2.80
1976	157,674,698	95.48	7,570,164	4.58

After a two-year lag, e.g., in 1974, 98.3 percent have been collected. After three years, at most one percent is not collected. In order to assure good accounting and forecasting techniques, a one percent delinquency factor can be applied to the levy to obtain the tax deficit for 1976. The city states that this has been reserved for. If this were true, the one percent residual after the lag would not appear. On the other hand, one percent is so small, it is incomparable to the abatement problem evidenced in Boston. A conservative accounting approach might be a one percent reserve for delinquencies. The reserve for 1976 thus becomes \$1,652,448. This reserve becomes even more important when the economy is poor. Detroit has been hit the hardest by the current recession.

The city creates a first-year reserve of 6.77 percent, based on historical trends. After the first year, the taxes come in as discussed. Abatement or cancellations of taxes pose another threat to tax collection. But Detroit seems not to be plagued by this problem. In a communication from Mr. Davis, this is confirmed.⁷ Cancellation of taxes is reserved for in the 6.77 percent charge.

"General Fund--Statements of Revenue," Exhibit #2.5, determines taxes as \$251,824,090 and lists more types than just the Property Tax. Municipal Income Tax, Utility Users

⁷John L. Davis, Chief Accounting Officer, Letter to Joan K. Martin, 15 February 1980, Detroit, Michigan.

EXHIBIT #2.5
CITY OF DETROIT--GENERAL FUND
STATEMENTS OF REVENUE
Years Ended June 30, 1976 and June 30, 1975

Classification	Year Ended June 30		Increase (Decrease)
	1976	1975	
Taxes, Assessments, Interest, and Penalties:			
Current Year Property Tax	\$111,798,569	\$109,070,374	\$ 2,728,195
Prior Year Property Tax	4,063,825	4,653,438	(589,613)
Special Assessments	123,939	126,385	(2,446)
Municipal Income Tax	109,021,084	102,659,923	6,361,161
Utility Users Tax	24,805,085	21,789,636	3,015,449
Other Taxes	409,841	233,767	176,074
Interest and Penalties on Taxes	1,601,747	914,597	687,150
Total Taxes, Assessments, Interest, and Penalties	251,824,090	239,448,120	12,375,970
Licenses, Permits, and Inspection Charges:			
Business Licenses	788,677	827,948	(39,271)
Safety Inspection Charges	4,974,599	4,532,777	441,822
Construction Inspection Charges	1,497,823	1,677,338	(179,515)
Other	645,075	569,880	75,195
Total Licenses, Permits, and Inspection Charges	7,906,174	7,607,943	298,231
Fines and Forfeits:			
Ordinance Fines - Traffic Court	6,717,752	6,967,319	(249,567)
Other	129,719	72,555	57,164
Total Fines and Forfeits	6,847,471	7,039,874	(192,403)
Revenue From Use of Assets:			
Earnings on Investments	7,737,016	11,150,604	(3,413,588)
Rtal Estate Rentals	2,468,578	2,642,492	(173,914)
Concessions	900,412	814,499	85,913
Urban Renewal Revenue	4,033,123	4,087,483	(54,360)
Other	179,811	82,526	97,285
Total Revenue From Use of Assets	15,318,940	18,777,611	(3,458,671)
Grants and Shared Taxes:			
State Income Tax	24,366,061	24,791,722	(425,661)
State Intangibles Tax	17,681,860	10,811,957	6,869,903
Liquor and Beer Licenses	967,727	992,750	(25,023)
State Sales Tax	25,424,208	23,698,591	1,725,617
Federal Revenue Sharing	39,501,532	43,083,459	(3,581,927)
Grants - Health	14,796,787	6,791,852	8,004,935
Special Revenue Funds Reimbursements for Personnel Expenses	35,642,585	13,205,719	22,436,866
Other Grants	8,327,706	13,215,198	(4,887,492)
Total Grants and Shared Taxes	166,708,466	136,591,248	30,117,218
Sales and Charges for Services:			
Detroit General Hospital Revenues (Note A)		23,866,371	(23,866,371)
Other Hospitals and Clinics	1,154,695	1,127,617	27,078
Prisoner Care	5,526,255	5,165,591	360,664
Maintenance and Construction	3,989,948	5,849,849	(1,859,901)
Other Labor and Materials	843,837	1,468,947	(625,110)
Electrical	11,649,009	14,245,056	(2,596,047)
Water and Steam	978,654	801,139	177,515
Sanitation Charges	905,931	1,125,784	(219,853)
Recreation Fees	1,743,797	1,881,244	(137,447)
Street Funds Reimbursement	12,967,901	14,911,794	(1,943,893)
Other Departmental Sales and Charges for Current Services	15,284,657	13,576,185	1,708,472
Total Sales and Charges for Services	55,044,684	84,019,577	(28,974,893)
Sales of Property, Other Assets, and Compensation for Losses:			
Recoveries	793,456	1,359,863	(566,407)
Other	1,043,321	938,880	104,441
Recovery of City Equity - Sewage Disposal System		2,540,698	(2,540,698)
Total Sales of Property, Other Assets, and Compensation for Losses	1,836,777	4,839,441	(3,002,664)
Contributions and Transfers:			
Debt Service Payments - Transportation Fund (Note C)	441,190	821,970	(380,780)
Debt Service Payments - Water Fund (Note C)	1,071,325	1,053,395	17,930
Grant Contribution - Cash	157,988	55,043	102,945
Other	176,390		176,390
Total Contributions and Transfers	1,846,893	1,930,408	(83,515)
Miscellaneous:			
Sale of Bonds	16,485,000	26,730,000	(10,245,000)
Other	444,593	372,519	72,074
Total Miscellaneous	16,929,593	27,102,519	(10,172,926)
Total Revenue	\$524,263,088	\$527,356,741	\$ (3,093,653)

The accompanying notes are an integral part of the financial statements.

Tax, Other Taxes, and Interest and Penalties on Taxes have a combined total of \$135,836,000. I label these "Other Taxes" and assume that this was an estimate since no other data are evident to evaluate the surplus/deficit position.

Transfers

The "Statement of Revenue--Estimated and Actual," Exhibit #2.3, does not provide a direct reference for Transfers. By manipulating data, the Debt deficit was calculated from the above exhibit, and the Tax deficit was calculated from "Tax Levies and Tax Collections by Levies," Exhibit #2.4. The Statement of Revenue provides a total revenue deficit. Since we have two of the three revenue components and the total, a plug for the Transfer deficit can be calculated.

Total	\$84,588,592
-Tax	1,652,448
-Debt	<u>15,560,000</u>
Transfer	\$67,376,144

The Transfer deficit of \$67,376,144 is 11 percent of the total revenues expected and 80 percent of the total deficit. The bearing of Transfers on the Current Account deficit is overwhelming. Whoever is at fault is less of an issue than Detroit's dependence on funds not generated within its political, geographical, and economic domain.

Table #2.4, "Revenue Deficit Worksheet, 1970-1978," displays the calculations necessary to achieve the three disaggregated Revenue deficits. The nine-year time span

TABLE #2.4
REVENUE DEFICIT WORKSHEET, 1970-1978
(Dollars in Millions)

Revenue Source	Estimate	Actual	Sur(Def)	Estimate	Actual	Sur(Def)	Estimate	Actual	Sur(Def)
	1970			1971			1972		
TAXES									
Property ¹	125.3	118.1	(7.2)	145.6	136.6	(9.)	152.8	150.9	(5.8)
City Income	92.8	93.3	0.5	96.1	88.2	(7.9)	96.1	94.5	(1.6)
Utility				17.5	10.7	(6.8)	17.5	16.7	(0.8)
Unallocated	51.6	38.2	(13.4)	51.4	45.7	(5.7)	75.0	61.8	(13.2)
Total Tax ₂	269.7	249.6	(20.1)	310.6	290.2	(29.4)	341.4	320.0	(21.4)
TRANSFERS ²	148.1	114.7	(33.4)	163.6	143.2	(20.4)	120.3	107.1	(13.2)
Total Current Account	417.8	364.3	(53.5)	474.2	433.4	(49.8)	461.7	427.1	(34.6)
BOND SALES	27.1	15.7	(11.4)	46.9	29.6	(17.3)	38.4	28.0	(10.4)
TOTAL REVENUE	444.9	380.0	(64.9)	521.1	463.0	(67.1)	500.1	455.1	(45.0)
	1973			1974			1975		
TAXES									
Property ¹	156.4	150.9	(5.5)	175.8	167.6	(8.2)	159.2	151.8	(7.4)
Railroad				18.7	18.7	0.0			
City Income	93.6	104.5	10.9	106.5	108.5	2.0	116.8	102.7	(14.1)
Utility	17.1	17.8	0.7	18.6	18.9	0.3	19.7	21.8	2.1
Unallocated	68.1	66.6	(1.5)	79.1	79.0	(0.1)	105.0	90.3	(14.7)
Total Tax ₂	335.2	339.8	4.6	398.7	392.7	(6.0)	400.7	366.6	(34.1)
TRANSFERS ²	211.4	179.5	(31.9)	194.3	171.5	(22.8)	199.6	171.2	(28.4)
Total Current Account	546.6	519.3	(27.3)	593.0	564.2	(28.8)	600.3	537.8	(62.5)
BOND SALES	40.0	36.5	(3.5)	34.5	33.4	(1.1)	29.8	26.7	(3.1)
TOTAL REVENUE	586.6	555.8	(30.8)	627.5	597.6	(29.9)	630.1	564.5	(65.6)

¹Property tax is calculated by netting foreclosures from current property tax received.

²Transfer is a plug. Total shared revenue less Unallocated revenue = Transfers.

TABLE #2.4

Revenue Source	1976 ³			1977			1978		
	Estimate	Actual	Sur(Def)	Estimate	Actual	Sur(Def)	Estimate	Actual	Sur(Def)
TAXES									
Property ¹		156.9		170.1	159.9	(10.2)	112.8 ⁴	112.8	0.0
City Income		109.0		114.3	124.0	9.7	132.1	132.8	0.7
Utility		25.2		29.8	30.4	0.6	32.8	32.5	(0.3)
Unallocated				96.8	88.4	(8.4)	102.9	96.3	(6.6)
Total Tax ₂	292.8	291.1	(1.7)	411.0	402.7	(8.3)	380.6	374.4	(6.2)
TRANSFERS ²	284.1	216.7	(67.4)	268.4	240.7	(27.7)	317.2	279.4	(37.8)
Total Current Account	576.9	507.8	(69.1)	679.4	643.4	(36.0)	697.8	653.8	(44.0)
BOND SALES	32.0	16.5	(15.5)	135.6	49.2	(86.4)	NA	NA	NA
TOTAL REVENUE	608.9	524.3	(84.6)	815.0	692.6	(122.4)	697.8	653.8	(44.0)

³The format of the audit changed in 1976 including actual revenues but deleting estimated revenues. The property tax and bond figures are calculated other data. See Revenue section.

⁴The format in 1978 changes to include more detail in the tax structure. The new items--special assessments, other taxes, and interest and penalties--are combined with the property tax item here in order to maintain consistency in this.

Source: City of Detroit, Michigan, Annual Financial Reports, 1970-1978.

provides an excellent comparison between Fiscal Year 1976 and the remaining eight years. Table #2.5, "Summary of Revenue Deficits, 1970-1978," excises the deficits from Table #2.4 and compares the nine years through descriptive statistics.

How representative is Fiscal Year (FY) 1976 of Detroit's fiscal history? Over the nine years, the Transfer component averages 51 percent of the total Revenue deficit. Although the FY 1976 statistic, \$67.4 million, is 24 percent higher than the average Transfer deficit of \$31.4 million, it accurately reflects the relative position of the Transfer deficit to the other two revenue components, that is, Transfer is the overwhelming deficit. Statistics created for the time series in Table #2.4 and the graph of these statistics in Figure #2.1 confirm the supposition that Detroit's major problem lies in the dependence on aid from state and federal levels. To the extent that these funds are not received but intended programs are still implemented, Detroit runs a very high transfer and ensuing revenue deficit.

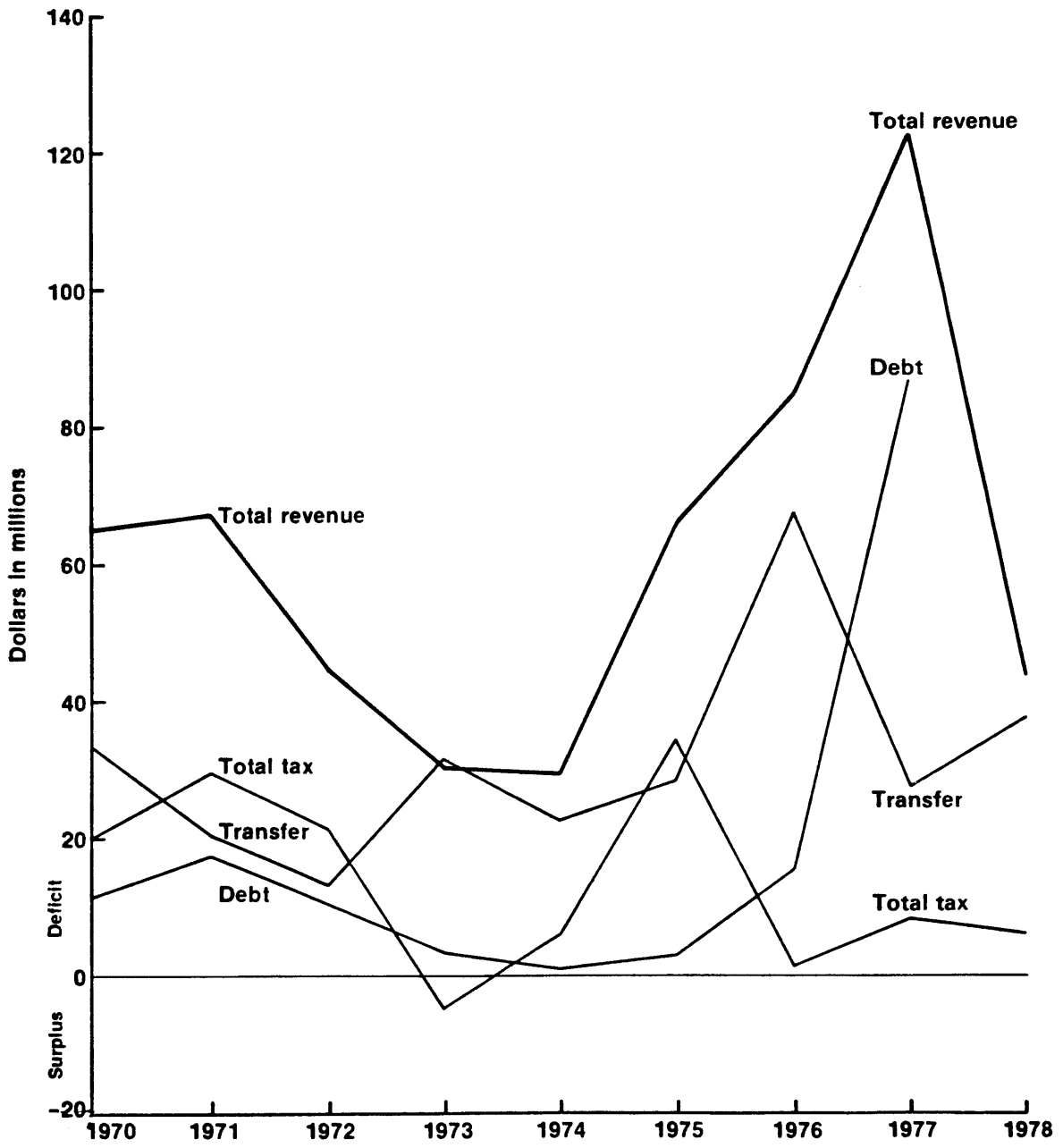
Figure 2.1 demonstrates the relationship between the Transfer deficit and the total Revenue deficit. The total Revenue deficit follows the increase or decrease in the Transfer component. In FY 1976, when the Transfer deficit was at its highest, the total Revenue deficit increased dramatically in the following year, FY 1977. The Debt deficit is now disproportionately high because the desire to

TABLE #2.5
SUMMARY OF REVENUE DEFICITS, 1970-1978
(Dollars in Millions)

Revenue	1970	1971	1972	1973	1974	1975	1976	1977	1978	Total	Mean
Tax	20.1	29.4	21.4	+4.6*	6.0	34.1	1.7	8.3	6.2	122.6	13.6
Transfers	33.4	20.4	13.2	31.9	22.8	28.4	67.4	27.7	37.8	283.0	31.4
Total CACCT	53.5	49.8	34.6	27.3	28.8	62.5	69.1	36.0	44.0	405.6	45.1
Debt	11.4	17.3	10.4	3.5	1.1	3.1	15.5	86.4	-	148.7	16.5
Total Revenue Deficit (TRD)	64.9	67.1	45.0	30.8	29.9	65.6	84.6	122.4	44.0	554.3	61.6
<u>Components as Proportion of TRD in Percentages</u>											
Tax/TRD	31	43	47	12	20	52	2	6	13.6		
Transfer/TRD	52	31	31	78	77	44	79	23	86.4		
Debt/TRD	17	26	22	10	3	4	19	71	-		
Total Tax 1970-1978 / TRD = 22%											
Total Transfers 1970-1978 / TRD = 51%											
Total Debt 1970-1978 / TRD = 27%											

*) Surplus.

FIGURE 2.1. Relationship Between Transfer and Revenue Deficits: Detroit.



raise debt to cover the FY 1976 Transfer deficit is not met with market approval. Thus, the total Revenue deficit is relatively high. In FY 1977, the Transfer deficit was lowered to \$27.7 million, close to the average of \$31.4 million. The dramatic increase in FY 1976 caused the other components to respond in the following years in order to pay for that increase.

The tax component appears to have a two-year cycle as illustrated in Figure #2.1. Every two years, it changes direction but remains in a \$30 million band. The Debt component appears even more steady within a \$20 million band except when it responds to the Transfer deficit as an instrument to rectify the other deficits. Figure #2.1 thus illustrates the behavior of the Total Revenue deficit to be determined and responsive to the Transfer component.

Summary of Revenues and Expenses

Disaggregating the Current Account into the four potential deficits allowed a view of the budget that is not readily observed. Initially, Detroit looked as if it had just flagrantly overspent. By disaggregating the flow of funds, it became evident that the Expense side actually recorded a surplus of funds--that is, managers cut their budgets to record expenditures much lower than expected. Disaggregating the total Revenue deficit exposes the major problem of Transfers. State and federal governments did not

send the intergovernmental transfers as scheduled. The problem was worsened each year by Detroit's continued inability to forecast Revenues properly. Historical precedent did nothing to aid in financial projection.

Table #2.6, "Summary of Revenue and Expense Deficits, 1970-1978," gives the overall picture of the imbalanced Revenues and Expenses. In Fiscal Years 1973 to 1978, large surpluses on the Expense side aided in the attempts to balance the budget. A range of (\$4.3) million to \$134.0 million over these years shows only one year, 1970, where the budget was overspent although not by much. The only discrepancy on the Expense side is the lack of adequate reserves for Contingent Liabilities. If any part of the over \$1 billion in litigation materializes, the payment is charged to Expense, thus altering the surplus balance. Although the historical rate is a small percentage, the charge will still be in the millions.

The most interesting and puzzling statistics in the Summary of Revenue and Expense Deficits are the average Total Revenue deficit, \$61.6 million, and the average Expense surplus, \$93.6 million. Regrettably, this does not mean that, over the course of a decade, Revenues and Expenses wash, leaving no deficit but a surplus. Simple statistics of the net between receipts and expenditures show the incongruity (Table #2.7, "Current Account Net, 1970-1978"). All but three years, FYs 1973, 1974, and 1977, have

TABLE #2.6
SUMMARY OF EXPENSE AND REVENUE DEFICITS, 1970-1978
(Dollars in Millions)

Source	1970	1971	1972	1973	1974	1975	1976	1977	1978	Mean
EXPENSE	(4.3)	96.0	97.6	129.4	132.8	128.5	134.0	70.3	58.4	93.6
REVENUE										
Tax	(20.1)	(29.4)	(21.4)	4.6	(6.0)	(34.1)	(1.7)	(8.3)	(6.2)	(13.6)
Transfers	(33.4)	(20.4)	(13.2)	(31.9)	(22.8)	(28.4)	(67.4)	(27.7)	(37.8)	(31.4)
Total Current Revenue	(53.5)	(49.8)	(34.6)	(27.3)	(28.8)	(62.5)	(69.1)	(36.0)	(44.0)	(45.0)
Total Current Revenue and Expense	(57.8)	46.2	63.0	102.1	104.0	66.0	64.9	34.3	14.4	48.7
Total Current Debt	(53.5)	(49.8)	(34.6)	(27.3)	(28.8)	(62.5)	(69.1)	(36.0)	(44.0)	(45.0)
Total Revenue Deficit	(11.4)	(17.3)	(10.4)	(3.5)	(1.1)	(3.1)	(15.5)	(86.4)	-	(16.5)
Total Revenue Deficit	(64.9)	(67.1)	(45.0)	(30.8)	(29.9)	(65.6)	(84.6)	(122.4)	(44.0)	(61.5)

TABLE #2.7
 CURRENT ACCOUNT NET, 1970-1978
 (Dollars in Millions)

Year	Receipts	Expenditures	Surplus/(Deficit)
1970	364.3	384.8	(20.5)
1971	433.4	440.7	(7.3)
1972	427.1	447.6	(20.5)
1973	519.3	496.1	23.2
1974	564.2	533.7	30.5
1975	537.8	563.0	(25.2)
1976	507.8	547.0	(39.2)
1977	643.4	556.9	86.5
1978	653.8	682.2	(28.4)

deficits ranging from \$7.3 million in 1971 to \$39.2 million in 1976.

How can Detroit display a deficit position in actual dollars but show huge surpluses in a component analysis? Deeper analysis reveals the start of the deficit even before the fiscal year begins. Detroit does not even start with a balanced budget; Revenues do not equal Expenses. Projected Expenses before the start of the year are consistently higher than projected Revenues. Thus, an expenditure surplus of \$132.8 million in FY 1974 may mean little. A surplus of \$156 million is necessary to bring it down to a projected revenue statistic. The problem is that the Revenue side now leaves the estimate figure and plunges to the actual. Thus, the very large expenditure surplus does not take care of the entire Revenue deficit. Hence, the \$93.6 million Expense surplus does not act as a wash. Individual

Revenue and Expense surplus/deficits are relative to their respective starting points--points that are unfortunately not the same.

How Deficits Are Paid

The remaining deficit can be paid for by a number of measures. Short-term debt in the forms of Tax Anticipation Notes (TANs), Revenue Anticipation Notes (RANs), and Bond Anticipation Notes (BANs) are easily detected by reading the "General Fund Balance Sheets," Exhibit #2.6. In FY 1976, Detroit increased its use of TANs from \$23 million in FY 1975 to \$40 million. This is an increasing liability under the Liabilities and Fund Balance section. Total liabilities for FY 1976 exceed \$112 million. Any liability is a source of income since it puts off payment to a future date, that of the following fiscal year. This begins, or even continues, an accumulating deficit. This year's expenses are paid for by next year's taxes. Any deficit, by all states' laws, takes first claim on the following year's taxes even though the provision for this is nowhere to be found in the budget. Detroit relies heavily on all the line items under the Liabilities section on the Balance Sheet to prolong payment and stave off bankruptcy. Curiously, Detroit does not use TANs as heavily as other cities or even RANs or BANs. Table #2.8, "Short-Term Debt," summarizes this form of payment stalling. RANs and BANs are not used at all. Thus, the heavy use of

EXHIBIT #2,6
CITY OF DETROIT--GENERAL FUND BALANCE SHEETS
June 30, 1976 and June 30, 1975

ASSETS	June 30, 1976	June 30, 1975
Current Assets (excluding Capital Projects):		
Cash (includes Certificates of Deposit)	\$ 13,966,457	\$ 7,793,951
Temporary Investments - at Cost and Accrued Interest	13,974,543	20,692,886
Total Cash and Temporary Investments	27,941,000	28,486,837
Less Equity of Other Funds in Cash and Temporary Investments	14,056,071	12,829,501
Net Cash and Temporary Investments	13,884,929	15,657,336
Temporary Loan to Transportation Fund (including interest of \$268,566 and \$179,548, respectively)	268,566	6,779,548
Advance to Hospital Fund	5,515,522	.....
Accounts Receivable:		
Due from Other Governmental Agencies	20,278,987	22,596,090
Due from Other Funds	42,295,273	23,190,010
Withheld Income Taxes Receivable	11,500,000	9,189,485
Other (net of allowance for uncollectibles of \$9,782,627) (Note A)	4,172,945	.....
Total Accounts Receivable - Net	78,247,205	54,975,585
Total Current Assets	97,916,222	77,412,469
Other Assets (excluding Capital Projects):		
General Taxes on Real and Personal Property (net of allowance for uncollectibles of \$3,671,762 and \$3,171,200, respectively)	14,502,284	12,683,470
Special Assessments (net of allowance for uncollectibles of \$1,134,921 and \$1,417,550, respectively)	515,446	297,596
Interest on Taxes and Special Assessments	1,788,583	1,512,010
Income Tax Assessments (net of allowance for uncollectibles of \$2,000,000 and \$1,715,000, respectively)	3,055,000	1,900,000
Other Accounts Receivable (net of allowance for uncollectibles of \$32,969,438) (Note A) .....	.....	2,273,231
Imprest Cash	82,000	82,000
Working Capital Advances to Other Funds	898,999	898,999
Land Contracts Receivable	567,485	567,485
Property Held for Sale - at Net Realizable Value	779,990	700,165
Materials and Supplies - at Cost	12,400,484	13,770,619
Advance Rental Account with Detroit-Wayne Joint Building Authority (Note D)	7,663,684	8,695,252
Total Other Assets - Net	42,171,955	43,380,827
Total Assets (excluding Capital Projects)	140,088,177	120,793,296
Capital Projects Assets:		
Cash (including Certificates of Deposit)	57,049,389	67,441,316
Temporary Investments - at Cost and Accrued Interest	9,175,826	653,565
Total Cash and Temporary Investments	66,225,215	68,094,881
Accounts Receivable:		
Due from Other Governmental Agencies	2,060,361	1,604,017
Due from Other Funds	112,197	90,439
Other	1,318	.....
Total Accounts Receivable	2,173,876	1,694,456
Total Capital Projects Assets	68,399,091	69,789,337
Total Assets	\$208,487,268	\$190,582,633

The accompanying notes are an integral part of the financial statements.

The amounts shown for June 30, 1975, in some instances, have been reclassified to conform with classifications adopted in 1976.

EXHIBIT # 2.6

LIABILITIES AND FUND BALANCE	<u>June 30, 1976</u>	<u>June 30, 1975</u>
Liabilities and Fund Balance (excluding Capital Projects):		
Liabilities:		
Tax Anticipation Notes Payable	\$ 40,000,000	\$ 23,000,000
Accounts and Contracts Payable	7,018,296	9,187,719
Accrued Salaries and Wages	10,102,452	10,088,603
Fringe Benefits Payable (Note E)	3,347,136	.....
Payroll Deductions Payable (Note E)	6,926,299	.....
Due to Other Governmental Agencies	3,323,491	2,345,339
Due to Other Funds	15,131,375	4,586,801
Due to Policemen and Firemen Retirement System	16,992,078	11,700,000
Undistributed Tax Receipts	36,496	677,246
Deposits from Vendors and Customers	1,205,754	1,233,844
Taxes Collected in Advance	1,611,784	796,790
Income Tax Refunds in Process	5,198,264	3,638,899
Condemnation Awards Payable (Note E) . . . . .	.....	500,996
Matured Bonds and Interest Payable	53,288	817,633
Other Liabilities	1,521,957	951,694
Total Liabilities	<u>112,488,670</u>	<u>69,525,564</u>
Contingent Liabilities (Note H)		
Fund Balance (excluding Capital Projects) (Exhibit A-2)	<u>27,599,507</u>	<u>51,267,732</u>
Total Liabilities and Fund Balance (excluding Capital Projects)	<u>140,088,177</u>	<u>120,793,296</u>
Capital Projects:		
Liabilities:		
Accounts and Contracts Payable	3,279,087	1,964,806
Accrued Salaries and Wages	90,305	340,292
Due to Other Governmental Agencies . . . . .	.....	254,902
Due to Other Funds	1,554,210	790,726
Deposits from Vendors and Customers	52,469	.....
Total Capital Projects Liabilities	<u>4,976,071</u>	<u>3,350,726</u>
Fund Balance (Exhibit A-2)	<u>63,423,020</u>	<u>66,438,611</u>
Total Capital Projects Liabilities and Fund Balance	<u>68,399,091</u>	<u>69,789,337</u>
Total Liabilities and Fund Balance	<u>\$208,487,268</u>	<u>\$190,582,633</u>

EXHIBIT # 2.6

**BALANCE SHEETS
PROPERTY TAXES AND SPECIAL ASSESSMENTS RECEIVABLE**

Property taxes of the City of Detroit and the Detroit School District are billed, collected, and accounted for together by the City Treasurer. Collections, cancellations, and adjustments are prorated to these taxing units according to their respective tax levies. Property taxes receivable (Exhibit W-3) and changes in property taxes receivable (Exhibit W-4) do not include taxes of the Detroit School District.

Changes in special assessments receivable of the General Fund and Special Assessment Funds for the year ended June 30, 1976 are shown in Exhibit W-6.

The special assessments receivable of the General Fund, \$1,650,367, consisted of \$1,411,732 past due at June 30, 1976, and \$238,635 due after June 30, 1976.

Delinquent property taxes and collections thereof for the ten years 1966-67 through 1975-76 are included in Exhibit X-2. A comparison of tax levies with collections for these years is shown in Exhibit X-3.

Collections on the current tax levy during the year 1975-76 were 95.48% of the levy.

Other tax data for the years 1966-67 through 1976-77 are in Exhibit X-1.

PROPERTIES HELD FOR SALE

General Fund equities in property held for sale are shown at net realizable value and amounted to \$779,990 at June 30, 1976.

Land contracts receivable represent the uncollected balances on sale of property, and are shown in the balance sheet of the General Fund in the amount of \$567,485.

MATERIALS AND SUPPLIES

Material and supplies of the General Fund amounted to \$12,400,484 at June 30, 1976, compared with \$13,770,619 at June 30, 1975. The inventories of the larger departments are stated at average cost, and were compiled from perpetual inventory records which are adjusted by periodic physical inventories. Other departmental inventories are largely estimates of quantities and costs as of June 30, 1976, based on physical inventories taken at various dates.

TABLE #2.8
SHORT-TERM DEBT
(\$ Millions)

Year	TAN	RAN	BAN
1970	20	-	-
1971	15	-	-
1972	23	-	-
1973	10	-	-
1974	0	-	-
1975	23	-	-
1976	40	-	-
1977	0	-	-
1978	0	-	-
Total	$\Sigma = 131.0$	$\bar{x} = 14.6$	

liabilities keeps the budget balanced.

There is an additional explanation for Detroit's reliance on other forms of revenues than short-term debt. The political situation is raw; there are very strained relations between the City of Detroit and the State of Michigan. The bankers seem to want collateral in two forms: (1) that the state back Detroit by giving more direct aid to the city; and (2) some feeling that the state would intervene further if Detroit were ever in the position of having to default on its loans from the banks.

The friction between city and state undermines the flow of funds from the private sector banks to the city.⁸ Similar to New York City, Detroit is a large, Democratic

⁸Ellen Grzech, "Detroit Banks Relent, Buy City Tax Anticipation Notes," Detroit Free Press, 6 September 1976, p. 3A.

city. The rest of the State of Michigan is rural, agricultural Republican. The way of life is so vastly different that it is sometimes difficult to understand and empathize with the woes of a big, hustling city.

The major problem, however, is the city's inability to forecast correctly. Revenues and Expenses are not even budgeted to match. Detroit is living on future fiscal years' income. The cycle, if not broken, geometrically increases the accumulating deficit. This cash flow problem further antagonizes the banks who, behind the scenes, probably pressure the governor and the state legislature. On top of strained relations between city and state, the critical problem in forecasting is the relationship between federal and municipal levels. Transfers from the Federal Government are clearly at fault. The city should be aware of the pattern of intergovernmental transfers. Either estimates should be drastically altered, or large enough reserves should be established in order to cope with the pattern. The problem then may boil down to politics again. Services promised to citizens may be too extravagant for taxes and reasonable transfers.

Another problem is the matter of the Census. The city claims its inhabitants are undercounted.⁹ Low-income citizens are precisely the ones who most heavily rely on

⁹William Dunn and Robert Ankeney, "City Sue Census Bureau," Detroit News, 3 April 1980.

government programs. If the count is inaccurate, more citizens than provided for demand and receive the stated services, immediately causing a Revenue deficit. The unreliability of the Census is more fully discussed in Chapter IV, "Incongruities Between Census Data and Audit Data."

CHAPTER 3

CASE STUDY: BOSTON, MASSACHUSETTS

Reconciling the accounts published in the Annual Audit Reports presents a less than solvent image of Boston. The Current Account records a deficit throughout the seven-year time series. When disaggregated, the Current Account shows deficits in two subsidiary accounts--Tax and Expense. The Tax problem is the result of projecting more revenues than actually receiving. The delinquency in Abatements stems from an outdated statute, which constrains Boston to reserving only 5 to 6 percent for Abatements, thus automatically causing a deficit because the historical percentage is much higher. Also problematic to the Tax component is the underreserving for delinquencies in the collection of Property Taxes. Boston's Tax problem on the Revenue side is worsened by the accumulating deficit on the Expense side. Budgets are expanded without additional Revenue.

To understand both Revenue and Expense deficits, an analysis of the Current Account begins with reconciling Fiscal Year 1976 in depth. As with Detroit, the Current Account analysis will be expanded over the seven-year time series to see the worsening position of the Tax and Expense deficits. The "Analysis of Changes in Fund Balances" of the

Annual Financial Report, Exhibit #3.1, reports additions of \$22,289,425 and deductions of \$7,728,056 for an ending balance of \$38,341,718.¹ There are six accounts reporting the additions that create a surplus balance for Boston's General Fund--a much more positive position than seen in Detroit's General Fund deficit--of over \$38 million. How is Boston different? Are these six reconciled accounts truthful? The following analysis of Expenses and Revenues will trace the development of these accounts, testing the surplus position of Boston's flow of funds.

The City of Boston maintains its books on a modified accrual basis of accounting (see Appendix B). Taxes are credited to Revenue when levied with a reserve for Abate-ments. Other Revenue is recorded when received. Expenses are incurred when transacted. The most significant feature is the treatment of deficits. They are treated as assets rather than charges against surplus. As will be discussed in the Revenue section under Tax, this biases the report to

¹Only one problem occurred with the data collected from the Annual Financial Reports of Boston. The ending of the Fiscal Year was changed from December 31 to June 30 in 1973. In its initial year, the city lengthened the reporting period to eighteen months, thus beginning on January 1, 1973, and ending on June 30, 1974. The problem impinging on time series analysis is that this one fiscal year may skew averages inordinately high or low. Carefully watching for this change also involved scrutiny in FY 1975 for overlapping effects. It is common knowledge that changing the fiscal year leads to balancing the budget because the city can claim the entire levies of two fiscal years but only reports expenses from one, thereby washing the slate.

EXHIBIT #3.1
ANALYSIS OF CHANGES IN FUND BALANCES

City of Boston and County of Suffolk
GENERAL REVENUE FUNDS
Analysis of Changes in Fund Balances
Year Ended June 30, 1976

GENERAL REVENUE FUNDS		
Fund Balance, June 30, 1975		\$23,780,345
Additions:		
Actual Revenues Over Estimates (Exhibit B-2)	\$12,717,079	
1974 School Committee Appropriation Balance (Schedule B-1)	32,817	
Tax Title Abatements (Schedule B-7)	3,516,571	
Reinstated Taxes (Schedule B-7)	130,876	
Tax Title Receipts (Net of Refunds of \$139,670) (Schedule B-7)	5,110,053	
Tax Possession Receipts (Schedule B-8)	716,026	
	22,289,425	
		\$16,069,774
Deductions:		
Taxes Transferred to Tax Titles (Schedule B-7)		7,728,056
Fund Balance, June 30, 1976 (Exhibit B-1) (Note 1)		\$28,311,718

a very great and grave extent.

Expenses

Boston's Expense statement is more detailed than Detroit's by providing statistics on money transfers to/from the General Fund to/from the other seven funds. Table #3.1, "Statement of Appropriations and Expenditures, 1976," shows the Current Account deficit to be \$20,730,129. This net includes the appropriations, expenditures, and transfers. Although it is more detailed, it can confuse the assessment of managerial skills. The transfer transactions cloud the bottom line of Expenses by making up for the over-spending with surplus elsewhere. Table #3.2, "Expense Deficit Work sheet, 1970-1977," gives the statistics for a clear view of managerial spending. As can easily be seen, these figures are quite different from what Boston states as its surplus/deficit-operating deficit in Table #3.3.

TABLE #3.2
EXPENSE DEFICIT WORKSHEET, 1970-1977
(Dollars in Millions)

Fiscal Year	Estimate	Actual	Surplus/(Deficit)
1970	357.7	353.6	4.1
1971	410.0	404.0	6.0
1972	473.1	466.2	6.9
1973-1974	726.3	729.1	(2.8)
1975	522.8	540.9	(18.1)
1976	602.8	628.2	(25.4)
1977	644.6	639.5	5.1

TABLE #3.1
STATEMENT OF APPROPRIATIONS AND EXPENDITURES, 1976
(Dollars)

ITEM	Appropriations	Expenditures	Net #1 Budget Net	Other Revenue Sources		
				1975 Balance	Transfers To (From)	Total
<u>City Budget</u>						
General Government	31,718,658	36,313,546	(4,594,888)	2,790,533	2,645,427	5,435,960
Public Safety	88,814,737	105,442,513	(16,627,776)	1,171,766	8,457,048	9,628,814
Inspection	1,835,608	1,766,209	69,399	103,464	0	103,464
Public Works	13,192,544	13,948,502	(755,958)	694,208	2,125,205	2,819,413
Health and Hospitals	51,743,343	49,906,441	1,836,902	630,189	0	630,189
Veterans' Services	6,894,173	3,343,679	3,550,494	0	0	0
Libraries	9,452,261	9,194,342	257,919	7,547	240,402	247,949
Parks and Recreation	6,590,631	7,822,090	(1,231,459)	426,510	0	426,510
Miscellaneous	37,388,085	26,465,111	10,922,974	1,878,623	(16,308,378)	(14,429,755)
Total City Budget	247,630,040	254,202,433	(6,572,393)	7,702,840	(2,840,296)	4,862,544
<u>School Budget¹</u>						
School Budget ¹	147,230,789	171,099,048	(23,868,289)	381,121	7,342,183	7,723,304
County Budget	26,501,139	28,085,461	(1,584,322)	98,459	(480,493)	(382,034)
Federal Revenue Sharing	41,000,000	42,046,359	(1,046,359)	1,017,393	750,000	1,767,393
Debt Requirements ²	47,067,733	55,587,607	(8,519,874)	50,753	7,788,907	7,839,660
Contributions to Retirement Funds ³	41,365,928	41,840,585	(474,657)	16,569,880	(16,095,223)	474,657
State, MDC, MBTA Assessments ⁴	36,615,596	35,336,102	1,279,494	(230,514)	(1,139,916)	(1,370,430)
Deficit Appropriations ⁵	15,430,245	0	15,430,245	0	(15,430,245)	(15,430,245)
Total Appropriations, Expenditures, and Balances	602,841,470	628,197,595	(25,356,125)	25,589,932	(20,105,083)	5,484,849

Source: City of Boston, General Revenue Funds Audit, Exhibit B-3, pp. 20-21.

¹City Council Appropriations, School Committee Appropriations, Chapter 224, Acts of 1936.

²Debt Requirements Appropriated under Chapter 44, Section 16, of General Laws.

³Contribution to Retirement Fund Appropriated under Chapter 32, Section 22, of General Laws.

TABLE #3.1

ITEM	Net #2	Balances June 30, 1976	Net #3
	Budget Net and Other Revenue	Carried Forward to 1977	Unexpended (Overexpended) ⁶
<u>City Budget</u>			
General Government	841,072	536,860	304,212
Public Safety	(6,998,962)	0	(6,998,962)
Inspection	172,863	87,087	85,776
Public Works	2,063,455	33,386	2,030,069
Health and Hospitals	2,467,091	64,561	2,402,530
Veterans' Services	3,550,494	0	3,550,494
Libraries	505,868	0	505,868
Parks and Recreation	(804,949)	58,258	(863,207)
Miscellaneous	(3,506,781)	0	(3,506,781)
Total City Budget	(1,709,849)	780,152	(2,490,001)
School Budget ¹	(16,144,985)	25,235	(16,170,220)
County Budget	(1,966,356)	0	(1,966,356)
Federal Revenue Sharing	720,934	100,734	620,200
Debt Requirements ²	(680,214)	43,962	(724,176)
Contributions to Retirement Funds ³	0	0	0
State, MDC, MBTA Assessments ⁴	(90,,936)	(90,936)	0
Deficit Appropriations ⁵	0	0	0
Total Appropriations, Expenditures, and Balances	(19,871,276)	859,147	(20,730,129) ⁶
⁴ Assessment Appropriated under Chapter 59, Section 2, of General Laws.			
⁵ Prior Year Deficits Raised in 1976 Taxes			
⁶ Balance June 30, 1976 (Overexpended) (20,730,423)			
+ Unliquidated Reserves Prior Year Balances 638,034			
- Federal Revenue Sharing Unexpended Balances (620,300)			
Fiscal 1976 Operating Deficit to be Raised in 1977 Taxes (20,712,689)			

In FY 1976, Boston's managers are spending 3 percent more of the year's total budget than appropriated, easily the beginning or continuance of an accumulating deficit. Footnote 1 of Table #3.1 shows over \$20 million of FY 1976's deficit to be raised in FY 1977's taxes. This deficit of \$20 million has claim to the very first \$20 million of taxes collected. What happens to the \$20 million in services that were originally matched to these revenues? They are still performed, and then, as a FY 1977 deficit, they are paid for by FY 1978. If Boston goes by the FY 1977 budget without any overspending, then, the \$20 million deficit remains just that and is "rolled over" and paid by yearly TANs. It continues and accumulates until Expenses are cut sufficiently below Revenues.

Contingent liabilities pose no commanding threat as they do in Detroit. Reserves called "encumbrances" are properly used. More importantly, Boston is not faced with the frequency and magnitude of Detroit's lawsuits. However, Boston's spin-off Water and Sewer authorities run deficits with the following statistics:²

<u>Year</u>	<u>\$ Millions</u>
1970	0
1971	(3.0)
1972	(7.3)
1973-1974	(5.2)
1975	0

²Statistics are culled from State Tax Recapitulation sheets. They cannot be found in Annual Financial Reports.

<u>Year</u>	<u>\$ Millions</u>
1976	(3.7)
1977	(5.6)

Water and Sewer are considered independent of Boston although the funds flow through Boston's account. A Water and Sewer deficit is redeemed by appropriations from Boston. The identification of Water and Sewer as separate authorities is considered to alleviate some of the debt and deficit of the City of Boston. Without Water and Sewer, Boston has less accumulating deficit on its books and less total debt, thus creating a more creditworthy image. Ultimately, the City of Boston is responsible for these deficits.

Table #3.3, "Summary of Expense Deficits, 1970-1977," compares the deficits calculated here as prescribed in the framework with the deficits listed by Boston. The numbers are not similar, especially when Water and Sewer deficits are added. Because of the independent authority status, quite legally, they are not included. However, Boston is liable. The Operating deficit is later used by Boston as its bottom line Current Account, including all the Revenue deficits such as abatements and delinquencies. This is an important point to remember while reading the Revenue section. The Operating deficits become the one statistic used for both Revenues and Expenses.

The addition of Water and Sewer deficits tempers the Expenses surpluses in Table #3.3. A build-up in total Expense deficits begins in 1972 with only a \$0.4 million

TABLE #3.3
SUMMARY OF EXPENSE DEFICITS, 1970-1977
(Dollars in Millions)

	1970	1971	1972	1973-1974	1975	1976	1977
EXPENSE							
Calculated Estimate-Actual ¹	4.1	6.0	6.9	(2.8)	(18.1)	(25.4)	5.1
Water and Sewer ²	-	(3.0)	(7.3)	(5.2)	-	(3.7)	(5.6)
Total	4.1	3.0	(0.4)	(8.0)	(18.1)	(29.1)	(0.5)
Annual Operating Report	-	(27.5)	(6.9)	8.4	6.2	(20.7)	(17.7)
Overlay (Asset)	(4.1)	(6.0)	-	-	(18.3)	(20.3)	(25.4)
Total	(4.1)	(33.5)	(6.9)	8.4	(12.1)	(41.0)	(43.1)

¹Table #3.2.

²Tax Recapitulation Sheets.

deficit. By 1976, a \$29.1 million deficit is reported. Investigation shows two accounts contributing almost entirely to the deficit. The Police Department overspent \$7 million, and the School Committee, although an independent authority, overspent and charged Boston \$16 million (Table #3.1). The independent authorities, like the School Committee, make the city look better by not adding to the amount of outstanding debt. This allows the city to borrow money for other things even though Boston is ultimately liable for the school debt as it is ultimately liable for the school deficit of \$16 million.

If the School Committee experienced a \$16 million deficit in FY 1976, why did the General Fund receive a transfer from the School Committee of \$32,817 from FY 1974 (see Exhibit #3.1)? This is an example of "lag" in accounting. Fiscal Year 1976 should be recognizing a \$16 million deficit; FY 1974 should have recognized a \$32,817 surplus. In municipal fund accounting, non-enterprise funds transfer all surpluses to the General Fund at the close of the fiscal year. In this case, the School Committee netted a surplus for FY 1974, but the General Fund could not record the receipt until FY 1976. The lag is concurrent with other findings that accounts do not clear for at least two years. The explanation for this focuses on the ill-conceived timing aspect of budgeting. It was not made known until the end to FY 1974 what the status of the account was. The FY 1975

budget, however, had already been made and been passed by the appropriate political body. Thus, the surplus could not be recorded until two years past the original fiscal year although the use of funds experienced no constraints.

In the case of the 1974 School Committee, the Boston budget can easily absorb the surplus because of the FY 1976 \$16 million deficit. In FY 1976 financial statements, which recorded the surplus, the School Committee reports a deficit of \$16,170,190 in operations, overexpending appropriations, and a \$7,308,482 deficit in revenues. Together, a deficit \$23,478,672 for the School Committee is created. This will be quite a burden for FY 1978.

Revenues

Although Boston's Expense exhibits are more detailed than Detroit's, the reverse is true for Revenues. Table #3.4, "Statement of Revenues: Estimated versus Actual, 1976," was compiled with statistics from several exhibits in the Annual Financial Report. As Revenues as analyzed, it becomes apparent that it is to Boston's advantage to have financial statistics scattered across many schedules and exhibits. The combined collection of Revenue accounts does not recognize a deficit. Table #3.4 shows a surplus of over \$12 million. Research shows the Revenue accounts to be misrepresented similar to the School account under Expenses. The two-year lag becomes very evident in the Tax account.

TABLE #3.4
STATEMENT OF REVENUES: ESTIMATED VERSUS ACTUAL, 1976

Source	Estimate	Actual Revenues	Actual Revenues Over (Under) Estimates
TAXES			
Excise Taxes	9,821,122	11,503,901	1,682,779
Property Taxes	328,823,580	328,912,724	89,144
Overpayment of Taxes Prior Years		1,685,671	1,685,671
Total Taxes	338,644,702	342,102,296	3,457,594
TRANSFERS			
Transfers State for City and General Purposes	34,606,029	35,805,828	1,199,799
County Purposes	1,464,632	677,264	(787,368)
School Purposes	102,273,413	95,510,924	(6,762,489)
Total State	138,344,074	131,994,016	(6,350,058)
Transfers Federal			
Local	42,671,040	42,671,040	0
Other	0	16,620,540	16,620,540
Total Federal	42,671,040	59,291,580	16,620,540
Total Transfer	181,015,114	191,285,596	10,270,482
DEBT	NA	NA	NA
OTHER (Hospital fees, etc.)			
Departmental	76,762,886	75,781,889	(980,997)
Other	6,418,768	6,418,768	0
Total Other	83,181,654	82,200,657	(980,997)
TOTAL REVENUES	602,841,470	615,588,549	12,747,079

Property Tax

The Property Tax account in Table #3.4 lists a surplus of \$89,144. The Modified Accrual basis stipulates that taxes be recorded as received when levied. The Annual Financial Report does not discuss the reliability of these receivables. Given that the Property Tax is the single largest source of funds, the importance of accurate forecasting and reserving cannot be overstated. Investors such as investment and commercial banks place heavy pressure on accurate budgeting. Although a deficit in this account is not recorded, component analysis, unfortunately, uncovers a deficit that never surfaces. Accrual accounting creates and continues this situation. Information regarding the reliability of the receivables is covered up. Specifically:

- (1) the historical collection rate as compared to the accrued levy,
- (2) the adequacy of the reserves to cover abatements and bad debts, and
- (3) the time factor involved in recognizing these losses.

If the Fund Balance does not reconcile these facts, it is useless in assessing the financial soundness of a city.

Before examining the specific accounts, an explanation of how Boston creates the tax levy is necessary. The city first estimates its needs for the next fiscal year and sets a budget. Since these future expenses must be met by equal revenues, the total budget amount becomes the Net Levy. The levy is the net because it is expected that some

taxes will be abated, and some will be delinquent. The proportion used to estimate abatements is governed by state law; the proportion that should be reserved for uncollected taxes is not defined by state law.

The abatement proportion is termed the Overlay Reserve and is added to the Net Levy to obtain the Gross Levy. The Gross Levy is then divided by the total sum value of assessed land to determine the tax rate. It is now expected and hoped that the default in payment is less than or equal to the estimated Overlay Reserve. If it is not, the city experiences a deficit in Revenues. Boston is unique in its policy regarding the property tax abatements. The Massachusetts legislature constrains Boston's balance sheet by placing a minimum-maximum reserve of 5 to 6 percent of the levy for abatements.³ This is "overlaid" the Revenue needed; hence, the term Overlay Reserve.

Comparison between the mandatory 5 to 6 percent and the historical rate of abatements shows the reserve to be insufficient (Table #3.5). The most reliable data, FYs 1970 to 1975, range the percentage of actual abatement to Property Tax levy from 6.25 percent in 1970 to 8.77 percent in 1975, all exceeding the maximum 6 percent Overlay Reserve and increasing yearly. This Overlay Deficit (the difference between the actual and the reserve) is not evidenced

³Commonwealth of Massachusetts, Funding Loan Law, Chapter 17, Section 5, Acts of 1957.

TABLE #3.5
ACTUAL ABATEMENTS¹

Fiscal Year	\$ Abatements	\$ Overlay Reserve ²	\$ Overlay Deficit	% Abatements/Levy	% Increment
1970	15,857,140*	14,435,389	1,421,751*	6.25	
1971	20,582,792**	13,989,372	6,967,595**	7.00	0.75)
1972	28,722,914	16,215,466	12,507,448	8.51	1.51) $\bar{x} =$
1973-1974	44,765,507	29,241,371	15,524,136	8.63	0.12) 0.63%
1975	30,773,439	19,864,927	10,908,512	8.77	lag-free 0.14)
1976	26,518,758	23,952,559	2,566,199	7.39	(1.38)
1977	18,190,643	22,722,452	4,531,809	4.00	(3.39)

¹Data are from Fiscal Year 1977 audit, except *Fiscal Year 1975 and **Fiscal Year 1976. Data are as reported; historical averages are applied only to Fiscal Years 1976 and 1977 in lower half of Table.
²Funding Loan Law, Chapter 717, Section 5, Acts of 1957, require a reserve of 5% to 6%.

Fiscal Year	Adjusted					
	% FY-1+0.14	Case #1		% FY-1+0.63	Case #2	
		\$ Abatements	\$ Overlay Deficit		\$ Abatements	\$ Overlay Deficit
1976	8.91	31,994,980	8,042,421	9.40	33,754,525	9,801,966
1977	9.15	41,568,237	18,845,784	10.03	45,566,056	22,843,604

There is a steady increase in actual abatements as a percentage of the property tax levy from Fiscal Year 1970 to Fiscal Year 1975. The following two years see a decrease in FY 1976 and a very steep decline in FY 1977. The two-year lag is clearly seen; thus, FYs 1976 and 1977 are discarded in favor of predictions based on historical trends. Because the increment fluctuates before FY 1975, the last lag-free year before the lag, two estimates are created. Case #1, the best case for Boston, is one in which the last lag-free year's increment of 0.14 is added to the bases of FYs 1975 and 1976 to achieve adjusted FYs 1976 and 1977 figures. Because the 0.14 increment is in the smaller domain of increments, it may under-reserve. A more conservative projection uses the average of all the increments, thus allowing for the worst of situations. Case #2 employs the average of 0.63 to be added to the bases of FYs 1975 and 1976.

in the Fund Balance (Exhibit #3.1) nor the Statement of Revenues (Table #3.4) because it is still part of the Property Tax receivable, money recorded when levied.

Table #3.5 highlights the concept of time lags in the accounting system. It takes a few years for a specific Revenue item to be as collected as it will historically get. As we have seen, accounts take two years to clear. Thus, any financial analysis should disregard the present fiscal year's collection record and the preceding year's as well. A historical average of abatements in Table #3.5 is created and applied to the lagged year to obtain estimates of what might be collected. This can help in forecasting of budgets and assessing the financial assets of cities. Table #3.5 shows two different ways to project the deficit for best and worst cases. The method as defined in Table #3.5 sets parameters for the ultimate Tax and Revenue deficits.

Table #3.6 displays similar historical analysis for uncollected and delinquent taxes. The years 1970 to 1975 show a range from 0.92 percent to 3.11 percent of the Property Tax levy, steadily increasing throughout the time period. The deficit is made up of delinquent tax bills attached to properties that are, whatever their worth, asset-based. These are transferred back to Property Tax receivables as the Tax Title Abatement (discussed later). Thus, the Balance Sheet is affected negatively. The deficit due to uncollected and unsold taxes is material in an

TABLE #3.6
ACTUAL UNCOLLECTED TAXES

Fiscal Year	\$ Property Tax Levy (PTL)	\$ Transfer to Tax Title (TTT)	\$ Collected (C)	\$ Sold (S)	\$ UNCS (TTT-C-S)	Actual	
						% UNCS/PTL	Increment
1970	253,928,157	4,357,742	2,000,584	138,740	2,357,158	0.92)	$\bar{x} =$ (0.13) 1.42 (0.32) $\bar{x} =$ 0.55 (1.95) (2.59)
1971	294,271,134	5,355,662	2,900,454	105,677	2,349,531	0.79)	
1972	338,279,239	6,747,466	3,080,470	129,862	3,753,528	1.11)	
1973-1974	518,938,517	10,509,324	4,040,433	428,577	6,040,314	1.16)	
1975	351,074,433	16,273,993	5,017,551	318,325	10,938,117	3.11)	
1976	359,090,688	7,728,056	5,140,053	716,026	1,871,977	0.52)	
1977	454,297,666	13,334,511	3,955,041	610,761	8,768,709	1.93	

Fiscal Year	Adjusted			
	Case #1 % UNCS	Case #1 \$ UNCS	Case #2 % FY-1+0.55	Case #2 \$ UNCS
1976	1.42	5,099,087	3.66	13,142,719
1977	1.42	6,451,027	4.21	19,125,931

The trend of the UNCS in the lag-free years is increasing overall but with a back-and-forth movement which gives a jagged appearance to a trendline. Because of this, using the average to project Fiscal Years 1976 and 1977 seems most prudent as it will continue the direction of movement at a rate which best represents all types of behavior. Two averages are considered: Case #1 represents the average, 1.42%, UNCS per property tax level; Case #2 applies an average, 0.55%, of the increment to the immediately past Fiscal Year UNCS base. Both cases evince deficits; the range showing UNCS in Case #2 over twice that of Case #1.

accounting sense and should be reserved. The combined deficit of UNCS and the Overlay Deficit serves to diminish the \$12,747,079 surplus of Actual Revenues over Estimates.

Boston recognizes to a small extent the tax delinquency problem. In the Analysis of Changes in Fund Balances (Exhibit #3.1), there is a set of accounts to process these transactions. This set performs the functions of recognizing losses and adding back profit from collection of delinquent tax bills and sale of foreclosed property. Exhibit #3.2, "Analysis of Tax Title Account," deals with the collection of delinquencies while Exhibit #3.3, "Analysis of Tax Possessions Account," deals with the sale of properties when they are finally foreclosed. We want to be able ultimately to project what is not collected and not sold (see Table #3.6).

Tax Title accepts \$7,728,056 from delinquent tax bills from the Property Tax Receivable account (Exhibits #3.1 and 3.2). The tax bills may be dated as much as six years late since the state does not regulate the maximum time a property can be counted as a receivable. Also unregulated is the time of stay within the Tax Title Account, thus, there is no time definition for moving the property from Tax Title to Tax Possession. This confuses the true assessment of Boston's fiscal worth as it may overestimate or even underestimate (tax bills held in Tax Title not ready for sale) Property Tax assets.

EXHIBIT # 3.2
ANALYSIS OF TAX TITLE ACCOUNT

City of Boston and County of Suffolk
GENERAL REVENUE FUNDS
Analysis of Tax Title Account (Note 1)
Year Ended June 30, 1976

Balance, June 30, 1975		<u>\$26,111,443</u>
Additions:		
Transfers from:		
Tax Accounts (Exhibit B-1, Schedule B-5)		7,728,056
Building Razing Charges (Net of Abated Charges of \$5,710)	\$621,387	
Sidewalk Assessment	1,271	
	622,658	
Overpayments of Tax Titles		9,205
Costs and Interest Billed to Property Owners	1,008,104	
Less: Cancelled Costs and Interest	102,096	
	606,008	
		<u>\$35,077,370</u>
Deductions:		
Collections (Net of Refunds of \$139,670) (Exhibit B-4)		\$5,140,053
Abatements (Exhibit B-4)		- 3,516,574
Reinstatements to Tax Accounts (Exhibit B-1, Schedule B-5)		136,876
Reinstated to Sidewalk Assessments		20
		<u>\$26,233,847</u>

NOTE 1. The Tax Title Account reflects taxes and other charges receivable from properties for which the city has taken title in accordance with section 53 of Chapter 60 of the General Laws.

EXHIBIT #3.3

ANALYSIS OF TAX POSSESSIONS ACCOUNT

City of Boston and County of Suffolk
GENERAL REVENUE FUNDS
 Analysis of Tax Possessions Account (Note 1)
 Year Ended June 30, 1976

Balance, June 30, 1975		<u>\$7,081,983</u>
Deductions:		
Receipts (Exhibit B-1)		716,026
Loss on Sales of Foreclosed Property	\$728,038	
Less: Profit on Sales of Foreclosed Property	<u>50,920</u>	
		<u>677,118</u>
Balance, June 30, 1976 (Schedule B-3)		<u><u>\$5,688,839</u></u>

NOTE 1. The Tax Possessions Account reflects taxes and other charges receivable from properties which have been foreclosed in accordance with section 65 of Chapter 60 of the General Laws.

What can happen to a tax bill once it is transferred to Tax Title? Three possibilities exist: (1) the city collects the delinquent taxes; (2) the taxes on individual property are abated entirely; or (3) reinstatements, error corrections due to bookkeeping entries, are made. Representing actual cash, possibilities #1 and #3 are straightforward; #2 requires explanation. If recovery of tax bills or sale is unlikely, the total bill can be abated, and the property is transferred back to the General Fund account, thereby inflating assets by giving the appearance of potential current fiscal year tax receipts. If it were at all possible that the property could be packaged for sale, it probably would have been transferred to the Tax Possessions Account.

It should be noted that transferring the property back to the Property Tax receivables allows the city to borrow more funds since their assets on the Balance Sheet have, indeed, increased. It can also be argued that this is a fair representation since land does not depreciate and can be sold and, since the Tax Possessions Account is overloaded with a property backlog of up to six years, in all likelihood, it will be sold at some time. If it remains in the Tax Possessions or even Tax Title Account, it is written off. The only way to reflect the asset nature of the property properly is to debit it to Property Tax receivables as it waits for a more appropriate time to be sold.

The only material asset in the Tax Title set of accounts is the Collections account of \$5,140,053 (cash outflow). The increase in transfers to the Tax Title Account is:

Balance June 30, 1976	\$35,077,370
Balance June 30, 1975	<u>\$26,111,443</u>
Net increase (inflow)	\$ 8,965,027

The ratio of cash outflows to inflows is 57 percent, or, inversely, 43 percent of transferred funds remain uncollected. A survey of the audits of other fiscal years for Boston shows a higher percentage of uncollected taxes than FY 1976.

<u>Fiscal Year</u>	<u>Percentages Transferred Uncollected</u>	<u>Collected</u>
1970	61	39
1971	54	46
1973-1974	67	33
1975	73	27
1976	43	57
1977	73	27

These statistics portend an unpromising future for the properties that have been written off. It is unlikely that they will be packaged and sold within a reasonable time frame. The effect on the Balance Sheet and Fund Balance account is negative. First, the taxes written off were not reserved; it can be assumed that the money had been appropriated and used in its respective fiscal year. Second, even with selling foreclosed property to recoup these unreserved substantial losses, amounts remained uncollected (see data above and Table #3.6). These differences must be made up in other

ways: sale of other assets, borrowing short-term loans, or stalling vendor payments. Account reconciliation of this is shown later.

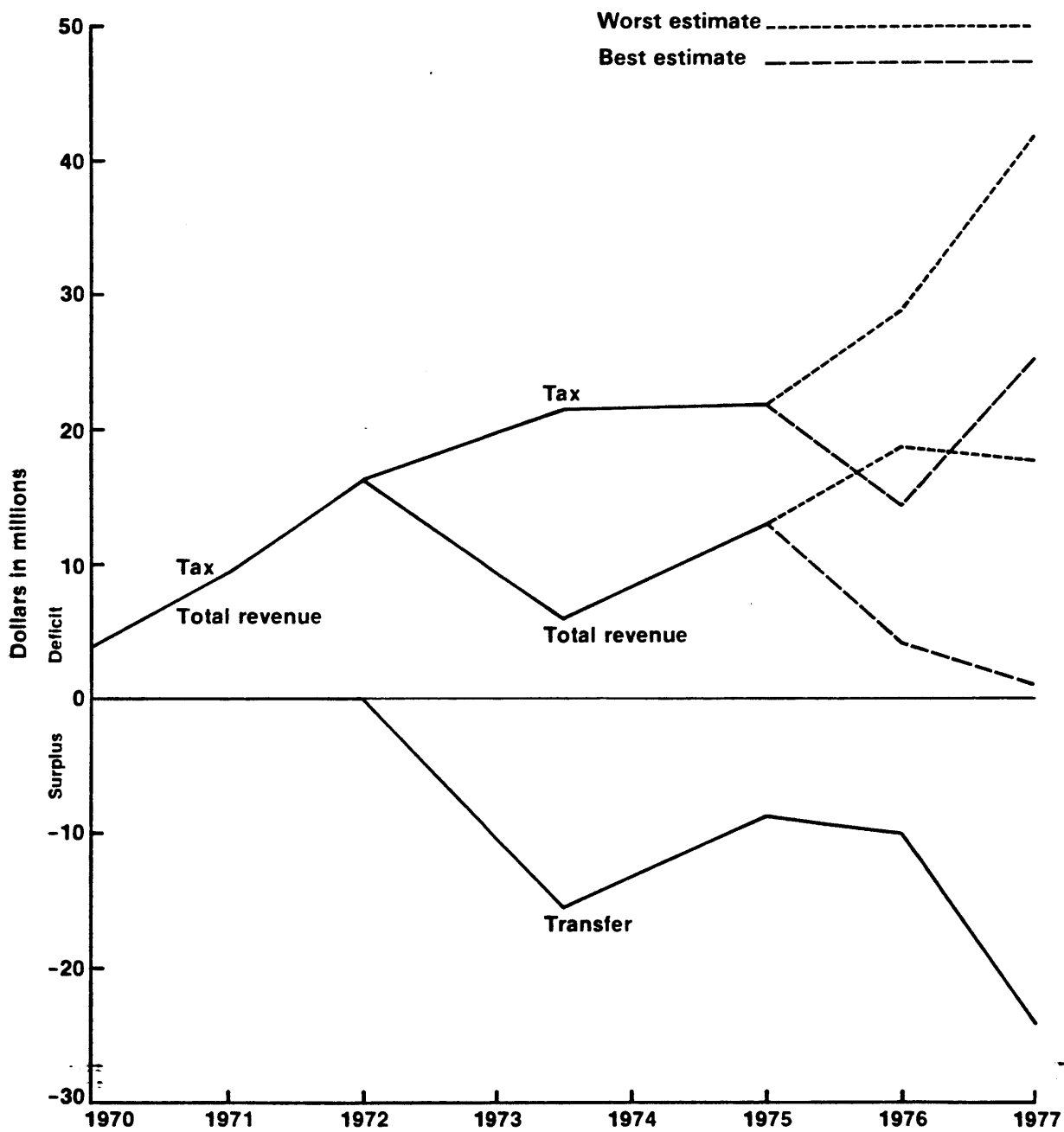
Exhibit #3.3 lists receipts of \$716,026 on sale of foreclosed property. This is deceiving; it is correct that the original tax bill had been written off and that this is the money gained through sale later. The problem is that it reflects on the marketability of these properties. To be a stable, reliable source of Revenue, the Property Tax must be able to recoup its delinquencies in other ways. If Boston can only obtain 55 percent of the delinquent tax bills through sale, the apportionment of money in the original fiscal year was based on false claims (Table #3.7).

TABLE #3.7
LOSS ON SALE OF PROPERTY, 1976

Receipts	\$ 716,026
Loss	<u>\$ 728,038</u>
Cost of Goods Sold	\$ 1,444,064
Cost of Goods Sold	\$ 1,444,064
Receipts	\$ (716,026)
Profit	<u>\$ (50,920)</u>
Loss	\$ 677,118
Loss/COGS	47%
Balance 1975	\$ 7,081,983
Balance 1976	<u>\$ 5,688,839</u>
Net Change	<u>\$ (1,393,142)</u>
Receipts/Net Change	55%

In summarizing the Revenue deficits, Figure #3.1, "Relationship Between Tax and Revenue Deficits," provides a

FIGURE 3.1. Relationship Between Tax and Revenue Deficits: Boston.



graphical view of the relationship from 1970 to 1977. Quite obviously, the total Revenue line shows the average between the Transfer surpluses and Revenue deficits. The Transfers, though, are not high enough to offset the large Tax deficits, thus total Revenue deficits, for the seven years. With the increased deficits provided by Tax deficits--worst, the total deficit is that much worse. The propositions are quite different from the surplus Boston publishes (Table #3.4). Disaggregating the Revenue deficit has allowed us to see that Boston's problem is in Tax collection.

Transfers

Table #3.4 shows the disaggregating of the Transfer component. While state Transfers are \$6,350,058 under the estimate, federal Transfers are \$16,620,540 over the estimate. The federal Transfer creates a total Transfer surplus of \$10,270,482, which makes it the largest contributor to total Revenue surplus of \$12,747,079. Within the state Transfer deficit is the large \$6,762,489 school deficit. Even though the School Committee is an independent authority, its large deficit is ultimately charged to the General Fund as a current Expense. Without disaggregation, the school deficit is missed because of its independent nature.

The \$6,350,058 deficit is of sufficient magnitude to cause concern. The city claims a surplus of \$12,747,079 as total actual Revenue over estimates as seen in Table #3.4

and Exhibit #3.1. A few other deficit accounts of the same \$6 million magnitude of the state Transfers could immediately swing the surplus to a deficit position. This is, indeed, possible because the Transfers deficit is only one percent of total estimated Revenue. A one percent variability in any disaggregated account may not at all be unlikely. On the other hand, the state Transfers account is relatively good since the likelihood exists that the state just has not yet transferred the funds promised to the city. Operating on a Modified Accrual basis, the city cannot recognize the Transfers Revenue, unlike the Property Tax, until it is received. This knowledge renders the Transfers deficit less harmful than a deficit in an accrual account. The weighting of various accounts according to their accounting basis in addition to the deficit magnitude sets one parameter of Fiscal Strain quantification.

Because the federal Transfer surplus is strong at \$16.6 million, the state deficit is easily managed. Departmental fees, e.g., health and hospital fees, are under less than \$1 million. Boston does not have the Transfer problem that Detroit has. Table #3.8 shows surpluses for three of the four years listed. There were no data available for FYs 1970, 1971, and 1972. The federal category has no deficit while two years show minor state deficits.

TABLE #3.8
TRANSFERS 1973-1977

Source	1973-1974	1975	1976	1977
State				
Estimate	108.5	88.5	138.5	109.9
Actual	107.5	97.1	131.9	123.9
Surplus/(Deficit)	(1.0)	8.8	(6.4)	14.9
Federal				
Estimate	29.0	21.0	42.6	16.0
Actual	29.0	21.0	58.0	26.7
Surplus/(Deficit)	0	0	16.6	9.3
Grand Total [Σ = 42.2]	(1.0)	8.8	10.2	24.2

Debt

Unfortunately, this category cannot be calculated because estimate and actual statistics are unavailable in the Annual Reports. Because of this, the General Fund deficit cannot be created as easily as for Detroit (Table #2.3). There, it was shown how the elimination of long-term debt netted the General Fund deficit.

Summary of Revenues and Expenses

Disaggregating the Current Account provided a view of Boston's financial position not readily seen in socio-economic studies. Boston has both Revenue and Expense deficits. The Tax deficit is due solely to underreserving of Abatements and Property Tax delinquencies. Historical precedent shows very precisely what portion of the tax levy to reserve as bad debts. Of course, the State Legislature is

at fault by constraining the abatement reserve to 6 percent. However, this is no surprise to Boston's financial planners. Additional reserves could have been held. The delinquency problem stems from poor enforcement. The upper class that has the money to pay just is not paying. This conclusion would be totally impossible to make from the econometric model correlations. The models projected Fiscal Strain as an association with low-income and non-white populations.

The Expense deficit would also be difficult to project based on demographics. To some extent, Water and Sewer cause Boston additional deficits. Although Water and Sewer are considered independent of Boston, their deficits are redeemed by appropriations from Boston. The identification of Water and Sewer as separate authorities is considered to alleviate both long-term and current deficits of the City of Boston. Without Water and Sewer, Boston has less accumulating deficit in its General Fund and less total debt. Nonetheless, the Water and Sewer deficits are still funded by Boston, documentation of which can be found only on the Tax Recapitulation sheets at the State House and not in the public Annual Reports.

Table #3.9 summarizes all Revenue and Expense deficits. Overlay and UNCS deficits can be calculated in many ways. Two are shown here to display a range from "best" to "worst" of what could happen. Under the best conditions, Boston, in FY 1976, shows a total deficit of \$29.3 million

TABLE #3.9
SUMMARY OF REVENUES AND EXPENSES, 1970-1977
(Dollars in Millions)

	1970	1971	1972	1973- 1974	1975	1976 Best	1976 Worst	1977 Best	1977 Worst	Total Best	Total Worst
EXPENSE											
Estimate-Actual	4.1	6.0	6.9	(2.8)	(18.1)	(25.4)		5.1			
Water and Sewer	-	(3.0)	(7.3)	(5.2)	-	(3.7)		(5.6)			
Total Expense	4.1	3.0	(0.4)	(8.0)	(18.1)	(29.1)	(29.1)	(0.5)	(0.5)		
REVENUE											
Tax	(3.7)	(9.3)	(16.2)	(21.5)	(21.8)	(14.4)	(28.9)	(25.2)	(41.9)		
Overlay	(1.4)	(7.0)	(12.5)	(15.5)	(10.9)	(8.0)	(9.8)	(18.8)	(22.8)		
UNCS	(2.3)	(2.3)	(3.7)	(6.0)	(10.9)	(6.4)	(19.1)	(6.4)	(19.1)		
Transfer	-	-	-	15.6	8.8	10.2	10.2	24.2	24.2		
Debt	-	-	-	-	-	-	-	-	-		
Total Revenue	(3.7)	(9.3)	(16.2)	(5.9)	(13.0)	(4.2)	(18.7)	(1.0)	(17.7)		
TOTAL	0.4	(6.3)	(16.6)	(13.9)	(31.1)	(29.3)	(47.8)	(-1.5)	(18.2)	(98.4)	(133.6)

while the worst increases to \$47.8 million. Fiscal Year 1977 shows best a \$0.5 million deficit and worst a \$18.2 million deficit. The Total Deficit created by reconciling these various accounts is much higher than indicated in any single public document. When calculating deficits for FY 1976 and FY 1977, predictions based on best and worst, scenarios differ by approximately \$14.5 million in FY 1976 and by \$16.7 million in FY 1977. Either case greatly affects the General Fund Balance of the published Annual Report.

How Deficits Are Paid

The easiest way to pay yearly deficits is to undertake TANs, RANs, and BANs. Boston has used this method over the seven-year time span in all three short-term debt forms at a total of \$350 million, an average of \$50 million per year (see Table #3.10).

TABLE #3-10
SHORT-TERM DEBT
(\$ Millions)

Year	TANs	RANs	BANs	Total
1970	-	85	-	
1971	130	-	-	
1972	-	-	-	
1973-1974	-	-	-	
1975	-	-	90	
1976	30	-	-	
1977	-	15	-	
Total	160	100	90	350

Both total and average are much higher than both best and worst cases of total deficit, \$84.8 million best and \$120.0 million worst. If BANs are exercised to net a "current" short-term, that is for Taxes and Transfers only, \$260 million is netted.

Fiscal Year 1971 shows \$130 million in TANs. Further scrutiny of the Annual Report for 1971 uncovers:

Taxes Receivable	\$41 million
Excise Tax Receivable	\$10 million
State School Transfer Receivable	\$14 million
Other Taxes Receivable	<u>\$33 million</u>
Total FY 1971 Receivable	\$98 million

The remaining \$30 million may be a "roll-over" from FY 1970's high \$85 million RANs. Boston uses this form of payment heavily. In FY 1976, this heavy proportion can be seen under the Liabilities category in Exhibit #3.4. Boston also holds \$44 million in Warrants payable, \$2 million in Tax Refunds, and \$1 million in Investment Funds. Although these are FY 1976 charges, Boston will hold payment until FY 1977 with claim on the first portion of taxes to repay FY 1976 debts. These, like short-term notes, are roll-overs. The lag between receiving services and paying for them allows Boston to spend more money than the matching time period permits.

EXHIBIT #3.4

City of Boston and County of Suffolk
GENERAL REVENUE FUNDS
Comparative Balance Sheet

	General Revenue Funds	Federal Revenue Sharing Funds	Total	
			June 30, 1976	June 30, 1975
ASSETS				
Cash on Hand and in Bank (Exhibit B-5) (Note 1)	\$27,820,131	\$2,973,503	\$30,793,634	\$49,067,505
Amounts Due (to) from Federal Revenue Sharing Funds	(7,199,263)	7,199,263		
Amounts Due from Enterprise Funds	20,810,377		20,810,377	5,863,205
Property Taxes Receivable (Schedules B-5 and B-6)	75,712,747		75,712,747	59,788,244
Less: Overlay Reserve for Abatements (Note 2)	(11,219,862)		(11,219,862)	(1,285,271)
Reserve for Uncollected Charges Added to Taxes (Note 3)	(1,589,414)		(1,589,414)	
Accounts Receivable (Schedule B-4)	65,571,742		65,571,742	63,864,670
Less: Amounts Not Available Until Collected	(65,571,742)		(65,571,742)	(63,864,670)
Reimbursements Due from Agency Funds (Exhibit F-1)	21,876		21,876	56,561
Amounts Due (to) from Sinking Funds	34,541		34,541	(6,622)
Prepaid Expenses	392,718		392,718	
Abatements in Excess of Overlay — to Be Raised in Taxes (Schedule B-6) (Notes 2 and 4)	20,336,670		20,336,670	18,332,301
Fiscal 1976 Operating Deficit — to Be Raised in Taxes (Exhibit B-3) (Note 4)	20,712,689		20,712,689	
Total Assets	\$145,833,210	\$10,172,766	\$156,005,976	\$131,815,923
LIABILITIES, RESERVES AND FUND BALANCES				
LIABILITIES				
Tax Anticipation Notes Payable	\$30,000,000		\$30,000,000	
Warrants Payable (Note 5)	44,612,269	\$3,029,875	47,642,144	\$33,320,470
Tax Refunds Payable	2,309,611		2,309,611	4,673,010
Amounts Due Special Revenue Funds	16,742,107		16,742,107	8,017,686
Amounts Due Community Development Block Grant Funds (Exhibit H-1)	68,232		68,232	
Amounts Due Trust Funds	1,338,768		1,338,768	
Overpayments of Taxes, Licenses, etc.	606,828		606,828	1,981,014
Miscellaneous Liabilities	229,626		229,626	521,319
Total Liabilities	\$95,907,441	\$3,029,875	\$98,937,316	\$48,513,499
RESERVES				
Reserve for Encumbrances (Note 6)	\$10,825,638	\$3,269,972	\$14,095,610	\$10,919,775
Appropriation Balances (Exhibit B-3) (Note 6)	758,413	100,734	859,147	25,599,031
Premium on Permanent Loans				115,922
Unappropriated Revenue from State				240,402
Total Reserves	\$11,584,051	\$3,370,706	\$14,954,757	\$36,875,130
FUND BALANCES				
Surplus Revenue (Exhibit B-4)	\$38,341,718	\$3,772,185	\$42,113,903	\$46,427,294
Total Liabilities, Reserves and Fund Balances	\$145,833,210	\$10,172,766	\$156,005,976	\$131,815,923

NOTE 1. Includes cash equivalents of \$10,000,000 and \$21,000,000 at June 30, 1976 and 1975, respectively.

NOTE 2. The overlay reserve for abatements is provided for by the Funding Loan Law, Chapter 717, Section 5, Acts of 1957.

NOTE 3. Reserve set up as of June 30, 1976, to adjust sewer and water charges and betterment assessments added to taxes in fiscal 1976 to cash basis.

NOTE 4. Accounting procedures established by the Commonwealth of Massachusetts require that deficits to be appropriated in future taxes be reported as assets rather than as offsets to surplus revenue.

NOTE 5. Includes \$15,000,000 due to State-Boston Retirement System. A ruling has been requested from the insurance commissioner of the state whether this amount can be offset against alleged overpayments by the city in prior years.

NOTE 6. Open purchase and service orders, contracts, and estimated costs for utilities and similar services incurred but not yet billed are charged to expenditures and set up as reserves for encumbrances. Open contracts prior to June 30, 1976 were carried forward as appropriation balances.

CHAPTER 4

INCONGRUITIES BETWEEN CENSUS DATA AND AUDIT DATA

Most efforts to analyze the fiscal condition of American cities use financial statistics gathered by the Bureau of the Census. These data have been presented to be accurate, consistent, and adequate to evaluate Fiscal Strain. No suspicions and, certainly, no tests of these assumptions appear in the literature. Not even a footnote has ever questioned the validity of these data. Having used both Census data and the Audit statistics issued by the individual cities, I could see the differences in even the most basic statistics. Charting of gross revenues and expenses illustrates the glaring differences. When operations are performed upon these statistics to reconcile the Current Account balance, the errors are compounded. Not only are the basic statistics different, but the reconciling method itself differs. The following tables and figures display the inaccuracies, inconsistencies, and inadequacy of the Census data.

Accuracy

Accuracy connotes conforming exactly to truth or to a standard. Both Census and Audit are published on the

basis of financial statistics emanating from a city's financial transactions. Presumably, both data sources would use the same statistics to describe the same financial transactions. This section tests their accuracy of conforming to the same standard. Theoretically, the Census statistics are identical to the Audit because of the Census data collection techniques. The Census actually collects detailed comparative financial and employment figures from cities having populations of at least 50,000. Census policy is to record data of large cities directly from official accounts at the individual cities. Three of these statistics are crucial to any financial analysis: (1) Gross Revenues, (2) Gross Expenses, and (3) Property Taxes.

Gross Revenues and Expenses

In Table #4.1, gross Revenues as reported by Census and Audit sources differ by an average of \$127 million per year over the eight-year time span. Fiscal Year 1970 shows only a \$16 million difference, but the difference between the two sources increases to \$190 million by 1977. The Census thus declares that Boston's Revenues for the eight years were \$1,016 billion more than the city itself reported in its annual audits.

The difference worsens when the averages for Boston's Expenses are compared. The average difference is \$152 million, and the range is \$34 million in FY 1970 to \$217

TABLE #4.1
 RAW DATA VARIATION--GROSS REVENUES AND EXPENSES
 (\$ millions)

Year	Census Revenues	Audit Revenues	C-A	Census Expenses	Audit Expenses	C-A
<u>Boston</u>						
1970	369	353	16	387	353	34
1971	430	376	54	469	409	60
1972	498	450	48	529	466	63
1973	565			597		
1974	593	738	420	581	729	449
1975	665	523	142	726	540	186
1976	761	615	146	845	628	217
1977	863	673	190	895	639	206
	$\Sigma=4,744$	$\Sigma=3,728$	$\Sigma=1,016$	$\Sigma=5,024$	$\Sigma=3,759$	$\Sigma=1,215$
	$\bar{X}= 593$	$\bar{X}= 466$	$\bar{X}= 127$	$\bar{X}= 628$	$\bar{X}= 470$	$\bar{X}= 152$
<u>Detroit</u>						
1970	509	384	125	479	384	95
1971	607	458	149	564	440	124
1972	692	456	236	646	447	199
1973	784	555	229	681	496	185
1974	807	565	242	701	533	168
1975	529	527	2	803	562	241
1976	781	524	257	845	546	299
1977	1,061	647	414	893	588	305
	$\Sigma=5,770$	$\Sigma=4,116$	$\Sigma=1,654$	$\Sigma=5,612$	$\Sigma=3,996$	$\Sigma=1,616$
	$\bar{X}= 721$	$\bar{X}= 514$	$\bar{X}= 207$	$\bar{X}= 702$	$\bar{X}= 500$	$\bar{X}= 202$

million in FY 1976. The difference between Census and Audit increased yearly for a total of \$1,215 billion. Thus the Census declared that Boston had \$1.2 billion more Expenses than the Audit claimed.

In Detroit, the differences in Revenues increase yearly except for a dip in FY 1975. The average difference between Census and Audit Revenue statistics is \$207 million per year with the Census reporting \$1,654 billion more than the Audit. Expense differences for Detroit are slightly smaller. The average difference in Expenses is \$202 million with a total of \$1.6 billion over the eight years. Figure 4.1 emphasizes the magnitude of the differences. Differences in the millions increase yearly with only one reversal in FY 1975 for Detroit.

The net of Gross Revenues and Gross Expenses is the Gross Balance as calculated in Table #4.2. Boston's eight-year time series is plotted in Figure 4.2 as is Detroit's in Figure 4.3. Detroit's balances are what is expected--a large difference separates Census from Audit data, and the Audit looks closer to the balance calculated in the previous chapters. However, Boston does not necessarily show that the Audit data are closer to my calculations than the Census data. This can be explained by Boston's large tax deficit attributed to underreserving and undercollecting over a number of years. Detroit has virtually no tax problem, but its Transfer problem surprisingly does not show up in the Gross

FIGURE 4.1. Revenue and Expense Differences: Detroit and Boston.

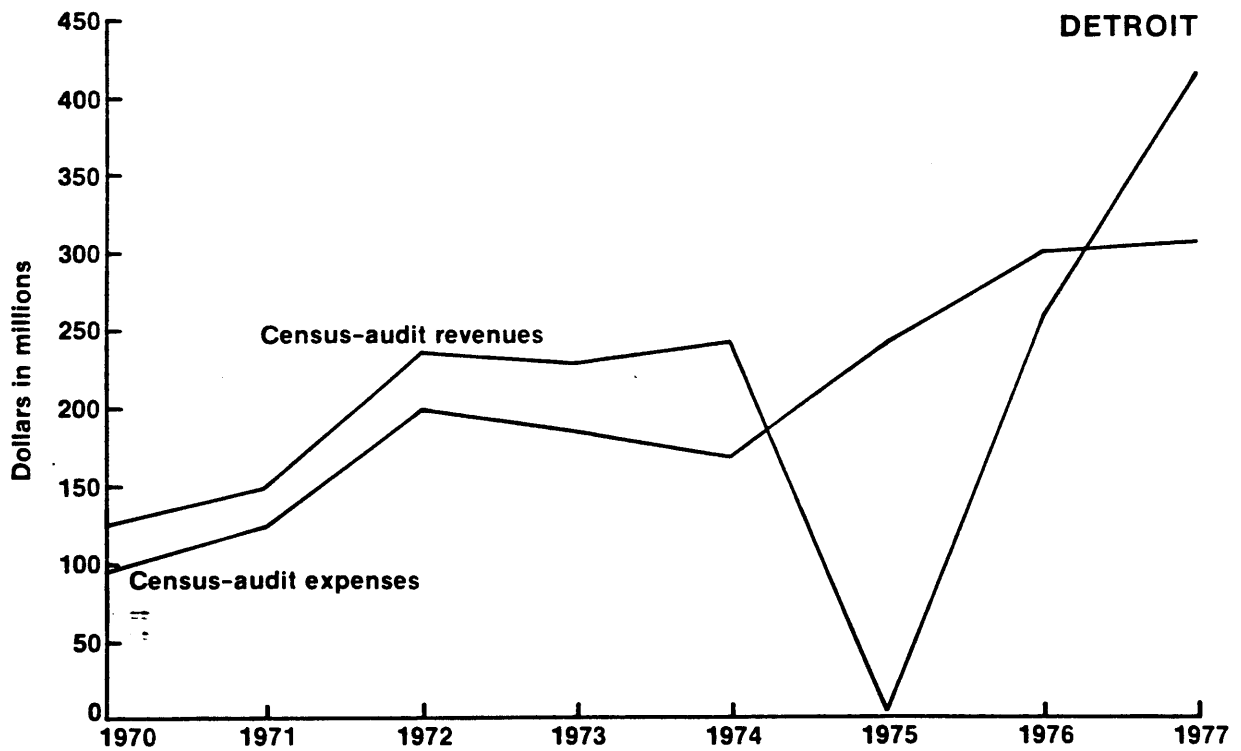
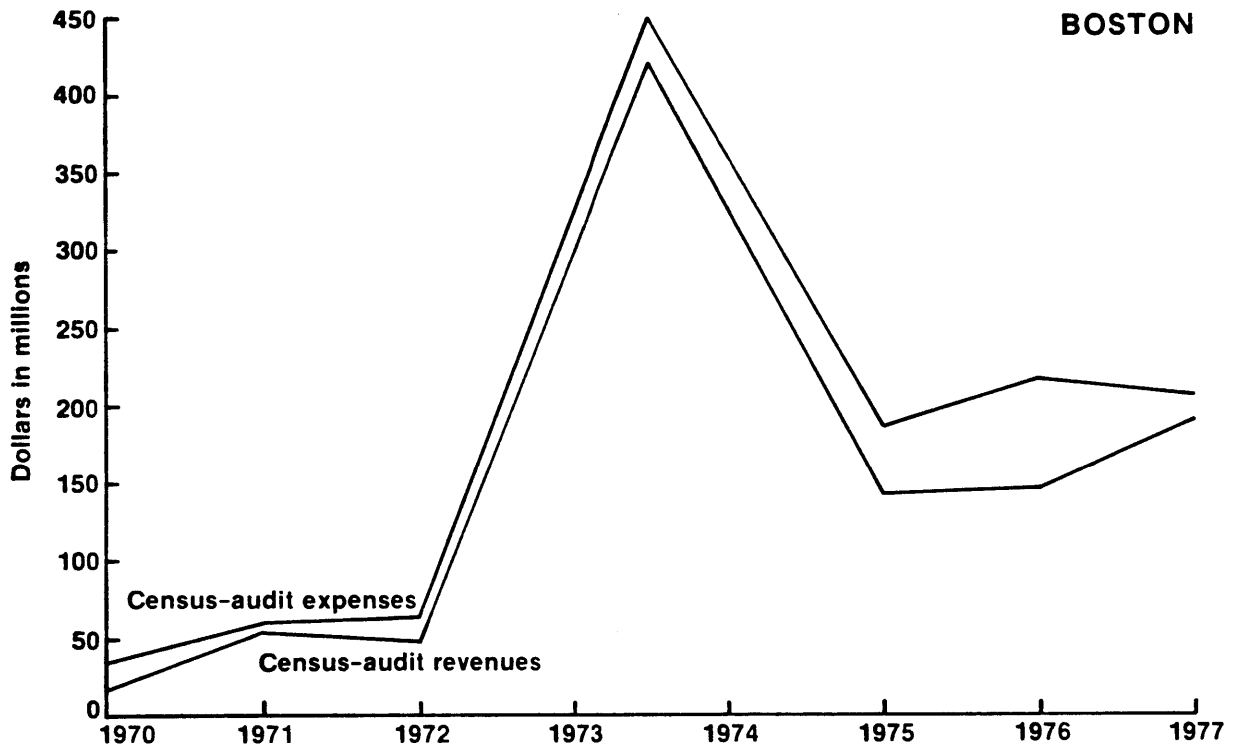


TABLE #4.2
BOSTON AND DETROIT GROSS DEFICIT
(Dollars in Millions)

Year	Census		CENGR S/(D)	Audit		AUDGR S/(D)	MYGR S/(D)
	R Total	- E Total		R Total	- E Total		
<u>Boston</u>							
1970	369.5	387.2	(17.7)	353.1	353.5	(0.4)	0.4 ¹
1971	430.7	464.4	(33.7)	376.1	404.0	(27.9)	(6.3)
1972	498.1	529.8	(31.7)	450.2	466.2	(16.0)	(16.6)
1973	565.8	597.4	(31.6)	738.7	729.0	9.7	(13.9)
1974	593.8	581.4	12.4	523.1	540.8	(17.7)	(31.3) ²
1975	665.4	726.6	(61.2)	615.5	628.1	(12.6)	(29.3) ²
1976	761.9	845.6	(83.7)	673.2	639.5	33.7	12.0 ²
1977	863.7	845.2	18.5				
<u>Detroit</u>							
1970	509.0	479.2	29.8	384.0	384.8	(0.8)	15.5 ³
1971	607.2	564.8	42.4	458.2	440.7	17.5	7.6
1972	692.4	646.7	45.7	456.1	447.6	8.5	39.8
1973	784.9	681.2	103.7	555.9	496.0	59.9	44.8
1974	807.8	761.7	106.1	565.9	533.6	32.3	2.4
1975	529.2	503.9	25.3	527.3	562.9	(35.6)	(43.5)
1976	781.9	845.0	(63.1)	524.2	546.9	(22.7)	(22.8)
1977	1,061.0	893.5	167.5	647.3	588.9	58.4	(93.5)

¹Boston MYGR is calculated in Chapter 3, Table 3.9, "Summary of Revenues and Expenses."

²Best deficits FYs 1976 and 1977 are used. They will reflect divergence from Audit and Census statistics. Fiscal Years worst would serve only to exaggerate the divergence.

³Detroit MYGR is calculated by using revenue deficits created in Chapter 2 and plugged into the following equation:

Year	R Estimate	- R My Deficit	= R Actual	- E Actual	= BAL 6 MYGR	S/(D)
1970	464.7	64.9	399.8	384.8	15.0	
1971	515.5	67.1	448.4	440.7	7.7	
1972	532.5	45.0	487.5	447.6	39.9	
1973	581.7	40.8	540.9	496.0	44.9	
1974	565.9	29.9	536.0	533.6	2.4	
1975	585.0	65.6	519.4	562.9	(43.5)	
1976	608.8	84.7	524.1	546.9	(22.8)	
1977	617.8	122.4	495.4	588.9	(93.5)	

FIGURE 4.2. Boston Gross Balance.

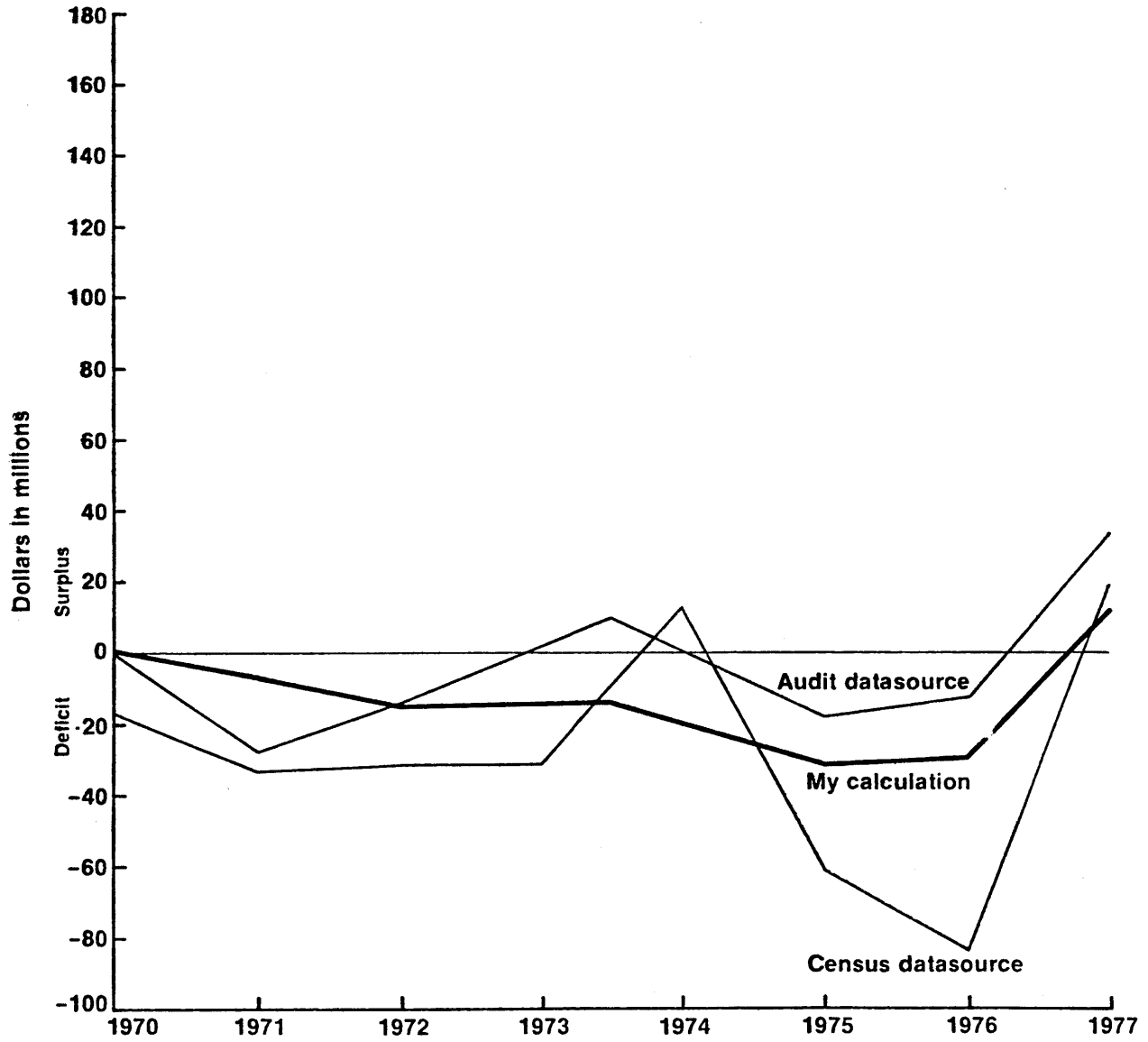
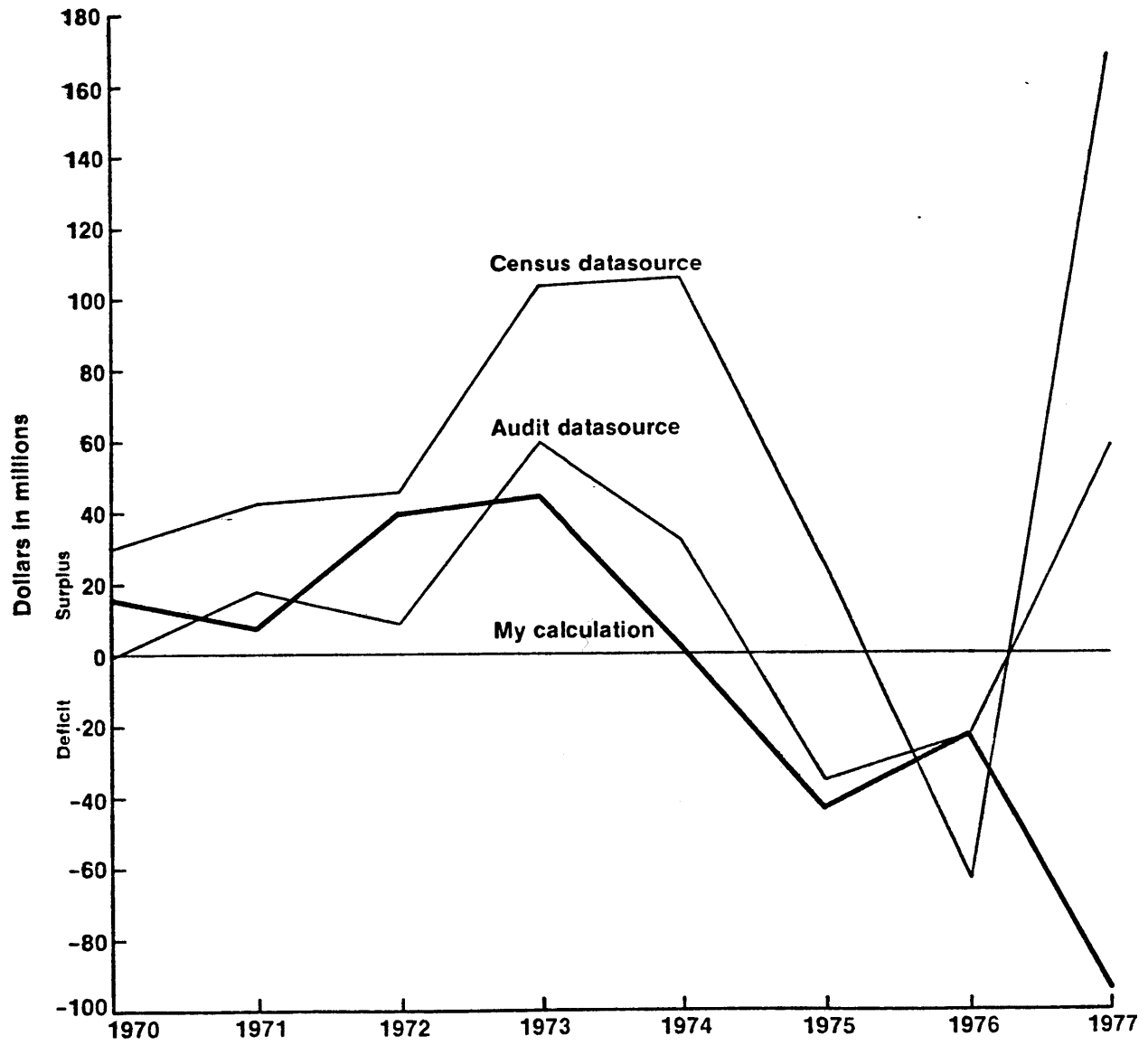


FIGURE 4.3. Detroit Gross Balance.



Balances. Other work later in the chapter locates the problem.

Property Tax

The first step in financial analysis is an examination of the largest source of funds. Since the Property Tax qualifies as the largest source in most cities, its importance in Fiscal Strain analysis is great. Table #4.3, "Property Tax Differences Between Accrued Levies," compares the statistics used by the Census and Audit. In Boston, the Audit recognizes \$95 million more in Revenues over the eight-year period than the Census.

The difference between cities is also great as can be seen in Figure 4.4, "Property Tax Differences: Detroit and Boston." Detroit's differences over the eight years are only \$10 million with an average of \$1 million. Table #4.4, "Property Tax Surplus/Deficit by Datasource," illustrates the difference by comparing both Census and Audit accrued levies to the actual receipts, which are shown in Table #4.5, "Property Tax Levy." Detroit has virtually no difference between Census and Audit deficits. Comparing the Deficit/Levy percentage column over the lag-free 1970 to 1975 Fiscal Years, there is at most a one percent difference between the two deficits. Boston, on the other hand, varies as much as 20 percent in FY 1972 between Audit and Census deficits. The Census, surprisingly, is more accurate

TABLE #4.3

PROPERTY TAX DIFFERENCES BETWEEN ACCRUED LEVIES

YEAR	BOSTON ACCRUED LEVIES			DETROIT ACCRUED LEVIES		
	Census \$ 000s	Audit \$ 000s	Census-Audit \$ Millions	Census \$ 000s	Audit \$ 000s	Census-Audit \$ Millions
1970	220,920	239,110	-19	125,595	125,307	0
1971	247,884	279,787	-31	144,349	143,796	1
1972	276,974	338,279	-61	151,811	152,052	-1
1973	303,601	518,938	95	154,672	156,028	-2
1974	311,093			172,010	175,123	-3
1975	325,897	351,074	-26	158,213	158,856	0
1976	325,858	359,090	-34	163,089	165,135	-2
1977	433,348	454,297	-21	167,545	170,679	-3
			$\sum = -95$			$\sum = -10$
			$\bar{x} = -12$			$\bar{x} = -1$

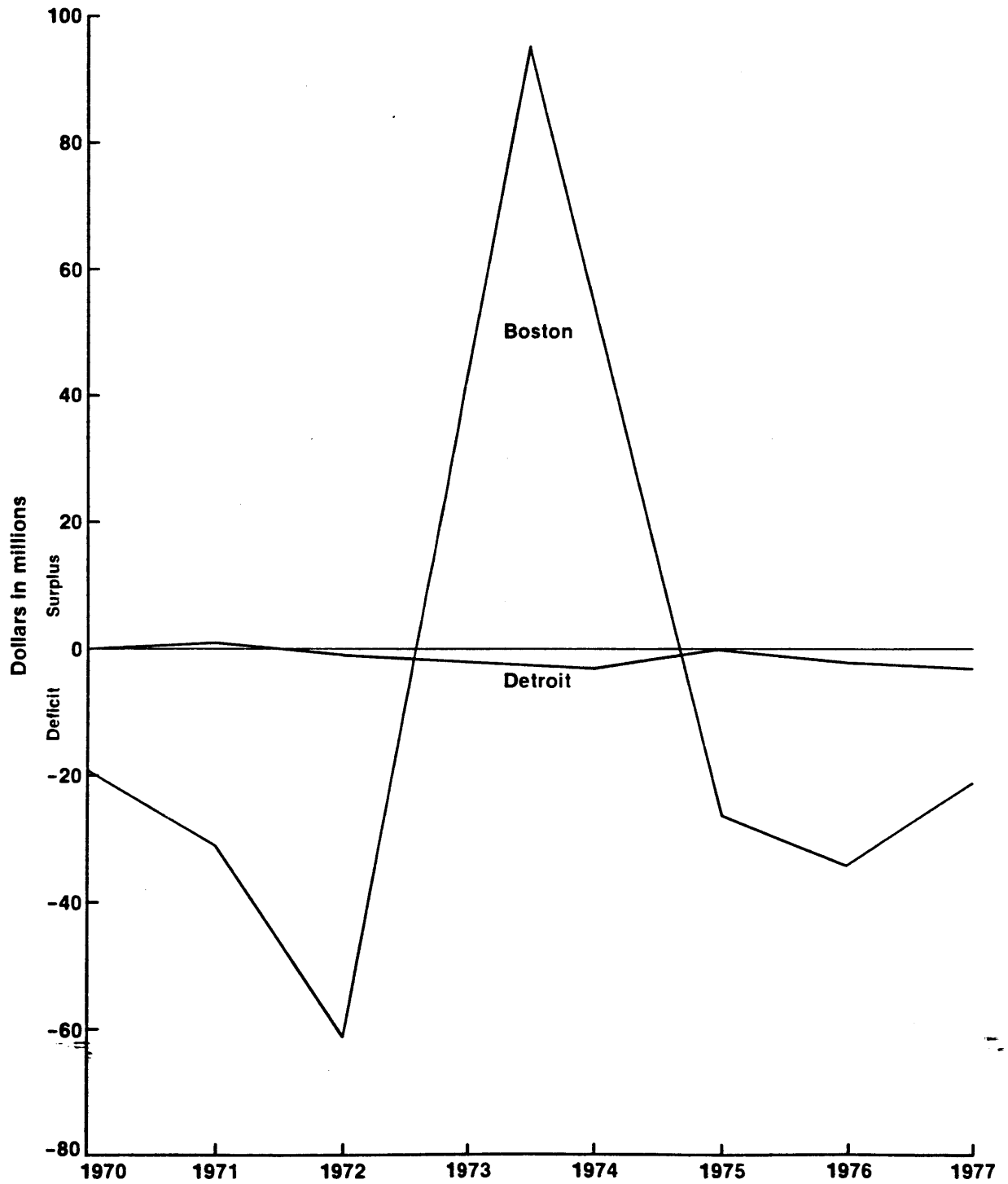
FIGURE 4.4. Property Tax Differences: Detroit and Boston.

TABLE #4.4

PROPERTY TAX SURPLUS/DEFICIT BY DATASOURCE
(\$ 000s)

Source Year	Census				Audit			
	Accrued Levy	Total Receipts	Surplus/ (Deficit)	Deficit/ Levy %	Accrued Levy	Total Receipts	Surplus/ (Deficit)	Deficit/ Levy %
<u>Boston</u>								
1970	220,920	239,447	18,527	8.3	239,110	239,447	336	0.1
1971	247,884	274,223	26,339	10.6	279,787	274,223	(5,563)	(2.0)
1972	276,974	310,400	33,426	12.0	338,279	310,400	(27,878)	(8.2)
1973	303,601	312,222	8,621	2.8	518,938	312,222	99,043	19.0
1974	311,093	305,769	(5,324)	(1.7)		305,769		
1975	325,897	317,743	(8,149)	(2.5)	351,074	317,743	(33,330)	(9.4)
1976	325,858	322,989	(2,869)	(0.8)	359,090	322,989	(36,101)	(10.0)
1977	433,348	397,923	(35,425)	(8.1)	454,297	397,923	(56,374)	(12.4)
<u>Detroit</u>								
1970	125,595	125,242	(353)	(0)	125,307	125,242	(65)	(0.1)
1971	144,349	144,579	230	0	143,796	144,579	783	0.5
1972	151,811	151,196	(615)	(0)	152,052	151,196	(856)	(0.7)
1973	154,672	154,671	(1)	(0)	156,028	154,671	(1,357)	(0.9)
1974	172,010	172,669	659	0	175,123	172,669	(2,454)	(1.4)
1975	158,213	155,615	(2,598)	(1.6)	158,856	155,615	(3,241)	(2.0)
1976	163,089	160,141	(2,948)	(1.8)	165,135	160,141	(4,994)	(3.0)
1977	167,545	160,717	(6,828)	(4.0)	170,679	160,717	(9,962)	(5.8)

TABLE #4.5
PROPERTY TAX LEVY
Collections to Date, June 30

Fiscal Year Levy	1970	1971	1972	1973	1974	1975	1976	1977	Total
Boston									
1970	228,683	238,427	239,426	239,435	239,445	239,447	239,447	239,447	239,447
1971		261,161	272,630	274,210	274,221	274,221	274,221	274,223	274,223
1972			291,397	310,191	310,398	310,398	310,398	310,400	310,400
1973				307,495	311,745	312,133	312,222	312,222	312,222
1974				145,382	157,161	159,184	160,385	160,385	160,385
1975				24	304,288	313,574	317,744	317,744	317,744
1976						313,309	322,989	322,989	322,989
1977						10	397,923	397,923	397,923
Detroit									
1970	122,530	123,859	NA	125,041	125,138	125,201	125,229	125,242	125,242
1971		141,158	NA	143,873	144,183	144,448	144,512	144,579	144,579
1972			NA	149,481	150,298	150,897	151,115	151,196	151,196
1973				150,971	152,710	153,949	154,467	154,671	154,671
1974					168,286	170,824	172,145	172,669	172,669
1975						152,531	154,501	115,615	115,615
1976							157,674	160,141	160,141
1977								160,717	160,717

regarding Property Tax Revenues than the Audit. This can be explained by the knowledge that bankers tend to use financial statements more than Census data for analysis when lending short-term debt. TANs are issued against the security of the tax bills in the account. Inflating this account by underreserving allows for a larger loan.

Testing for Accuracy shows that there are differences in raw data between the Census and Audit. Not only are the differences large, but they increase annually. The Gross Balance displayed this further, more so in Detroit than Boston. The most interesting and, probably, the most predictable result involves the Property Tax. Boston's thorny problem, its Tax Deficit, shows up prominently in the differences between Audit and Census data. If nothing else, this single account analysis can serve as a warning signal. When statistics are so far different, a deficit explanation may exist for the difference.

Consistency

While the accuracy assumption focused on raw data reporting, the issue of consistency focuses on the operations performed on these raw data in order to obtain measures of financial solvency. The two most notable measures are the Current Account balance and the Property Tax balance. Since most banks analyze a prospective client by the stability of its largest source of income, it is extremely

important that the Property Tax is measured not only accurately but consistently.

Table #4.6, "Summary of Current Account Balances by Datasource," displays the Current Account balances reconciled by the three types of data, Census, Audit, and My. The calculations underlying these deficits are displayed in Table #4.7, "Current Account Balances Worksheets." The Current Account deficits as summarized are also plotted in Figures 4.5 and 4.6.

In both Boston and Detroit, Figures 4.5 and 4.6, the Census dataline is very different from the Audit dataline. One explanation revolves around the inclusion of capital outlay as general Revenue. The Census makes it clear that capital outlay is deducted from Current Account expenditures, but there is no line item that capital revenue has been deducted from General Revenue. Some, most, or all of this net Long-Term Debt may go to the Current Account to supply dollars for current-year Expenses. It is very easy for a city to deposit its capital revenues into the Current Account, thus altering the balance and making the city appear to have more receipts than it does. Deflating this Census statistic by the net LTD should draw the Census Current Account balance closer to the Audit balance and may explain the large differences in Figures 4.5 and 4.6. When deflated, Boston's Census line is drawn closer to the Audit line. Boston may use capital revenue as a means to inflate

TABLE #4.6
SUMMARY OF CURRENT ACCOUNT BALANCES BY DATASOURCE*
(Dollars in Millions)

Year	Balance Number	Operating			Gross		
		Census		Audit	Census	Audit	My
		1	X	2	4	5	6
<u>Boston</u>							
1970	35.1	19.1	1.5	4.1	(17.7)	(0.4)	0.4
1971	43.5	NA	(27.5)	3.0	(33.8)	(27.9)	(6.3)
1972	62.0	12.3	(15.9)	(0.4)	(31.7)	(16.0)	(16.6)
1973	61.1	NA	19.6	(8.0)	(31.5)	9.7	(13.9)
1974	79.9	81.5	25.6	(8.1)	12.4	(17.7)	(31.1)
1975	57.6	29.1	(20.7)	(29.1)	(61.2)	(12.6)	(29.3)**
1976	61.6	9.6	(17.7)	13.0	(83.7)	33.7	12.00**
1977	100.2	62.5			18.5		
<u>Detroit</u>							
1970	111.7	104.0	3.6	19.3	29.8	(0.8)	15.5
1971	154.5	NA	10.2	0.3	42.4	17.5	7.6
1972	191.3	172.6	1.9	33.2	45.8	8.6	39.8
1973	240.8	NA	52.5	37.5	103.7	59.9	44.8
1974	217.7	211.3	29.9	(0.04)	106.1	32.2	2.4
1975	147.7	99.9	(23.8)	(31.7)	25.4	(35.6)	(43.5)
1976	223.5	237.0	(222.1)	(17.1)	(63.1)	(22.7)	(22.8)
1977	336.0	365.5	576.9	(100.4)	167.5	58.4	(93.5)

*) All balances are calculated in General Fund Balances Worksheets #3 and #4, Table #24.

***) Best deficits, FYs 1976 and 1977.

TABLE #4.7
CURRENT ACCOUNT BALANCES WORKSHEETS

Explanation

These worksheets display the method of calculating all General Fund Balances as shown in Table #23. The methods used to calculate fund balances may vary between cities because of data availability. This difference is shown and explained. The six calculated balances and respective abbreviations are shown below.

Balance 1 = BAL 1	Census Operating = CENOP
Balance X = BAL X	Census Deflated = CENDEFL
Balance 2 = BAL 2	Audit Operating = AUDOP
Balance 3 = BAL 3	My Operating = MYOP
Balance 4 = BAL 4	Census Gross = CENGR
Balance 5 = BAL 5	Audit Gross = AUDGR
Balance 6 = BAL 6	My Gross = MYGR
Balances 1-6 Surplus/(Deficit) = S/(D)	

Worksheet 1: BAL 1 CENOP*

Year	General Expense			R General	- E General	= BAL 1 S/(D)
	E Gross	- E Capital	= E General			
<u>Boston</u>						
1970	355.0	46.4	308.6	343.7	308.6	35.1
1971	429.2	73.3	358.9	402.4	358.9	43.5
1972	493.2	85.2	408.0	470.0	408.0	62.0
1973	549.8	81.3	468.5	529.7	468.5	61.1
1974	530.5	58.1	472.4	552.3	472.4	79.9
1975	672.4	108.0	564.4	622.0	564.4	57.6
1976	778.9	127.2	651.7	713.3	651.7	61.6
1977	779.4	73.8	705.6	805.8	705.6	100.2
<u>Detroit</u>						
1970	353.4	54.2	299.2	510.9	299.2	111.7
1971	428.6	82.4	346.2	500.7	346.2	154.5
1972	489.5	99.4	390.1	581.4	390.1	191.3
1973	540.2	115.7	424.5	665.2	424.4	240.8
1974	548.3	90.9	457.4	674.1	457.3	216.8
1975	622.6	109.3	513.3	661.0	513.3	147.7
1976	654.9	96.5	558.4	781.9	558.4	223.5
1977	690.5	119.8	570.7	906.7	570.7	336.0

*) The Census provides only General Revenue as a statistic. General Expense is calculated by netting capital expenditures from gross expenditures.

Worksheet 2: BAL X CENDEFL* (\$ Millions)

Year	Long-Term Debt			BAL 1 - Net LTD = BAL X		
	Issued	Retired	= Net LTD			
Boston						
1970	43.6	28.6	16.0	35.1	16.0	19.1
1971	NA	NA	NA	43.5	NA	NA
1972	77.1	28.4	49.7	62.0	49.7	12.3
1973	NA	NA	NA	61.1	NA	NA
1974	27.0	28.6	(1.6)	79.9	(1.6)	81.5
1975	83.0	35.0	48.0	57.6	48.0	29.1
1976	85.0	32.9	52.1	61.6	52.1	9.6
1977	75.0	37.3	37.7	100.2	37.7	62.5
Detroit						
1970	40.3	33.3	7.0	111.7	7.0	104.7
1971	NA	NA	NA	154.5	NA	NA
1972	53.3	34.6	18.7	191.3	18.7	172.6
1973	NA	NA	NA	240.8	NA	NA
1974	42.6	37.1	5.5	216.8	5.5	211.3
1975	83.0	35.2	47.8	147.7	47.8	99.9
1976	20.9	34.4	(13.5)	223.5	(13.5)	237.0
1977	8.9	38.4	(29.5)	336.0	(29.5)	365.5

*) Explanations are sought to explain the wide discrepancy between Audit and Census data. Since it is unclear as stated in the Census that Long-Term Debt was separated from the General Revenues, the Net LTD is deducted from the original Census surplus/(deficit). This is not an uncommon "oversight" in municipal accounting.

Worksheet 3: BAL 2 AUDOP; BAL 3 MYOP; BOSTON

Year	BAL 2 S/(D)	BAL 3 S/(D)
1970	1.5 ¹	4.1
1971	(27.5) ¹	3.0
1972	(15.9) ¹	(0.4)
1973)	19.6 ²	(8.0)
1974)	25.6 ²	(18.1)
1975	(20.7) ³	(29.1)
1976	(17.7) ⁴	(0.5)

¹Source: Boston Audits

²General Revenue Funds, p. 20.

³Summary of Appropriations, Expenses, and Balances, p. 31.

⁴General Revenue Funds, Combined Balance Sheet.

⁴Summary of Appropriations, Expenses, and Balances, p. 21.

*) All balances are calculated in Chapter III, Table #3.3, "Summary of Expense Deficits."

Worksheet 4: BAL 2 AUDOP; BAL 3 MYOP; Net Capital; DETROIT (\$ Millions)

Net Capital

Year	R Capital	- E Capital	= Net Capital
1970	15.6	19.9	(4.3)
1971	29.5	22.2	7.3
1972	27.9	21.2	6.6
1973	36.4	29.1	7.3
1974	34.4	32.0	2.4
1975	26.7	38.5	(11.8)
1976	16.7	22.7	(6.0)
1977	38.9	32.0	6.9

BAL 2 AUDOP

Year	BAL 5 AUDGR	- Net Capital	= BAL 2 AUDOP
1970	(0.7)	(4.3)	3.6
1971	17.5	7.3	10.2
1972	8.5	6.6	1.9
1973	59.8	7.3	52.5
1974	32.3	2.4	29.9
1975	(35.6)	(11.8)	(23.8)
1976	(227.7)	(5.6)	(222.1)
1977	583.7	6.8	576.9

BAL 3 MYOP

Year	BAL 6 MYGR	- Net Capital	= BAL 3 MYOP
1970	15.0	(4.3)	19.3
1971	7.6	7.3	0.3
1972	39.8	6.6	33.2
1973	44.8	7.3	37.5
1974	2.4	2.4	0
1975	(43.5)	(11.8)	(31.7)
1976	(22.8)	(5.6)	(17.2)
1977	(93.5)	6.8	(100.3)

Worksheet 5: Gross Deficit (\$ Millions)

Year	Census		BAL 4	Audit		BAL 5	BAL 6
	R Total	- E Total	= CENGR S/(D)	R Total	- E Total	= AUDGR S/(D)	MYGR S/(D)
<u>Boston</u>							
1970	369.5	387.2	(17.7)	353.1	353.5	(0.4)	0.4 ¹
1971	430.7	464.4	(33.7)	376.1	404.0	(27.9)	(6.3)
1972	498.1	529.8	(31.7)	450.2	466.2	(16.0)	(16.6)
1973	565.8	597.4	(31.6)				
1974	593.8	581.4	12.4	738.7	729.0	9.7	(13.9)
1975	665.4	726.6	(61.2)	523.1	540.8	(17.7)	(31.1)
1976	761.9	845.6	(83.7)	615.5	628.1	(12.6)	(29.3) ²
1977	863.7	845.2	18.5	673.2	639.5	33.7	12.0 ²
<u>Detroit</u>							
1970	509.0	479.2	29.8	384.0	384.8	(0.8)	15.5 ³
1971	607.2	564.8	42.4	458.2	440.7	17.5	7.6
1972	692.4	646.7	45.7	456.1	447.6	8.5	39.8
1973	784.9	681.2	103.7	555.9	496.0	59.9	44.8
1974	807.8	761.7	106.1	565.9	533.6	32.3	2.4
1975	529.2	503.9	25.3	527.3	562.9	(35.6)	(43.5)
1976	781.9	845.0	(63.1)	524.2	546.9	(22.7)	(22.8)
1977	1,061.0	893.5	167.5	647.3	588.9	58.4	(93.5)

¹ Boston BAL 6 MYGR are calculated in Chapter III, Table #17, "Summary of Revenues and Expenses."

² Best deficits FYs 1976 and 1977 are used. They will reflect divergence from Audit and Census statistics. Fiscal Years worst would serve only to exaggerate the divergence.

³ Detroit BAL 6 MYGR are calculated by using revenue deficits created in Chapter II and plugged into the following equation:

Year	R Estimate	- R My Deficit	= R Actual	- E Actual	= BAL 6 MYGR	S/(D)
1970	464.7	64.9	399.8	384.8	15.0	
1971	515.5	67.1	448.4	440.7	7.7	
1972	532.5	45.0	487.5	447.6	39.9	
1973	581.7	40.8	540.9	496.0	44.9	
1974	565.9	29.9	536.0	533.6	2.4	
1975	585.0	65.6	519.4	562.9	(43.5)	
1976	608.8	84.7	524.1	546.9	(22.8)	
1977	617.8	122.4	495.4	588.9	(93.5)	

FIGURE 4.5. Boston Current Account Balance.

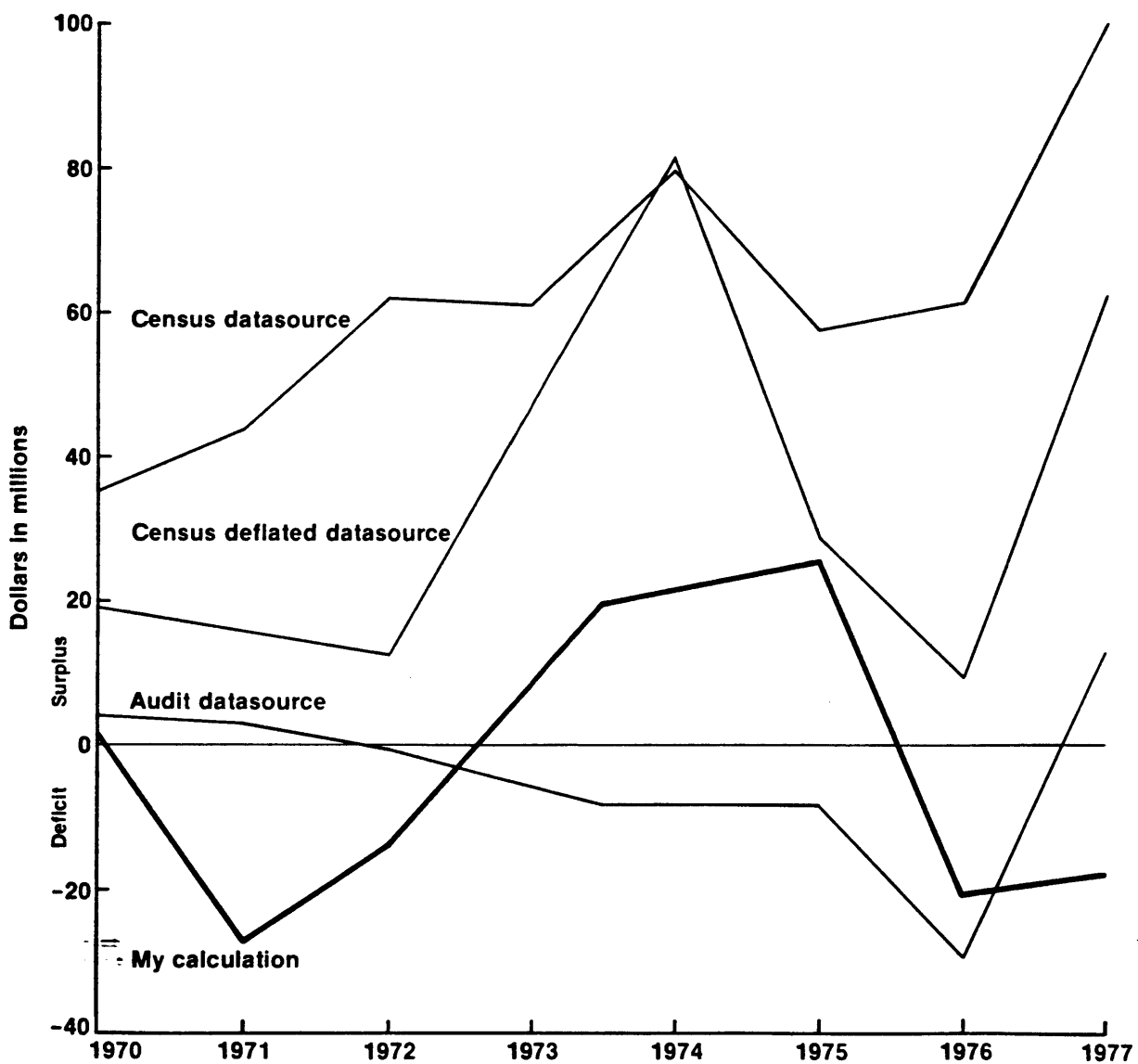
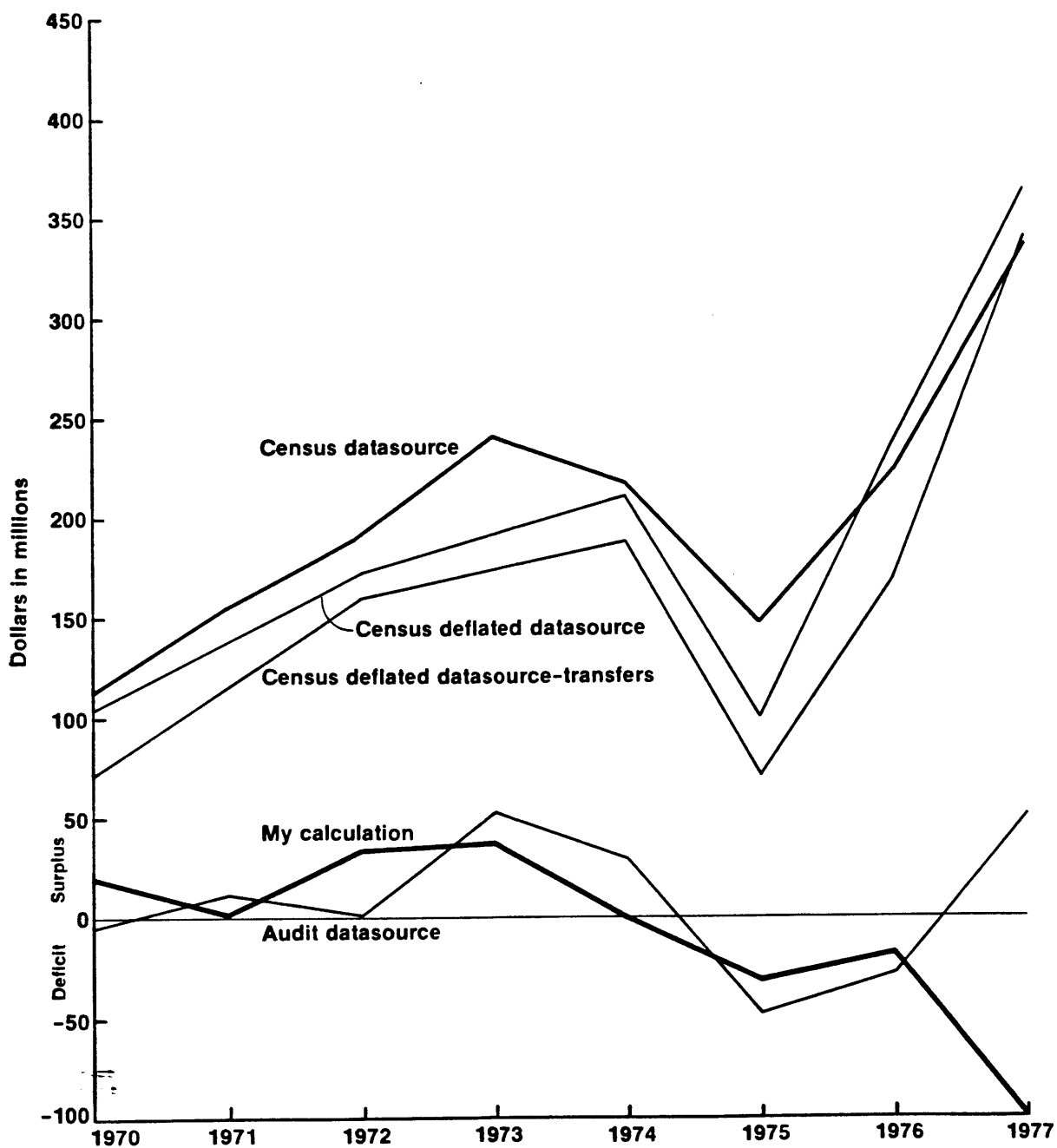


FIGURE 4.6. Detroit Current Account Balance.



assets and pay for current Expenses with long-term capital.

Because Detroit's deflated Census dataline has not approached Audit to a significant degree, it can be assumed the Detroit does not use this accounting technique to bolster its net income. The technique employed may be based on Detroit's overestimated Transfer Revenue. Chapter 2 on Detroit supports this assertion by calculating the following Transfer deficits:

<u>Year</u>	<u>\$ Millions</u>
1970	(33.4)
1971	(20.4)
1972	(13.2)
1973	(31.9)
1974	(22.8)
1975	(28.4)
1976	(67.4)
1977	(27.7)
1978	(37.8)

Figure 4.6 plots the deduction of these deficits from the Census-LTD dataline. This produces a line closer to the Audit-based line, but it still is quite a distance away.

Table #4.8, "Dataset Variation Among Current Account Balances," provides the differences in the operating deficit among the various data bases. The averages over the eight-year span provide easy measures of comparison between Census and Deflated Census statistics to Audit-based data. A summary of the important averages from Table 4.8 follows.

	<u>Census</u>	<u>Deflated Census</u>	<u>Audit</u>
Boston	\$ 65.1	\$ 35.7	(\$4.6)
Detroit	\$202.9	\$198.6	\$8.1

In Boston, the average Census surplus is \$65.1 million

TABLE #4.8
DATASET VARIATION AMONG CURRENT ACCOUNT BALANCES
(Dollars in Millions)

Year	Surplus/(Deficit)				Differences				
	BAL 1 CENOP	BAL X CENDEFL	BAL 2 AUDOP	BAL 3 MYOP	1 - 2	1 - 3	2 - 3	X - 2	X - 3
Boston									
1970	35.1	19.1	1.5	4.1	33.6	31.0	(2.6)	17.5	4.9
1971	43.5	NA	(27.5)	3.0	71.1	40.5	(24.5)	-	-
1972	62.0	12.3	(15.9)	(0.4)	77.9	62.4	(15.5)	28.2	12.7
1973	61.1	NA				69.2	11.6	-	-
1974	79.9	81.5	19.6	(8.0)	121.6	88.0	11.5	72.3	87.6
1975	57.6	29.1	25.6	(8.1)	51.5	85.2	33.7	4.5	37.2
1976	61.6	9.6	(20.7)	(29.1)	82.4	90.8	8.4	30.3	38.7
1977	100.2	62.5	(17.7)	13.0	117.9	113.2	(4.7)	80.2	75.5
	$\Sigma=558.6$	$\Sigma=214.0$	$\Sigma=(36.6)$	$\Sigma=(25.5)$	$\Sigma=555.9$	$\Sigma=500.3$	$\Sigma=14.9$	$\Sigma=232.0$	$\Sigma=256.6$
	$\bar{x}= 69.8$	$\bar{x}= 35.7$	$\bar{x}=(4.6)$	$\bar{x}=(3.6)$	$\bar{x}= 69.5$	$\bar{x}= 62.5$	$\bar{x}= 2.1$	$\bar{x}= 38.7$	$\bar{x}= 32.0$
Detroit									
1970	111.7	104.0	(5.0)	19.3	116.7	92.4	(24.3)	109.0	84.7
1971	154.5	NA	10.2	0.3	144.4	154.3	9.9	-	-
1972	191.3	172.6	1.9	33.2	189.4	158.1	(31.3)	170.7	139.4
1973	240.8	NA	52.5	37.5	187.6	202.6	15.0	-	-
1974	217.7	211.3	29.8	0	187.0	216.8	29.8	181.5	211.3
1975	147.7	99.9	(47.5)	(31.7)	196.4	180.6	(15.8)	148.6	132.8
1976	223.5	237.0	(28.4)	(17.1)	251.9	240.1	(11.3)	265.4	254.1
1977	336.0	365.5	51.5	(100.4)	284.8	436.7	151.9	417.3	314.3
	$\Sigma=1287.2$	$\Sigma=1190.3$	$\Sigma=65.0$	$\Sigma=(59.0)$	$\Sigma=1369.0$	$\Sigma=1587.0$	$\Sigma=125.0$	$\Sigma=1292.5$	$\Sigma=936.6$
	$\bar{x}= 160.9$	$\bar{x}= 198.3$	$\bar{x}= 8.1$	$\bar{x}=(7.3)$	$\bar{x}= 171.0$	$\bar{x}= 198.0$	$\bar{x}= 15.6$	$\bar{x}= 215.4$	$\bar{x}=156.1$

compared to the average Audit deficit of \$4.6 million, a difference of \$69.7 million. The deflated Census statistic brings this down to an average surplus of \$35.7 million and a difference of \$40.3 million from the Audit. Although this seems to be a large difference, Figure 4.5 visually reduces the large disparity, especially when pitted against Detroit statistics, which have a \$194.8 million range between Census and Audit figures. Census statistics inflate Detroit assets with a \$202.9 million average Census surplus and a \$198.6 million average deflated Census surplus. The small \$4.3 million drop would indicate that Detroit is using other statistics as well as capital to bolster its surplus. The Audit statistic of \$8.1 million seems logically closer to the accurate figure.

The conclusion to be drawn from the comparison of Current Account balances is that consistency of method does not exist across data sources. Because Detroit did not respond to deflating techniques as well as Boston did, it is important to remember that techniques for assessing the creditworthiness of cities will vary across cities. Using Census data alone certainly does not allow for accurate or consistent assessment.

Adequacy

The methodology developed to disaggregate Current Account deficits sets up the specific requirement of

obtaining both estimated and actual statistics for both Revenues and Expenses. These differences immediately designate specific financial problems. Because the Census lacks the key information of estimated and actual data, it is impossible to discern where problems lie. While the Census purports the sole statistic used to be the actual, it also registers a disclaimer that the statistic can vary from actual to estimated within one city's budget.

These facts are extremely important to remember when using Census statistics because the researcher can very easily be persuaded to use the Census dataset when making a cursory comparison between the Audit and Census gross deficits, total Revenues minus total Expenses. Table #4.7 and Figures 4.2 and 4.3, which compute and plot these statistics, tender small differences in Boston and Detroit. It could be thought that, because the trendlines follow each other, some factor could be constructed to project an Audit line from the Census statistics. However, further analysis in Figures 4.5 and 4.6, "Current Account Deficits," show that, once operations are performed on the data, the close paralleling of datalines changes. The direction of the lines changes, and the span of the difference increases dramatically. Census data are, thus, inadequate to calculate deficits and, therefore, unable to discern Fiscal Strain.

Other researchers use Census data, partly, because

each city's budget is compressed into 116 line items and is readily available from the Bureau of the Census. What is needed in a dataset is subordinated to the ease of availability. Audit data are difficult to obtain and then must be further manipulated in order to approximate the real deficits. While the Audit report is more reliable, Census is much easier to obtain.

Implications

Extreme caution is advised in using either Census or Audit data as a basis for evaluating Fiscal Strain in cities. I do believe that Audit data can be used as a basis if the researcher understands accounting. Some key accounts such as the Property Tax need manipulation before an accurate data point is obtained. The reason why the researcher can manipulate Audit data for better data accuracy is that the Audit data present both estimated and actual figures. This two-point presentation is obligatory in Fiscal Strain analysis. Thus, if the researcher does understand accounting, then manipulation of several accounts can provide accurate data even if they are inaccurate to start. Census data, because of their single-point analysis, are simply inadequate as a basis of analysis. However, when Census has been used as a basis, its methods of reconciling the deficit are inconsistent across cities.

The major implication that emerges is that, since

the Census data are inaccurate, inconsistent, and inadequate, major doubts can be cast on any study that used Census data. It is a bit frightening to think that public policy may be based on studies that used Census data to compare large cities, similarly for ratings and investment in the private sector. In the private and public sectors, Census data have been used because of their availability and compactness--all the cities located in one publication with only two pages to each city. The possibility of doing this for Audit is quite distant. Building the dataset by account reconciliation is a lengthy and costly process. However, it is recommended that some form of this type of analysis be started on the large cities.

CHAPTER 5

FINDINGS AND RECOMMENDATIONS

This thesis attempted to determine the origins of Fiscal Strain by disaggregating the Current Account into specific Revenue and Expense deficits. Admittedly, two case studies are not enough to make generalizations about all cities, but enough information was collected to support the finding that cities do, indeed, have different problems that can be classified by Revenue or Expense type. For example, both cities have severe Revenue deficits but each of a different type. Boston suffers from a Tax deficit while Detroit's problem is a Transfer deficit. Their lack of Revenues had previously been diagnosed as overspending and attributed to the socio-economic, fiscal, and demographic factors that serve as a basis for the conventional wisdom's understanding of Fiscal Strain.

This study revealed that many problems are structurally based. The accounting structures underlying city finances actually fostered Revenue problems by having a totally inadequate reserve system. Underestimated reserves give the illusion of larger assets, which justifies the spending of these forthcoming Revenues even before they have been received. This does not implicate the entire system of

accrual accounting. Recording assets when levied can work, and in the case of Detroit's taxes, it does work.

On the other hand, Boston's Tax deficit is a perfect example of a structural problem made worse by poor forecasting. Boston is also a perfect example of what disaggregating the Current Account can show. As the real problems surface, the conventional wisdom dissipates. The citizens of Boston do not pay their property taxes, and the State Legislature imposes a constraint on overlay reserves. The delinquent taxpayers are not the middle and lower income classes but the wealthy with great influence and power. Boston is in the throes of being "turned around" as Mayor Kevin White has changed the face of Boston's downtown, waterfront, and Back Bay areas. A young professional corps and a solid upper-middle class have come back to the city to live. This seemingly stable tax base has not been paying property taxes. To alleviate the problem, several years ago, Newell Cooke of the Tax Department unveiled a "Rogue's Gallery" in City Hall of delinquent taxpayers. Because of the power and influence of the delinquents, the gallery was closed within twenty-four hours, and many of those bills are still delinquent.

Boston obviously should not be in the role of banker --~~ext~~ending loans in the form of late tax bills at very low interest rates. In order to prevent this bankrolling, it is recommended that Boston and other cities record reserves

large enough to accommodate delinquencies. Reserves should be forecast on the basis of past delinquencies. This study found that this type of forecasting can be done with accuracy. The State Legislature is also at fault in creating the accumulating overlay Tax deficit. It is recommended that Massachusetts rescind the constraint on the overlay reserve but require Boston to create reserves based on historical data. This clearly applies to any state regarding any reserve.

Boston also showed a creeping Expense deficit but not as severe as its Revenue deficit. Detroit showed a surplus Expense balance--that is, it cut Expenses by the millions each year. Despite these large cuts, the Current Account balance remained a deficit. Disaggregating Detroit's financial statements led to the source of Detroit's problems. Detroit begins each fiscal year with an imbalanced budget. Detroit budgets Expenses millions greater than Revenues. From the start of the fiscal year, Detroit is racing against the clock to cut back Expenses in order to match the original Revenue estimate. Detroit's budget starts the year with an automatic deficit. Worsening the problem is the Transfer deficit, which increases and accumulates year after year. To say that poor forecasting is at the root is almost simplistic. Most anyone can see the historical precedent of estimates grossly exceeding receipts.

One explanation is that Detroit's expectations are too high, and the city asks for more aid than other cities do, which results in an automatic deficit in Transfers. A second explanation is that Detroit may have a larger low-income welfare-oriented population than the other large cities but only receives equivalent funds. Detroit may be given relatively equal amounts to the other cities but certainly not enough for its relatively larger "poor" population. Comparing demographic statistics, Detroit has 23.7 percent of its population in the low-income bracket in 1973 while Boston's is 32.5 percent, 5.4 percent higher.¹ Thus, Detroit's need is not necessarily greater than that of other cities.²

Detroit is also not asking for more dollars per capita than Boston. In Table #5.1, Transfer statistics show that, in 1973, Detroit asked for \$80.00 per capita less than Boston. In 1977, they differed only by \$3.00 per capita in their requests for aid. What each city received is far different. In 1977, Boston received \$243.70 per capita, a \$40.00 per capita increase over its \$203.70 request. The story changes for Detroit. Detroit lost \$20.00 per capita from its request of \$206.50. What possibly could have

¹Annual Reports.

²It is acknowledged that no proof has been collected that makes Boston representative of large cities. However, it is used as a first comparison since Boston looks like it has greater need and gets more than Detroit.

TABLE #5.1
LOW-INCOME POPULATION AND PER CAPITA TRANSFERS

Item	1973		1977	
	Estimated	Actual	Estimated	Actual
<u>Boston</u>				
Percentage Low Income	32.5		24.1	
Transfers per capita	\$214.50	\$212.90	\$203.70	\$243.70
<u>Detroit</u>				
Percentage Low Income	23.7		20.8	
Transfers per capita	\$140.90	\$119.70	\$206.50	\$185.20

happened for Detroit to drop to \$185.20 per capita while Boston received increased aid?

Perhaps, federal and state officials use similar statistics as created in Table #5.1, that is, Boston is more needy in its population than Detroit. Admittedly, Boston's statistics may be inflated because of the preponderance of students who may drop out of school for a while and then re-register. But then, as discussed in Chapter 2, Detroit feels that its low-income population has been grossly under-calculated by the Census and the Federal Government.

Since Detroit requests less per capita than Boston, it is fair to say that Detroit's welfare programs are not "pie in the sky" as most people might think without placing the Transfer situation in perspective. Although it may be unfair that Detroit receives less per capita, the city's budget office is performing a grave disservice by budgeting

dreams instead of basing projections on historical precedent. Detroit's problem is not greediness, far from it.

As the statistics illustrate, Detroit's problem is not its low-income population. Thus, traditional explanations using socio-economic statistics to project deficits are far from the real source. Traditional explanations that problems are Expense-side related are wrong, too. This is a Revenue deficit, which began because of poor estimating and budgeting practices. It is, therefore, recommended that the Transfer component be estimated by historical precedent.

If Detroit, or any other city, wants additional Transfers, the correct procedure is lobbying in Washington and at the State House. The Balance Sheet and Income Statements are not the proper arena for increasing Revenues. For only so long can money be created on paper. Detroit must either persuade state and federal officials to send more money or continue cutting Expenses until Revenues equal Expenses. It also seems that Detroit may be a victim. The state and federal levels must be involved in a Transfer problem of this magnitude. It seems hard to imagine that a city on its own could create an accumulating Revenue deficit of this size. Future research should focus on this Transfer deficit. Detroit's severe deficit leads me to think that ~~the~~ process of intergovernmental Transfers may be at fault. 7

Detroit's non-recognition of Contingent Liabilities on the Balance Sheet is an Expense-side deficit. Contingent

Liabilities are not recorded properly as a reserve but only listed as a "note" to the financial statements. One rule of thumb in financial analysis is that one can usually detect trouble by looking at these "notes." Even if Detroit records a reserve for liabilities, as it does now, the billion-dollar liabilities from previous years are difficult to expend. Expenses like these, which are non-reserved, are paid by undertaking short-term notes. The liability is then added to the Balance Sheet as an "asset" to be raised by taxes. When the earmarked taxes are collected, usually two years later because of a time lag, the asset finally becomes an Expense on the Income Statement. It is recommended that cities list Contingent Liabilities accurately on Balance Sheets with adequate resources to expend immediately so that cities do not undertake and build an accumulating short-term debt for this type of Expense.

Disaggregating the Current Account allowed a view of Fiscal Strain not easily found in the literature. It shows exactly how a city functions while having large deficits and Revenues declining even further. Then the city does not have the funds to pay, it puts off paying vendors, If prolonging payment is not politically feasible, the city must tap one of its Revenue sources. Immediate funds can only be obtained through the debt component as short-term notes with high interest rates are issued by banks. The short-term debt has first claim on next year's taxes. When these taxes

arrive, the bank demands repayment. The city repays the debt although it has not been budgeted. This automatically takes away some funds for services that the city had promised. If the city does not cut back on services, it goes back to the bank and borrows the same amount it just repaid again. Thus, the city's debt is "rolled over" or accumulates. The deficit can increase if the city continually budgets more than it will receive; thus, the city must ask the bank for additional short-term notes. When the city accumulates so many TANS, RANS, and BANS, the banks might feel that the city is a bad risk and threaten not to "roll over" the debt. If the city defaults on these notes, it is said to be bankrupt. But the banks are partly to blame because they kept lending against the very shaky Tax and Transfer receivables. The banks did not recognize the inflated assets. In sum, the banks aided the city down this road of impoverishment.

The cities deluded themselves and bankers by reporting inflated assets. The greater the assets, the greater the amount that can be borrowed. The city is pledging these assets as a potential form of payment. When the taxes come in, the banks get paid. But a time lag of at least two years was created. The deficit of the present year is allegedly not known before the end of the year. By that time, the following fiscal year's budget has been approved and cannot be touched. Thus, the present year's deficit is

recognized two years forward. Revenues and Expenses are not matched in the same time period in an accounting sense. Expenses for one year are paid by several years' Revenues. There is no matching of funds, but the bills do get paid. Although the city is responsible only to the bank, it deludes the bank in the first place by inflating assets on the Balance Sheets to match Expenses for the current year. Therefore, it is recommended that assets not be inflated and that Revenues be matched with Expenses during the same time period.

Watching the process of disaggregation allows the viewer to see who the players are in municipal finance. The cities are not alone in their surplus or deficit position. As just seen, banks play a large role in keeping cities liquid. The seasonal fluctuation in Taxes demands some type of financial assistance. The state and federal levels of government send large amounts of aid for social programs. Thus, the city is heavily dependent on other Revenue sources than just its taxing component. Any imbalance necessarily causes a deficit. Because of these findings, the Revenue component takes on more importance than it had been previously accorded in the literature.

This framework has shown that the Revenue deficit catalyzes a reaction among the entire set of accounts. Expenses are cut or not paid if a Revenue deficit emerges. This causes the debt component to be used as a plug. This

bouncing back and forth among the components draws all the actors--banks and all levels of government--into play. The citizens are affected by this chain reaction only if the necessary Revenue cannot be found although they were at the beginning of this process by voting for the central player, the mayor. After the election, it is the structural system that takes over--how the money is processed. The accounting system is blind to low income, blacks, high density, and regional location. Fiscal Strain is inherent in the accounting system, and the extent of Fiscal Strain is perhaps related to the initial political contract struck between the mayor and his constituency.

Apart from the actual Revenue and Expense findings, the most interesting and startling discovery of this study emerged by accident. After working with the Census data and then disaggregating the Current Account deficit by use of Audit data, I could sense a difference between these data sources. While the two datasets were supposed to represent the same financial data, conflicting statistics appeared for the same budget items. This felt disparity led me to testing these differences more formally. According to the tests set up in Chapter 4, it was found that Census data are inaccurate, inconsistent, and inadequate for use as a dataset to analyze Fiscal Strain. Also, no clear pattern between Census and Audit data emerged that would allow for a correction factor to be created so that the easily available Census

data could be used. Presently, it is recommended that the evaluation of Fiscal Strain in large cities be carried out by use of only Audit data. Census data should never be used unless the researcher is very familiar with the Audit data and accounting procedures and is using the two data sources in tandem.

APPENDIX A

A FRESH LOOK AT THE ALLEGED CORRELATIONS
OF FISCAL STRAIN

Gramlich and others have suggested in the literature that deficits in the Current Account (CACCT) are influenced and explained by socio-economic, fiscal, and demographic factors. Once the proper identification of these variables can be made, a model can be built to predict the behavior of the Current Account and, thus, to define Fiscal Strain. As discussed in the Literature Review, Gramlich further narrows the concept of the Current Account to a group of six subsidiary accounts, which, he feels, actually drain the city coffers, and labels this group as Marginal Account (MACCT).¹ Gramlich then builds models to predict both MACCT and CACCT.

The objective of all models is to explain a phenomenon, and their worth lies in the ability to predict that behavior over time. What good is a model if it explains only the present year? If the significance of the factors changes over the years, great doubt lies in these Fiscal Strain models. Thus, the objective of this study is to test the stability of the descriptors over time. In so doing, a retest of the significance of the original descriptors is necessary as a step in building the predictive model.

Methodology

The methodology underlying this model-building

¹This set of accounts is termed "marginal" because, in the past, they did not normally drain revenues from the city. They are welfare, higher education, transit, public hospitals, public housing, and pension contributions. Gramlich felt that, by predicting the Marginal Account, an operating deficit can be predicted.

involved data collection of budget variables for the thirty largest cities for two years, 1970-1971 and 1974-1975, the model to be built with the first year's data and then projected forward and be tested for accuracy with 1974-1975. The budget was collapsed, Exhibit A1, to obtain the two dependent variables, Marginal and Current Accounts. The independent variables, created by Census data and the Survey of Buying Power, are:²

1. Economic

a. Disposable Income (DI) of the city's population in net dollars. This indicates the relative wealth of a city. The higher the DI, the greater the earning levels of the population. This indicates the potential for more dollars going to taxes to close the revenue-expense gap.

b. Median Household Income (MEDHH), another indicator of the relative wealth of the community.

c. Percentage of population earning less than \$5,000/year (LOINC) indicates the relative number of people needing social welfare programs. The higher this percentage, the greater the probability of a MACCT

²The problem of inflation between the two years was resolved by deflating the prices to a common year. The GNP Implicit Price Deflator is the ratio of GNP in current prices to GNP in constant prices. The 1970-1971 data are weighted by 96.0 as the 1974-1975 data are weighted by 126.4. The base year used by the Statistical Abstract of the United States is 1958, and the year 1972 is weighted by 100. To use these weights, the price is multiplied by 100 and then divided by the weight. For example, if DI in 1970-1971 was 1000, $1000 \times 100 : 96.0 = 100,000 : 96.0 = \$1,041.67$. If DI in 1974-1975 was 1000, $1000 \times 100 : 126.6 = \791.14 .

EXHIBIT #A1

METHODOLOGY TO COLLAPSE BUDGET DATA

Step #1: Number budget data from the Census, 116 items Data Sheet.

BUDGET DATA SHEET--116 ITEMS
(\$000)

ITEM	19. New Orleans	1. New York
1. Population 1973 (Estimated)	573,479	7,646,818
2. Revenue, Total	229,819	14,231,572
3. General Revenue	214,162	12,763,879
4. Intergovernmental Revenue	79,403	6,699,536
5. From State Government	33,463	6,069,385
6. Education	-	1,525,369
7. Highways	6,365	64,295
8. Public Welfare	1,473	3,264,183
9. Health and Hospitals	387	201,773
10. Housing and Urban Renewal	-	60,449
11. General Support	22,264	596,817
12. Other	2,974	356,499
13. From Federal Government	45,670	613,700
14. General Revenue Sharing	18,211	259,681
15. From Local Governments	270	16,451
16. General Revenues from Own Sources	134,759	6,054,343
17. Taxes	82,897	4,852,702
18. Property	29,317	2,668,722
19. General Sales and Gross Receipts	36,357	791,116
20. Selective Sales and Gross Receipts	10,580	407,306
21. Alcoholic Beverages	780	-
22. Motor Fuels	-	9,694
23. Public Utilities	5,640	96,033
24. Tobacco Products	-	44,795
25. Other	4,160	256,784
26. Income Taxes	-	891,056
27. Motor Vehicle Licenses	1,036	23,454
28. Miscellaneous Licenses	5,607	35,486
29. Other	-	35,562
30. Charges and Miscellaneous Gen. Revenue	51,862	1,211,641
31. Current Charges	35,199	770,718
32. Education	-	95,235
33. School Lunch Sales	-	13,449
34. Other Local School Charges	-	221
35. Institutions of Higher Education	-	81,565
36. Highways	237	132,040
37. Hospitals	-	198,097
38. Sewerage	6,571	47,836
39. Sanitation Other than Sewerage	2,576	13,985
40. Parks and Recreation	2,125	8,693
41. Housing and Urban Renewal	-	191,104

42.	Airports	5,435	-
43.	Water Transport and Terminals	-	12,369
44.	Parking Facilities	1,267	23,189
45.	Miscellaneous Commercial Activities	12,631	7,113
46.	Other	4,357	41,057
47.	Special Assessment	788	3,530
48.	Sale of Property	343	15,978
49.	Housing and Urban Renewal	-	-
50.	Other	343	15,978
51.	Interest Earnings	11,351	170,892
52.	Fines and Forfeits	1,793	70,859
53.	Other and Unallocable	2,388	179,664
54.	Utility Revenue	9,862	809,800
55.	Employee Retirement Revenue	5,795	657,893
56.	Expenditure Total	218,650	14,040,125
57.	General Expenditure	197,409	11,641,287
58.	Intergovernmental Expenditure	1,623	69,732
59.	Direct General Expenditure	195,786	11,571,555
60.	Current Operation	145,745	8,279,422
61.	Capital Outlay	39,202	1,467,687
62.	Construction	26,452	1,332,926
63.	Land and Existing Structures	6,164	85,753
64.	Equipment	6,586	49,008
65.	Assistance and Subsidies	60	1,143,088
66.	Interest on General Debt	10,779	681,358
67.	Education	1,954	2,726,295
68.	Local Schools	1,954	2,242,003
69.	City-Operated Schools Only	-	2,125,111
70.	Institutions of Higher Education	-	484,292
71.	Highways	15,320	204,274
72.	Public Welfare	3,647	2,887,664
73.	Categorical Cash Assistance	-	980,251
74.	Other Cash Assistance	60	162,837
75.	Vendor Payments for Medical Care	-	891,572
76.	Vendor Payments, Other	-	-
77.	Welfare Institutions	1,269	13,165
78.	Other Public Welfare	2,318	839,839
79.	Hospitals	-	1,335,457
80.	Own Hospitals	-	747,110
81.	Other Hospitals	-	588,347
82.	Health	6,072	285,760
83.	Police Protection	27,653	561,424
84.	Fire Protection	17,409	229,893
85.	Sewerage	12,643	357,961
86.	Sanitation Other Than Sewerage	8,505	228,903
87.	Other Than Capital Outlay	6,387	186,084
88.	Parks and Recreation	14,239	151,422
89.	Other Than Capital Outlay	8,009	93,335
90.	Housing and Urban Renewal	-	626,636
91.	City Housing Projects	-	444,922
92.	Capital Outlay Only	-	151,166

93.	Urban Renewal Projects	-	179,849
94.	Capital Outlay Only	-	114,028
95.	Other	-	1,865
96.	Libraries	2,269	81,538
97.	Financial Administration	4,943	62,233
98.	General Control	10,800	211,614
99.	Courts	6,127	135,098
100.	Other	4,673	76,516
101.	General Public Buildings	4,715	58,637
102.	Interest on General Debt	10,779	681,358
103.	All Other	56,461	950,218
104.	Airports	7,123	-
105.	Other Than Capital Outlay	2,181	-
106.	Water Transport and Terminals	-	58,467
107.	Other Than Capital Outlay	-	2,353
108.	Correction	7,983	142,017
109.	Parking Facilities	280	30,711
110.	Other Than Capital Outlay	258	13,355
111.	Protective Inspection and Regulation	1,788	27,217
112.	Miscellaneous Commercial Activities	12,880	11,139
113.	Other and Unallocable	26,407	680,667
114.	Utility Expenditure	9,017	1,548,232
115.	Employee Retirement Expenditure	12,224	850,606
116.	Exhibit: Total Expenditure for Personal Services	98,457	5,870,806

* * * * *

Step #2: Collapse data by use of formulas stipulated in 34 item Data Sheet.

BUDGET DATA SHEET--34 ITEMS

<u>New York</u> <u>1974-1975</u>	<u>Col</u>	<u>Category</u>	<u>Data Sheet</u>
6699536	1. 8	Grants (C ₁)	5
1583467	2. 8	Normal Functions (Y)	12+13+14+16
1525369	3. 8	Schools	7
3590700	4. 8	Marginal Functions	9+10+11+8
3264183	5. 8	Welfare	9
201773	6. 7	Public Health	10
60449	7. 6	Public Housing	11
64295	8. 6	Transportation	8
6064343	9. 8	Own Revenues (C ₂)	17
6257667	10. 8	Taxes (Z)	17+55-33-37-38-42
2668722	11. 8	Property Tax	19
1179134	12. 8	Marginal Functions	37+38+42+56
132040	13. 7	Transportation	37
198097	14. 7	Hospitals	38
191104	15. 7	Public Housing	42
657893	16. 7	Pensions	56
95235	17. 6	Schools	33
6190397	18. 8	Marginal Functions = Q	73+72+80+83+91+115
2887664	19. 8	Welfare	73
204274	20. 7	Highways	72

1621217	21.	8	Hospitals and Health	80+82
626636	22.	7	Public Housing	91
850606	23.	7	Pensions	115
2726295	24.	8	Schools	69+71
5123433	25.	8	Normal Functions	57-69-Q-71
7841134	26.	8	Normal Revenues Y + Z	
1620604	27.	8	School Grants and Charges	7 + 33
191447	28.	7	Current Account Deficit	3-57
-1420563	29.	9	Marginal Functions Deficit all below	
376519	30.	7	Welfare	9-73
-7939	31.	6	Transportation	8+37-72
-1221347	32.	9	Public Health	10+38-80-82
-375083	33.	8	Public Housing	11+42-91
-192713	34.	8	Pensions	56-115

* * * * *

Step #3: Output of FORTRAN program should look like Gramlich's model.

COMPOSITION OF NEW YORK CITY BUDGET DEFICIT, FISCAL 1974
(Millions of current dollars)

Revenues	11,291.5	Current expenditures	11,779.1
Grants	5,076.3	Normal functions	3,769.5
Normal functions plus untied	1,442.2	Schools	1,726.3
Schools	872.4	Marginal functions	6,283.3
Marginal functions	2,761.7	Welfare	2,587.4
Welfare	2,393.1	Higher education	490.1
Higher education	196.0	Transit	989.7
Public hospitals	135.5	Public hospitals	1,088.1
Public housing	37.1	Public housing	294.3
Own revenues	6,215.2	Pension contributions	833.7
Taxes plus normal charges	5,186.0		
Marginal functions	1,029.2		
Higher education	72.0		
Transit	629.5		
Public hospitals	147.3		
Public housing	180.4		
Current account deficit	487.6		
Normal revenues	6,628.2	Normal expenditures	3,769.5
School grants	872.4	School expenditures	1,726.3
Current account deficit	487.6	Marginal functions deficit	2,492.4
		Welfare	194.3
		Higher education	222.1
		Transit	390.2
		Public hospitals	805.3
		Public housing	76.8
		Pension contributions	833.7

Source: U.S. Bureau of the Census *City Government Finances, 1973-74.*

deficit.

d. Percentage of population earning more than \$10,000/year, another way to detect wealth, the relative magnitude of this meaning less need for welfare and, hence, less MACCT deficit.

2. Demographic

a. Population (POP) in absolute numbers.

b. Density (DENS) defined as population/mile. The literature suggests that density equalizes the population across cities and spotlights those with abnormally high ratios. It is thought that high density is correlated with high LOINC, thereby draining MACCT.

c. Percentage non-white (NONWH) residents in the population is thought to indicate the relative amount needed for social programs, thereby affecting the MACCT.

d. Regional location of the city is indicative of the general economic development potential. Certain sections of the country are now enjoying rapid expansion at the expense of older regions of the country. Gramlich felt that the dummy variables Midwest (MIDW) and South (STH) would test this.

3. Financial Data

a. Debt per capita (DEBT) defined as gross outstanding debt/population is used as an indicator of the city's future responsibility to repay banks and bondholders. This ratio is thought to be unfair to cities that have just taken out large amounts of debt for capital improvements. Many times, these improvements are signs of fiscal stability, thus conflicting with the prevailing sentiment that high debt per capita ratios

signal FS.³ Some financial analysts feel that debt is not an independent variable influencing or describing the Current Account, but rather a dependent variable, too. Thus, there may be too much unexplained variance or collinearity in the model. The next attempt at an econometric model would involve further work to isolate and explain this variable.

b. Revenue sharing (REVSH) is the amount of absolute dollars given to each city. It becomes a variable in the 1974-1975 data. Since it is a new variable, it will indicate the importance of these funds to declining economies.

To further prepare the variables for model building, exploratory data analysis plotted x versus y variables to discover any non-linear relationships, which would necessitate variable transformation. Surprisingly, no variables formed any shape that might have indicated a curvilinear form. Even POP and DENS, which I suspected would need transformation, plotted a roughly horizontal bar. Another problem that could disturb the linear relationship of the data is the belief that some cities like New York or Los Angeles are so big and different from the mainstream that their influence would exaggerate the equation and line in some way. To test the presence of outliers, the "Normal Probability Plot for Standardized Residuals" in Figures #A1 and A2 was constructed. This plot tests the Gaussian

³Interview with Chester Harris, President of Chester Harris and Company, Municipal Bond Underwriters, New York, New York, 28 April 1977.

FIGURE #A1
NORMAL PROBABILITY PLOT FOR STANDARDIZED RESIDUALS, 1970-1971

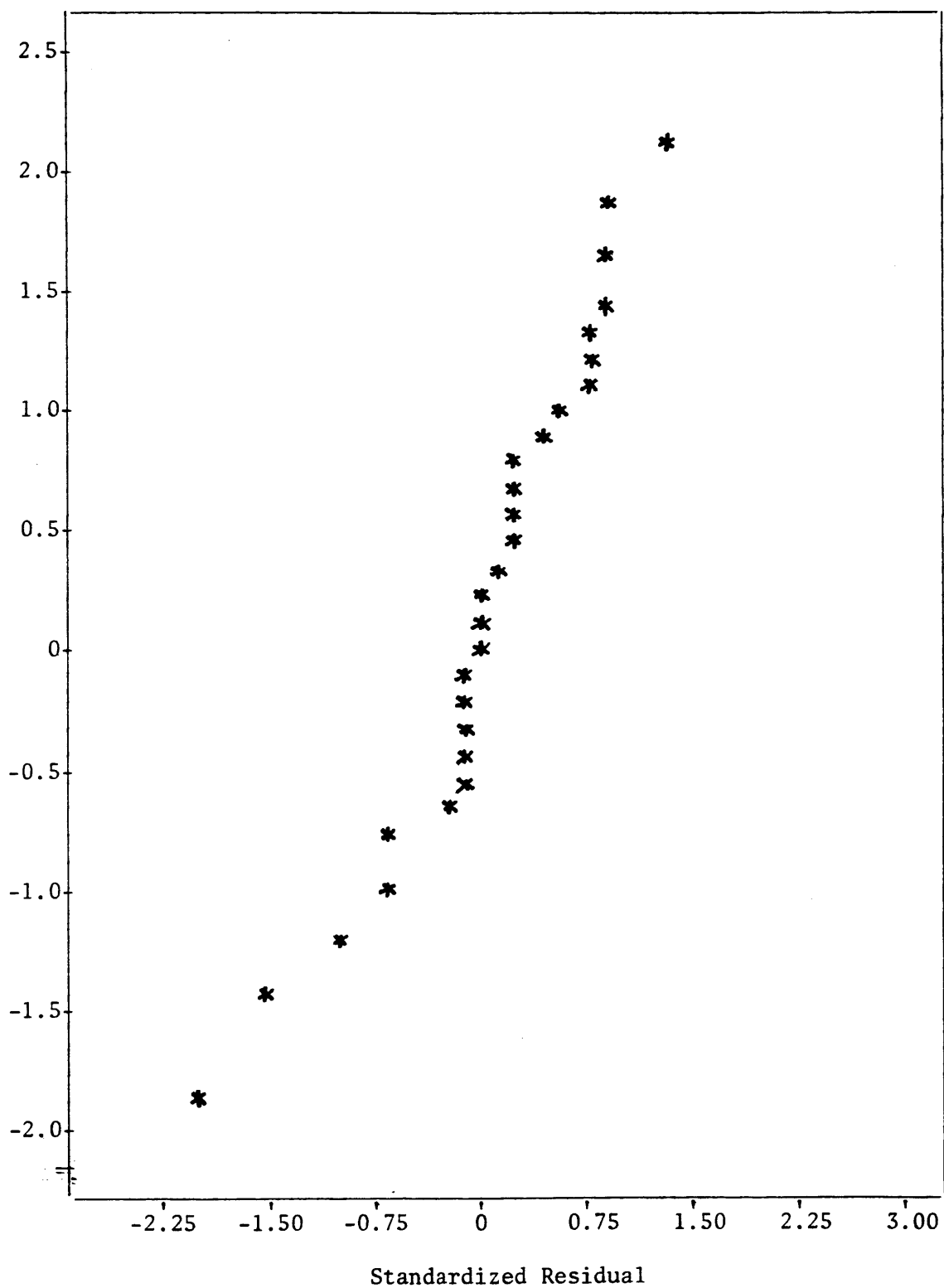
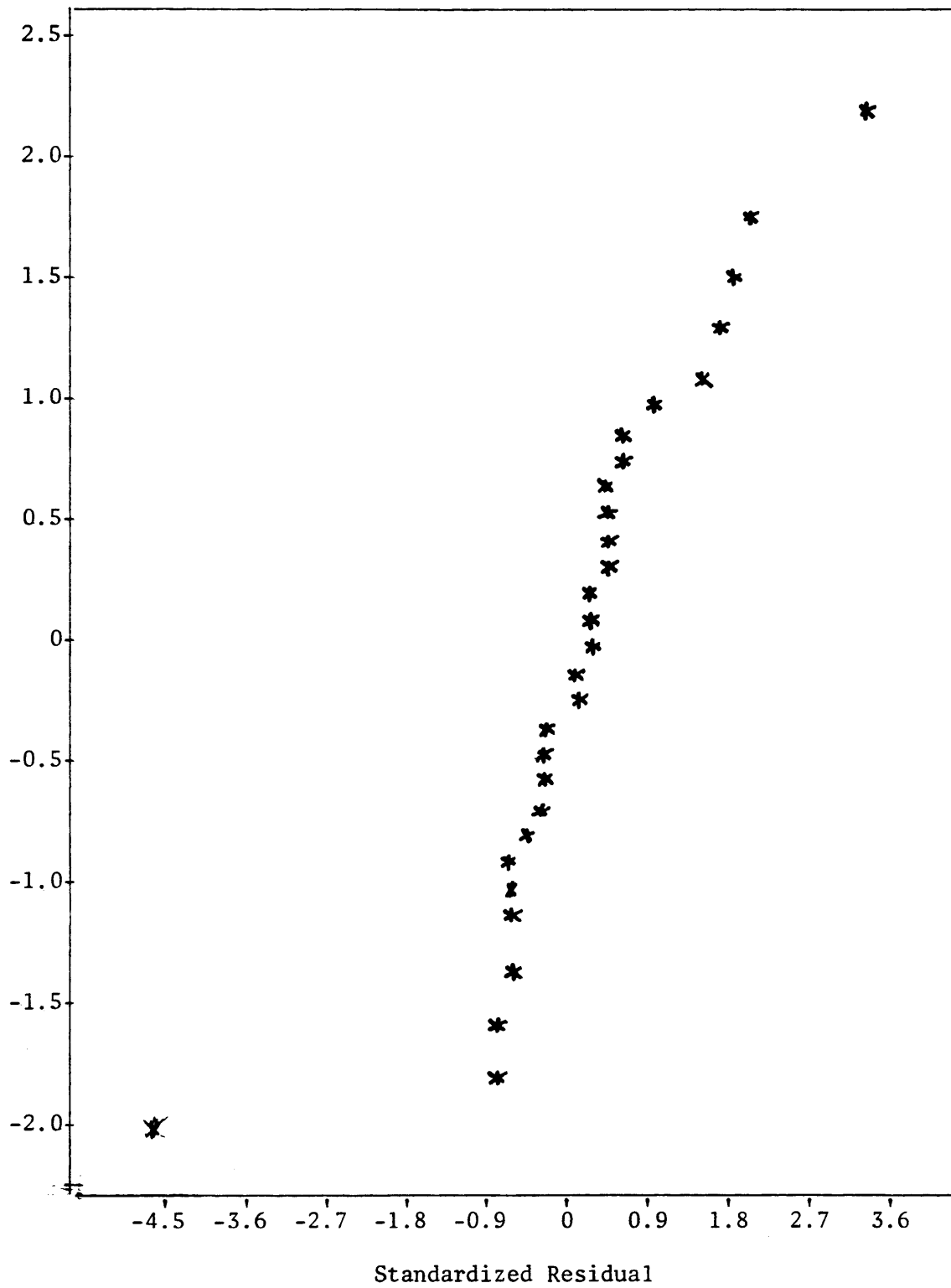


FIGURE #A2
NORMAL PROBABILITY PLOT FOR STANDARDIZED RESIDUALS, 1974-1975



assumption of normally distributed errors. In 1970-1971, the standardized residuals fall on a roughly straight line with only two possibilities for outliers. As an outlier, New York had been evident in most x versus y plots while Chicago and Los Angeles were seen less frequently. In 1974-1975, the standardized residuals fall on a tighter line than in 1970-1971. Only one data point, New York City, seems like a clear outlier. To test further for outliers, Exhibit #A2, "The Hat Matrix," tests New York, Los Angeles, and Chicago as outliers. The result is that none can be determined to be an outlier, thus, all are used as data points in the linear models.

Model Calibration

With variables in shape and all cities cleared for residency in the dataset, the model is built by use of all possible subsets.⁴ The following models were chosen from a longer list of the "best equation output. I chose four for each CACCT and MACCT on the basis of the computer's assessment and an analysis of test results on the equation

⁴For each dependent variable, 2^k regressions are run. K is the number of the independent variables. For 1970-1971, $2^k=2^{10} = 1296$. For 1974-1975, $2^k=2^{11} = 2592$. These regressions are then divided into sets of runs that involve p variables, $p = 1, 2, \dots, k$, and each set is ordered according to some criterion. Usually, the criterion is the value of R^2 achieved by the least square's fit; if, however, the R^2 is not substantially increased by inclusion of additional variables, Mallows' C_p will be used to minimize the number of regressors (and parameters), trading bias for tighter prediction.

EXHIBIT #A2
THE HAT MATRIX*

The Normal Probability Plot and several x vs. y plots indicate the possibility of an outlier. The data point in question each time is New York City. It is thus necessary to determine how much influence or "leverage" each data value (y_i) has on each fitted y-value (\hat{y}_j). The hat matrix is employed to process each fitted value \hat{y}_j as a linear combination of the observed values y_j .

To obtain h_i , the following formula was used:

$$sr = \frac{r_i}{s \sqrt{1-h_i}}$$

r_i = actual residual s^2 = residual mean square sr = standardized residual

The result $h_i = .9962$ is compared to the critical test of $2 p/n = .2000$. Since h_i is much greater than $2 p/n$, the observation, NYC, is highly suspect as an outlier with great leverage on the regression line. It is now important to determine whether this would have an adverse effect on the fit. It is possible to have great leverage as detected by h_i , but still maintained as a useful data point contribution to accurate prediction. To test this condition, the studentized residual with a t distribution of $n-p-1$ degrees of freedom is used.

$$r_i^* = r_i / s_{(i)} \sqrt{1-h_i}$$

To determine $s_{(i)}$, use:

$$(n-p-1) s_{(i)}^2 = (n-p) s^2 - \frac{r_i^2}{1-h_i}$$

The NYC $r^* = .5157$ and is significantly smaller than the t statistic, 2.000, indicating that NYC, even with its extreme values, is quite important in providing information on certain coefficients. I thus choose to maintain NYC (and LA and Chicago with similar findings) as an observation in the data set. This statistical analysis is further buttressed by a more practical reason. It is precisely these cities, NYC, Chicago, LA, that most people in the field would like to be able to explain and predict. If they were discarded from the sample, all possibility of this would be lost.

*David Hoaglin and Roy Welsch, "The Hat Matrix in Regression and ANOVA," Working Paper #901-77 (Cambridge: MIT, Sloan School of Management, 1977).

and the individual regressors.

Current Account (CACCT)

<u>Model</u>		<u>C_p</u>	<u>R²</u>	<u>F-95%</u>	<u>t 95%</u>
C-DI-DEBT	(1)	-1.08	.84	yes	yes
C-DI-NONWH-DEBT	(2)	-0.68	.85	yes	no NONWH
C-DI+STH-DEBT	(3)	0.34	.61	yes	no STH
C-DI+STH-LOINC-DEBT	(4)	1.35	.63	yes	no STH LOINC

Of all possible subsets performed on 1970-1971 data, Model 1 was chosen as "best." Thus, Current Account is explained "best" by DI (Disposable Income) and DEBT (outstanding debt per capita). The C_p is minimized as the R^2 is maximized. Only Model 2 has a comparable R^2 of .85; however, NONWH is only a significant regressor at the 75 percent level, thus casting much doubt on its inclusion in the model. Model 3 includes STH, testing the location factor, much heralded in the literature to explain Fiscal Strain. Surprisingly, the R^2 for Model 3 is only .61, a .20 drop from Models 1 and 2. LOINC, another contender for predicting Fiscal Strain, was included in only one of the "best" subsets. Model 4 includes LOINC with the regressors in Model 3 for a rise in R^2 from .61 to .63. This meager increase casts doubt on LOINC as a factor most social scientists and municipal analysts claim as a vital statistic. The models have shown that LOINC, NONWH, and STH do not add significantly to the R^2 and are not strong regressors.

Thus, some of the fundamental beliefs about socio-economic and demographic factors are shaken. Further analysis will be shown in the Time Series section.

Marginal Account (MACCT)

<u>Model</u>		<u>C_p</u>	<u>R²</u>	<u>F-95%</u>	<u>t 95%</u>
C-DI-DEBT	(5)	-1.73	.86	yes	yes
C-DI+STH-DEBT	(6)	-0.43	.87	yes	no STH
C-DI-DENS-DEBT	(7)	-0.43	.86	yes	no DENS
C-DI-NONWH-DENS-DEBT	(8)	0.77	.87	yes	no DENS NONWH

Of all possible subsets performed on 1970-1971 data, Model 5 was chosen as "best" as it minimized C_p while maintaining a R^2 of only .01 from the strongest R^2 s, three and four variable models. Thus, MACCT is explained by the same regressors as CACCT. Models 6 and 7 emerge as "best" for three-variable models. With the inclusion of STH to DI and DEBT, location becomes a significant regressor in Model 6. However, DENS is not significant in Model 7, thus shaking some conventional Fiscal Strain analyses. Model 8 also lists DENS as an insignificant factor as well as NONWH. The additions of NONWH and DENS, both planks of Fiscal Strain theory, fare very poorly as regressors as can be seen by the jump in C_p to 0.77. Thus, the two-variable model using DI and DEBT explains MACCT just as it did for CACCT. The important finding here is that the ten- to twenty-variable models built in the literature are not even as accurate as

the two-variable models tested here.

Projecting the Model

- | | |
|--------------------|-------------------|
| A. C-DI-STH-DEBT | C. C-DI-DENS-DEBT |
| B. C-DI-NONWH-DEBT | D. C-DI+STH-DEBT |

The models chosen above do not include the "best" MACCT and CACCT model, C-DI-DEBT, because these two variables are tested as to their stability over time by inclusion in all the models above. These models were chosen as representative of the conventional wisdom; this is just continued testing of those beliefs. The 1970-1971 models already built will be compared to models built by 1974-1975 data. Using models built on data only four years apart tests the stability and usefulness of the models. The biggest problem in forecasting is this change. How long does it take for a model to become obsolete? If there is obsolescence within only four years, the ability to project with any degree of accuracy is severely limited. Preliminary analysis of the 1974-1975 data showed that REVSH, POP, and DENS turn up as frequent regressors while, in the 1970-1971 dataset, these were practically non-existent. Although DI, DEBT, and STH appear with frequency in both years, the coefficient changes.

To formally test the stability of coefficients over time, two equations were created for each model. The first used only 1970-1971 data while the second incorporated both

years. If the 1970-1971 coefficients plus (or minus) their standard errors overlap with the 1970-1971 and 1974-1975 coefficients plus (or minus) their standard errors, then the coefficients are interpreted as remaining significantly the same. If not, model prediction four years away is risky, at best.

Table #A1 presents the results. STH in Model B is the only regressor whose coefficient changes significantly over time. As discussed, preliminary research showed STH as a new addition to the key variables in 1974-1975. Although this is the only regressor to pass the standard test on stability, there are other clues that cast doubt on most of the remaining regressors. The tests do not conclusively determine the regressors to be stable over time. Careful analysis of the standard errors shows the magnitude to be too great to place confidence in the regressors. The errors are so large relative to the coefficient that there is little hope for accuracy or precision.

Models A, B, C, and D were calibrated by 1970-1971 fiscal data and used to project CACCT and MACCT in 1974-1975. These predictions were then compared to 1974-1975 actual data. Examination of the residual (actual-fitted) plots showed tight clustering around zero for Model B, $CACCT = C-DI-NONWH-DEBT$, and Model D, $MACCT = C-DI+STH-DEBT$. Location STH is more important in predicting accuracy for MACCT than for CACCT. Similarly, the racial composition,

TABLE #A1
STABILITY OF COEFFICIENTS OVER TIME

Dataset	Variable	Coefficient	SE	Range	Overlap?
70-71	MODEL A CACCT = C - DDI - STH - DEBT				
	DI	-.0164	.0024	-.0186 to .0140	
	STH	-11385.8	34364.0	-45749.8 to 22978.2	
	DEBT	-209.25	62.85	-272.10 to -146.40	
70-71 +	DI	-.0052	.0029	-.0081 to -.0023	yes
	STH	4233.93	41147.2	369.27 to 45381.13	no
	74-75 DEBT	-119.476	63.4953	-182.98 to 55.98	yes
70-71	MODEL B CACCT = C - DI - NONWH - DEBT				
	DI	-.02	.00	-.02 to -.02	
	NONWH	1066.03	765.23	300.80 to 1831.26	
	DEBT	-263.16	68.25	-331.41 to 194.91	
70-71 +	DI	-.01	.00	-.01 to -.01	yes*
	NONWH	73.91	914.41	940.50 to 988.32	yes
	74-75 DEBT	-120.10	68.83	-188.83 to -51.27	yes
70-71	MODEL C MACCT = C - DI - DENS - DEBT				
	DI	-.03	.00	-.03 to -.03	
	DENS	-4.76	5.17	-9.93 to .41	
	DEBT	-332.89	119.67	-452.66 to -213.22	
70-71 +	DI	-.03	.00	-.03 to -.03	yes
	DENS	-4.45	3.33	-7.78 to -1.12	yes
	74-75 DEBT	-279.41	65.78	-345.19 to -213.63	yes
70-71	MODEL D MACCT = C - DI + STH - DEBT				
	DI	-.04	.00	-.04 to -.04	
	STH	22495.90	66622.00	-44126.1 to 89117.90	
	DEBT	-3085.67	126.93	-512.60 to -158.74	
70-71 +	DI	-.03	.00	-.03 to -.03	yes*
	STH	27040.20	46538.4	-19498.20 to 73578.60	yes
	74-75 DEBT	-212.40	58.36	-270.76 to -154.04	yes

*) Not evident due to rounding.

NONWH, predicts better for CACCT than location, STH. The residual plots also showed that both CACCT models underpredicted (the fitted was less than the actual) more often.

According to the summary statistics for the comparison of the actual and predicted time series, the four models and their regressors do not work well. The tight-fitting residual plots initially obscure this conclusion. But, as illustrated below, the correlation and regression coefficients are all negative. The negative coefficient means that, as the actual set of data increases, the fitted values decrease.

Model	A	B	C	D
Correlation Coefficient	-.3437	-.3261	-.3843	-.3704
Regression Coefficient	-.1506	-.1383	-.0845	-.0801

In essence, the two groups of data, actual and predicted, are moving away from each other. Not even DI and DEBT fared well. Reasons for these poor results are possibly contained in the construction of the dataset itself. Possible problems are: (1) the reliability of the data; (2) not enough observations (years) to calibrate the model well; and (3) the two years may be too different from each other to compare. Because of this evidence, prediction results can neither be trusted nor rejected. There is enough evidence, though, to question the validity of past models. Further modeling with an expanded dataset is clearly needed.

Conclusion

It was found that only two variables, DI and DEBT, are significant regressors for both MACCT and CACCT. Other models involving regressors LOINC, NONWH, and STH displayed insignificant t scores, thus casting doubt on the conventional wisdom's view of the factors associated with Fiscal Strain. Although the coefficients of DI and DEBT remained stable over time, the model projection over the four years showed that the predicted scores did not fit the actual. Negative correlation and regression results indicated that other influences may have created the ill fit between actual and fitted scores. Thus, if the dataset were enlarged and made reliable, model prediction might become possible.

Gramlich's hypothesis concerning MACCT as being a key indicator of FS is difficult to prove. Simple data analysis (Table #A2) shows that all thirty cities carried a MACCT deficit in 1970-1971 and twenty-nine out of thirty in

TABLE #A2
PERCENTAGE OF CITIES RUNNING DEFICITS

Deficit in	1970-1971	1974-1975	1970-1971+1974-1975
CACCT	<u>16</u> 53%	<u>15</u> 50%	<u>9</u> 30%
MACCT	<u>30</u> 100%	<u>29</u> 97%	<u>29</u> 97%
CACCT and MACCT	<u>16</u> 53%	<u>16</u> 53%	<u>16</u> 53%

1974-1975. It is possible that, historically, there is a deficit in these accounts and not a surplus as was suggested. The ability of a city to cover the MACCT deficit by other resources thus prevents a CACCT deficit. A city's resources are the indicator of Fiscal Strain and not the MACCT balance.

APPENDIX B

OVERVIEW OF MUNICIPAL ACCOUNTING

The basis for state and local governmental accounting systems is Governmental Accounting, Auditing, and Financial Reporting (GAAFR), developed by the Municipal Finance Officers' Association. Although GAAFR is thought to be the authoritative work, the Committee on Governmental Accounting and Auditing of the American Institute of Certified Public Accountants produced an industry audit guide, Audits of State and Local Governmental Units (ASLGU). The audit guide recognizes the authority of GAAFR but maintains:

GAAFR's principles do not represent a complete and separate body of accounting principles, but rather a part of the whole body on generally accepted accounting principles, which deal specifically with governmental units. Except as modified in this guide, they constitute generally accepted accounting principles.¹

The two independent sources have created some confusion among analysts as to what the appropriate accounting procedures are. The situation is analogous to corporate accounting where a corporation prepares two sets of financial statements: one for the government (tax purposes) and one for accounting (auditing purposes). A municipality is legally bound to one type, and then, to get a "clean" opinion by an auditor, it prepares another type. If there is a conflict between legal provisions and generally accepted accounting principles applicable to municipal units, the

¹Committee on Governmental Accounting and Auditing, American Institute of Certified Public Accountants, Audits of State and Local Governmental Units (New York: American Institute of Certified Public Accountants, 1974), p. 9 [hereafter cited as ASLGU].

ASLGU states that GAAFR must take precedence if the auditor is to render an unqualified opinion. Differences between GAAFR and ASLGU will be discussed throughout this Appendix.

Both sources purport the use of Fund Accounting as the basis that underlies the organization of information, which is processed to report on and check the financial soundness of municipalities. GAAFR reports:

A fund is defined as an independent fiscal and accounting entity with a self-balancing set of accounts recording cash and other resources with all related liabilities, obligations, reserves, and equities that are segregated for the purpose of carrying on specific activities or attaining certain objectives in accordance with special regulations, restrictions, and limitations.²

The use of a fund systems as a control device should be noted. The authority creating the fund (constitutional convention, legislative body, or chief executive) does so to accomplish a special purpose. Limitations are placed on the use of resources, and requirements must be met in order to continue similar budget appropriations. Because of this, it is thought that fund accounting keeps government operations "clean."³

Accounting Basis

The basis of accounting is a device for matching revenues and expenses during a designated period of time and refers specifically to the time when revenues and expenses

²Municipal Finance Officers' Association, Government Accounting, Auditing, and Financial Reporting (Ann Arbor, Michigan: National Committee on Governmental Accounting, 1968), pp. 6-7 [hereafter cited as GAAFR].

³GAAFR, p. 11

are recorded as such in the accounting records. There are two bases, each having modifications to produce four types in total.

1. Full Accrual Basis

Revenues are recorded in the period in which the service is given even if payments are made in a prior or subsequent period. Expenditures are recorded in the period in which the benefit is received even if payment is made in a prior or subsequent period. It is commonly thought that, if practicable, full accrual provides a superior method of accounting because there is an accurate "matching" of costs against revenues flowing from those costs, thereby reflecting a more exact statement of profit and loss. For governmental accounting, accrual basis is thought more important for the accounting of expenditures as a check against excessive spending by public officials.⁵

2. Modified Accrual Basis

Revenues are recorded as received in cash except for (a) revenues susceptible to accrual and (b) revenues of a material amount that have not been received at the normal time of receipt. The word "susceptible" is key; its meaning in accounting is: for a revenue to be considered susceptible to accrual, it must be both measurable and available. Revenues are considered measurable at such time as the amount becomes known or can be reasonably estimated based

⁵R. M. Mikesell and Leon Hay, Governmental Accounting (Homewood, Illinois: Richard P. Irwin, Inc., 1974), p.4.

on prior experience and other information. Availability implies the resource can properly be appropriated in a particular budget year and will be collected in cash or available for liquidating liabilities for expenditures that occurred in the same period as that in which the revenues are to be reported.

3. Cash Basis

Revenues are recorded in the period in which payment is received and expenditures in the period in which payment is made. Some governments record revenue on a cash basis because it is sometimes uncollectible although legally due. This is done to reflect a more accurate picture of cash assets.

4. Modified Cash Basis

This type, as modified accrual, is part cash and part accrual. It is non-discriminating in that either part (accrual or cash) is acceptable, but both must be there together.

Structure of Fund Accounting

Accounting systems allow different funds to be accounted for differently. Following is a discussion of the eight types of funds and two groups of accounts and the basis of accounting for each.

1. General Fund

Usually the largest and most important accounting activity for municipal governments, the General Fund accounts for all revenues and expenditures not accounted for in other funds. Its importance should be emphasized as it finances most of the current operations of governmental units. It is the management and control of this fund in particular that determine the financial soundness of a city. Any current account deficits that must be covered by the bond market are a warning and indicator of potential fiscal crisis.⁶

The General Fund receives as revenues: property taxes, sales taxes, income taxes, licenses and permits, business gross receipts taxes, fines and penalties, rents, charges for current services, state-shared taxes, and interest earnings. The General Fund may interact with other funds to jointly finance construction of special assessment improvements. The governmental unit's contribution to an employee retirement fund may be paid out of the fund. The fund may also transfer monies to and from other funds to make up deficits. Any unappropriated balances of other funds are generally transferred by the legislative body to the General Fund.⁷

⁶Joan K. Martin, "Predicting Fiscal Strain in Cities," unpublished paper, MIT, Cambridge, June 1977.

⁷GAAFR, p. 15.

The General Fund is accounted for on the Modified Accrual Basis. One major source of revenue, the property tax, is a major source of discussion in the accounting trade. Is the property tax susceptible to accrual? It is, indeed, measurable; assessments are made, and fairly accurate predictions of collection rates can be ascertained based on prior experience. The problem of susceptibility focuses on availability of revenue.

To determine the availability of property taxes, it is known when taxes are billed and due, usually within the same year. However, some municipalities make payments due in the following year, which does cause accounting inaccuracy and a mismatching of revenues and expenditures. In those cities where payment is due in the same year, the property tax can be accounted for on an accrual basis. In those cities where payment is due the following year, the tax must be on a cash basis. However, if the municipality can issue Tax Anticipation Notes in an amount equal to all or a major portion of the tax levy, the taxes can be considered available and, thus, are susceptible to accrual.

Because the property tax is the largest source of revenue, the way it is reflected in financial statements is central to how sound the city appears to bond underwriters and analysts. Their assessment of the city largely determines the cost of issuing debt where even 0.25 percent differential can mean inability to go to the bond market.

Sometimes, it is too expensive to deal bonds in the market.

Use of the accrual method is imperative to reflect financial soundness. Since the taxes are recorded as revenue when levied, the city's expenditures are balanced in that fiscal year's budget. It is crucial, however, to look at the percentage allocated for taxes as receivable in the following year and the percentage allocated for uncollectible bad debts. This is the clue to assess a city's inflow of tax revenue. Has the city charged off enough in each category? To check, look at the footnotes to the financial statements. One footnote should include historical data on effective tax collection. Sometimes, cities will give accurate data in the footnotes, e.g., 8 percent uncollectible, and then use a 5 percent rate in the body of the balance sheet. It is not hard to "tear up" financial statements if one knows the warning signals. More clues will be discussed later in the paper.

Other taxes such as income taxes, gross receipts taxes, and sales taxes are not susceptible to accrual due to their self-assessing basis. In other words, a municipality does not have data exact enough to predict or measure the amount it will receive--it is not measurable though it is available. Federal, state, or other grants are susceptible to accrual. Generally, if fund expenditure is the prime factor for determining eligibility for the grant funds, revenue should be recognized at the time of making

the expenditures.⁸ In sum, the General Fund is established to account for resources devoted to financing the general services that are performed for the citizens. Any activity that has not a special fund set up for it becomes part of this.

2. Special Funds

These are used to account for revenues derived from specific taxes or other earmarked revenue sources. Usually, statutes, charter provisions, or local ordinances have established these funds to finance particular functions or activities of the government. Examples include parks, schools, museums, highway construction, street maintenance, law enforcement, and the licensing and regulation of professions and businesses.⁹

Legislative action can even charge off current operating costs to a special fund. This possibility gives rise to yet another way to obscure operating deficits. Capital outlays may also be accounted in a special fund though this poses no immediate threat to analyzing a municipal budget. At the time of legislative action establishing the funds, the time expanse is created; it may have a definite, limited life, or it may remain in effect until discontinued by similar legislative action.

⁸John E. Schramm, "Municipal Accounting and Reporting," CPA Journal 46 (May 1976):21.

⁹GAAFR, p. 28.

The amount and nature of the revenue sources, which finance a particular facility or program, determine whether the program is accounted for as a Special Revenue Fund or as an Enterprise Fund (another type, discussed later). The general rule is that the distinguishing characteristic of a Special Revenue Fund is that most of the revenue involved in the operation comes from tax and non-tax sources not directly related to services rendered rather than from direct charges to users of the services. Facilities and programs financed predominantly from user charges are accounted for in the Enterprise Fund.

Both the accounting principles and the accounting basis used in the General Fund are applicable to the Special Revenue Funds. Modified accrual basis is used if not specified to the contrary in the enabling legislation. The accounting principles used in both General and Special Funds are;

- a. Depreciation is not taken on the assets acquired by Special Revenue Funds. This is quite logical since depreciation is just a non-cash expense used to decrease the amount of profit and, hence, reduce the tax share paid by an individual investor or corporation; since no taxes are paid in government, allowance for depreciation is almost rendered meaningless. It should be noted, however, that there is a movement, small as it may be, towards reporting depreciation to better reflect deterioration and a more accurate, businesslike picture of government assets.
- b. The fixed assets are not accounted for in the Special Revenue Fund but in the General Fixed Asset Group of Accounts.

- c. Long-term debt and its debt service costs incurred for Special Revenue Fund purposes are usually not carried in the Special Revenue Fund but in its own set of accounts. An exception to this rule is the case of earmarked tax revenue, which, in addition to meeting specified operating expenses and/or capital outlays, is also specifically directed to be used for servicing limited tax bonds payable only from this particular tax and its Special Revenue Fund.¹⁰

Accounting for public schools is done through the Special Revenue Fund when stipulated by law. GAAFR, however, recommends not doing so and purports accounting for as a single function in the General Fund. In order to comply with the generally accepted accounting principles, the fixed assets and long-term liabilities incurred would be treated in the Capital Projects Funds, Debt Service Funds, General Fixed Asset Group of Accounts, and Long-term Debt Group of Accounts.

The accounting for public schools is a thorny problem because the wide variability of enabling state legislation has caused similar variability in accounting practices. Since schools are a tremendous portion of the budget, the accounting treatment could make a city look either solvent or insolvent when compared to other cities. A city is more likely to run a Current Account deficit if schools are accounted for in the General Fund rather than in a Special Revenue Fund or as an independent authority.¹¹ This bears

¹⁰GAAFR, p. 29.

¹¹Martin.

great relevance on the municipality's ability to obtain an Aaa rating by Moody's and, consequently, to raise money in the bond market at a lower interest rate. This treatment of public school accounting is another indicator of financial soundness. The analyst should look immediately to this section in a bond prospectus when assessing the worth of a city and the risk of investment.

3. Debt Service Funds

The funds account to the payment of interest and principal on long-term general obligation debts. However, this does not include debt incurred for and serviced primarily by a governmental enterprise (see Enterprise Funds) or for Special Assessments (see Special Assessments Funds). The three types of debt placed in the Debt Service Funds are: (1) term or sinking fund bonds; (2) serial bonds; and (3) notes and time warrants having a maturity more than one year after date of issue.

The accounting for all three types is the modified accrual basis. Since debt repayment is known and scheduled at the time of issuance, it should be regularly budgeted as part of a governmental unit's annual budget. Since each debt issue constitutes a separate authorization, each issue may have unique legal provisions, thereby rendering different accounting procedures. Because of this, the Debt Service Fund is generally seen as one of the more complicated

accounting ones. GAAFR recommends that

. . . all general obligation bonds serviced by the general property tax should be accounted for in a single Debt Service Fund. The debt service for other general obligation issues should be recorded in as few additional Debt Service Funds as would be consistent with applicable laws.¹²

A significant accounting problem arises with the treatment of interest accrual. Bond interest payments may not coincide with the fiscal year, thus allowing for a situation where the end of the fiscal year comes between two interest payment dates. Theoretically, interest has accrued and should be noted as a liability. But GAAFR recommends not recording those few months' interest because "no provision for financing such accruals can be made in the annual budget, and the inclusion of accrued interest would produce a book deficit when, in fact, none existed."¹³

Another problem is that municipalities sometimes account for their long-term debt in both the Debt Service Account and the Enterprise Fund in which the asset paid for was placed. This gives the city an appearance of being debt-heavy, which reduces their chance for investor confidence in the bond market. Check the footnotes to see how a municipality treats its capital investment. The ASLGU treats this subject with great insistence as it specifies that fixed assets constructed and financed through an Enterprise Fund should be accounted for only in that fund and not

¹²GAAFR, p. 37.

¹³GAAFR, p. 38.

in the Debt Service Fund. The only relation it should have to the Debt Service Fund is as a contingent liability discussed in a footnote disclosure.¹⁴

4. Capital Projects Fund

These account for all resources used for the acquisition of capital facilities by a governmental unit except those financed by special assessment and enterprise funds. The Capital Projects Funds were established by GAAFR to parallel the increased emphasis on capital budgeting by governments in recent years and to reflect that major capital projects are now financed from resources other than bonded indebtedness. Grants or contractual payments from other governmental units and agencies, funds from private sources, direct revenues, and transfers of current revenues from other funds now all contribute to the creation and finance of capital projects.

Capital projects are budgeted on an individual basis and should so be accounted for. The accounting basis is full accrual recording assets (principally cash) and liabilities as incurred. The important line item in this type of fund is the Reserve for Encumbrances. An encumbrance is an unpaid contracted service or good. The amount of project obligations, which have not been specifically stated, is reflected in this Reserve. It is this Reserve that can be

¹⁴ASLGU, p. 79.

charged up with numerous cost overruns, added expenses, and payoffs. Since very few projects ever cost exactly what has been budgeted, it is this Reserve that will tell why. Again, look to the footnotes for a disclosure of what has been encumbered but what was not budgeted.

5. Enterprise Funds

Enterprise Funds account for the financing of self-supporting activities of governmental units, which render services on a user-charge basis to the general public. The servicing of water, sewers, electricity, and natural gas through public utilities is the most common enterprise fund. Other services with great public demand undertaken by the governmental unit are: hospitals, airports, transportation systems, dock and wharf facilities, off-street parking lots and garages, public housing, and recreational facilities such as amusement parks, swimming pools, and golf courses.

The determining factor in relegating a project to the Enterprise Fund and not the Special Revenue Fund is the amount of user-charge monies used to finance the project. If this amount is substantive, the activity is deemed Enterprise; if this amount is less than revenues originating from other governments such as grants, it is deemed Special Revenue. This accounting method is used to make it possible to show whether the activities are operated at a profit or loss similar to comparable private enterprises.

The accounting basis for Enterprise Funds, as in business, is the accrual method--revenues from operations are recorded when earned and expenses recorded when liabilities are created. Since most enterprise operations deliver services to customers who are billed periodically, Accounts Receivable are debited, and the accounts for various revenue sources are credited. Whenever the Accounts Receivable item is a large asset, red flags should automatically go up in an accountant's mind and the enlightened public's.

How steady are those receivables? How vulnerable are they to the economy? What is the historical collection rate? Has the city applied the correct rate to the Allowance for Bad Debt? Is the city bound to repay the debt assumed by the Enterprise Fund? All these questions should be asked and should be answered in the footnotes. If they are not, ask why!

Since fixed assets are of importance to enterprises, proper accounting for them is essential to reflect the financial status of the operation. Valuation of the fixed assets is necessary as a component part in the determination of rate structures under which consumers are charged for services rendered. Thus, fixed assets are recorded at cost, and this cost is charged against current revenues through annual depreciation charges over the estimated useful life of the assets. Included also in the book cost are: transportation costs, engineering and supervisory services, legal

and financial expenses, interest and insurance during construction, and any other costs incidental to placing fixed assets in their proper location and intended state of operation.¹⁵

6. Intragovernmental Service Funds

This group of funds, also called Working Capital Funds, finances and accounts for services and commodities furnished by a designated agency of a governmental unit to other departments of the same governmental unit. Since these services are rendered within the government, their funds are easily distinguished from those services rendered to the general public that are accounted for in the General, Special Revenue, and Enterprise Funds.

Common Intragovernmental Service Funds are those established for central garages and motor pools, central printing and duplicating services, and central purchasing and stores departments. The creation of this particular group of accounts can be viewed as a management tool to create efficiencies within the governmental unit. By pooling together the same function across agencies, costs are saved, thereby creating a better matching of costs and revenues.

The accounting for all Service Funds is on the accrual basis. It is interesting that Encumbrances "may or

¹⁵GAAFR, pp. 53-54.

may not" formally be recorded in the books of account. However, memorandum records of orders and commitments are to be kept to insure that cash and other fund resources will not be over-obligated. Because of the inherent lack of order and accountability in notes and memoranda, this rule set out by GAAFR is subject to abuse and mismanagement. It is discouraging to think that the Service Fund, which is a definite management tool, can be allowed to fall down in its enactment.

7. Trust and Agency Funds

The two distinct funds within this category, Trust and Agency, are set up for the purpose of accounting for money and property received from non-enterprise fund sources and are held by a governmental unit in the capacity of trustee, custodian, or agent for individuals, governmental entities, and non-public organizations. The difference between the two types focuses on the period of time the fund is in existence. Agency Funds act as a clearing mechanism for cash resources, which are collected by a governmental unit, held for a brief period, and then disbursed to authorized recipients. Trust Funds are in existence for a longer period of time than Agency Funds. Because the Trust Fund represents and develops vested interests (e.g., pensions), more complex administrative and financial problems arise (e.g., fund asset investment). Trust and Agency Funds are

similar because each carries a fiduciary responsibility for monies and other assets that the government does not own outright.

Within the Trust Funds are two general types, expendable and non-expendable. Expendable funds are those whose principal and income may be expended in the course of their designated operations. Pension and retirement systems are examples of such. Non-expendable trust funds are those whose principal must be preserved intact. An example is a loan fund from which loans for specific purposes may be made but which must be repaid so that the original amount of the fund will be restored. When a situation arises that embraces both categories, expendable and non-expendable, both funds are established. For example, a non-expendable fund would be set up for an endowment (assets and subsequent investment) and an expendable fund for the income to be expended and distributed.¹⁶

It should also be noted that Trust Funds can be either for public or for private use. There is more familiarity with the public type, the employee retirement fund being the best-known. An example of a private fund is a performance deposit where the principal will revert to the private individual or corporation upon performance or completion of a contractual agreement.

¹⁶GAAFR, p. 75.

Trust and Agency Funds are accounted for on an accrual basis, which is frequently a relatively simple procedure of proper recording of receipts and disbursements. However, within this group of accounts lies the thorniest problem in municipal accounting, Public Employee Retirement Funds. Because the public employee contributes regularly to the fund now in order to receive benefits later, an act of trust and faith in the municipality is performed.

The governmental unit has an obligation, moral and legal, to make sure that sufficient money is available to pay retirement annuities and other benefits when they come due. Here lies the problem. Many believe the actuarial basis of these funds is inaccurate and will lead to the unavailability of sufficient funds. An example is the case of New York City, using actuarial statistics (life tables) from 1916, which grossly underestimate the human lifespan, thereby creating public policy that underfunds the pension funds. When auditing a governmental unit, check carefully for the notes that explain the actuarial process underlying the Pension Fund accounting. The method and the continual updating of the method are essential for solvency.

The basic objective of an accounting system for a public employee retirement system is to reveal the amount and source of financial resources set aside for retirement benefits and the liabilities--both actual and prospective based on actuarial evaluation--applicable to such resources.

Since accrual is the recommended basis, all revenues (member contributions) for the system are taken into account when earned, without regard to date of collection, and expenditures (retirement annuities) are reflected when the corresponding liabilities are incurred, regardless of when payment is made.

The major problem in accounting for Pension Funds is uniformity across governmental units. Great variability arises in coverage, administration, and methods of finance. Many governmental units have their own individual retirement systems while others join together in a single state-wide system. The problem is further compounded by the disaggregation of certain groups within the unit who then form their own systems such as state-wide teacher retirement systems.

Administrative operation and financial management vary greatly. Costs for operations in one municipality may be charged to the operating budget in the General Fund, and, in another city, it has its own budget within a Finance Department. This variability leads to many difficulties in trying to match revenues and benefits, thus impeding a cost/benefit analysis and possible fund deficiencies. The actuarial bases used to compute proper fund levels are probably as numerous as the number of units. The state legislatures then use these to appropriate funds. Consequently, some funds are underfunded. Legislatures also approve increased benefits without an appropriate increase in the

funding, thereby creating a deficit in the operating budget of the fund. As a caveat to the Trust and Agency Funds discussion, read the notes to decipher assumptions and methodology leading to the budget of any Trust Fund. That is where the damage is done.

8. Special Assessment Funds

The financing, accounting, and construction of certain public improvements are done through this set of funds. These services are paid for wholly or in part through special assessments to the benefited property. Examples are residential streets, sidewalks, and storm sewers. These projects are distinguishable from Capital Projects in that only segments of the population are benefited; they are not being done for the good of the whole community. Each project is accounted for in its own fund with a basis of accrual.

Since the cost of the project is likely to be quite high, the benefited area is probably not able to pay for it in a single assessment. Bonds are thus issued in serial form, and, as special assessments are collected, bonds for a corresponding amount are retired. The Accounts Receivable item is key to determining solvency in this fund. Since these funds are special assessments and limited to a particular geographic area, the fund is good only to the extent that payment of taxes in that area is historically good.

Careful scrutiny of individual projects is needed.

9. General Fixed Assets Group of Accounts

This group accounts for those fixed assets not included in an Enterprise, Working Capital, or Trust Fund. These assets possess three distinguishing attributes: (1) a tangible nature; (2) a life longer than the current fiscal year; and (3) a significant value. Significant value is important because there are many assets that are tangible and have a life longer than one year, but their value is so small that the time and expense of maintaining detailed accounting and inventory records on them are not justified. In the case of equipment, the amounts of \$25 and \$50 are widely used as a lower limit while, for building improvements, the lower limits run from \$500 to \$1,000. Outlays for assets lower than these limits are not capitalized in the General Fixed Assets Group, e.g., pencil sharpeners, paper cutters, small tools.

General fixed assets may be obtained in several ways--purchase, lease-purchase, construction, eminent domain, tax foreclosures, and gifts. As in commercial accounting, the lease-purchase method provides problems in governmental accounting as well. Under this plan, periodic lease payments are made to a vendor by the governmental unit with the option of applying such payments to a total purchase price at some later date. If the option is exercised, the asset

is only recorded as purchased when all payment is complete. It is entered on the books as if one lump sum had been paid. The question remains, however, as to who gets to use the depreciation? Since the seller did lay claim to at least part of its useful life, is he entitled to the depreciation until the last payment is made or just until the time the option was exercised? No publication has adequately dealt with the topic.

When fixed assets are donated, they are recorded at fair cash market value. All other assets are recorded at cost, and these amounts are retained on the books without depreciation until the assets are finally disposed of as GAAFR suggests.¹⁷ However, there is talk, if not some official action, of changing cost over to market value. This will play havoc with the books each year as revaluation ensues.¹⁸

10. General Long-Term Debt Group of Accounts

Bonds and other long-term indebtedness, which are backed by the full faith and credit of the governmental unit and supported by general revenues, are accounted for in this self-balancing group of accounts. The distinguishing feature for these debts is the maturity of the issue. Bonds,

¹⁷GAAFR, p. 94.

¹⁸"Municipal Accounting," seminar at Peat, Marwick & Mitchell, New York, New York, 28 April 1977.

time warrants, and notes must have a maturity of more than one year from date of issuance. Debt not qualifying is accounted for in the General Fund, which processes most "current" one-year operations.

Usually, long-term debt will only appear in the financial statements under this fund and not as liabilities of any other funds. The two exceptions to this are, first, general obligation bonds, which are issued exclusively as general obligation debt for the benefit of a governmental enterprise but which, as a matter of discretionary financial policy, are actually serviced by earnings of the enterprise. Full disclosure of the nature of the liability involved is recommended, and it should be included in both the affected Enterprise Fund and the General Long-Term Debt group of Accounts. Second, special assessment bonds, which, in addition to the special assessments levied against benefited properties, carry a secondary pledge of the governmental unit's general credit. GAAFR recommends that the contingent liability on the general credit of the government be indicated by a footnote in the Statement of General Long-term Debt. An example as put forth in GAAFR would be:

In addition to the long-term debt exhibited in this statement, the City of _____ has a contingent liability against its full faith and credit on \$ _____ of special assessment bonds recorded in the Special Assessment Fund. The general credit of the municipality is obligated only to the extent that liens foreclosed against properties involved in the Special Assessment district are insufficient to retire

outstanding bonds.¹⁹

Since the purpose of the Long-term Debt Accounts is to fairly present the liability at any time from date of issuance to date of maturity, it is most important that the liabilities be properly valued. Generally accepted accounting principles stipulate the proper valuation of this liability is the sum of (1) the present discounted value of the principal payable at some stipulated maturity date in the future and (2) the present discounted value of the periodic interest payments to this maturity date. If the effective rate of interest remains unchanged to the maturity date, the sum on any given date will be equal to the principal amount of the debt obligation.

This group of accounts, more so than any other fund, is extremely important as an indicator of the fiscal stability of the municipality. How much debt and its maturity timing is crucial to determining the amount of revenues needed in the future? Because these costs are known and fixed they serve as a base to which operating expenses are added for a total sum of costs.

Summary

This discussion of funds and accounts should be seen as an overview and not a definitive work on municipal accounting. It is easy to see from this, though, how confusing the

¹⁹GAAFR, p. 101.

manipulation and issues being displaced elsewhere. A careful analysis of the amount and timing is again stressed. Notes and footnotes throughout the entire set of financial statements should be scrutinized for any additional debt not listed in this set of accounts.

The financial statements are intended to coordinate all eight funds and two groups of accounts into a cohesive reporting package to reflect the financial status of the governmental unit. Each fund must have: (1) a balance sheet, (2) a statement of revenues and expenditures, (3) a statement of changes in fund balance, and (4) for enterprise funds, a statement of changes in financial position.

It must always be remembered that it is to the city's advantage to reflect its financial operations in these statements as solvently as possible. Most anything written in these reports can be understood if the assumptions underlying the framework are stated. Because of recent disclosure laws, municipalities are now being more diligent in producing the methodology for their accounting practices. This is usually stated in the footnotes and in the Notes to the Financial Statements section. Therefore, it is recommended to look in these places first before any reading or analysis is done on a city's financial statement or bond prospectus.

As discussed throughout the paper, the warning signals for individual funds and accounts are located in the

notes and footnotes. The increasing uniformity of statements across cities is making it easier for the reader to detect irregularities through these footnotes. In general, particular attention should be paid to Encumbrances, Reserve for Bad Debts and Contingent Liabilities or for anything that sounds like these. Rates used in determining effective taxes and the Reserves for Bond Debts should also be checked for historical accuracy.

This paper is just a broad overview of how municipalities should be accounted for. The intricacies and actual accounting (debits and credits) are highly interesting and another paper in itself. It has been made clear through all the readings and the seminar I took in Municipal Accounting that the field is almost new, and efforts to write and organize information are just now being made.

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