Chapter 6

Budgeting Techniques and Analytical Models

Chapter Six Overview

By definition, budgeting requires some level of technical analysis. This fact has become more realistic today as an increasing number of state and local governments deal with a variety of problems ranging from budget deficits to urban sprawl. In a lot of cases, governments provide services that cannot be performed or are too large to be provided by the private sector or through normal market forces. As a result, it is imperative that budget analysts apply various analytical techniques and models to their analysis in order to determine the most efficient and effective approach to solving issues and providing services.

This chapter discusses several practical techniques and analytical models that are useful in assisting state and local budget analyst in dealing with expenditure issues from an array of different perspectives. The chapter begins with a simple method of understanding policy problems and analysis. Next, there is a discussion of various forecasting techniques. Last, some specific techniques are discussed. These include: discounting, cost benefit analysis, cost-effectiveness analysis, internal rates of returns, payback method, productivity analysis, and multiple regression analysis.

Understanding the Methods and Techniques of Analysis

Once a decision has been made to solve a public problem or expand services, policy experts must ensure that the problem is fully understood along with the alternatives to solving the problem. Weimer and Vining (1989) provide a succinct model to understanding the problem and examining the options to solving the problem. Bureaucrats and budget analysts can follow these steps in providing policy makers with viable policy options. In short, a decision has to be made to choose alternative A or alternative B or C (see also Swain and Reed 2010).

Problem Analysis

1. Understanding the Problem
   a. Receiving the Problem: Assessing the Symptoms
   b. Framing the Problem: Analyzing Market and Governmental Failures

c. Modeling the Problem: Identifying Policy Variables
2. Choosing and Explaining Relevant Goals and Constraints
3. Choosing a Solution Method

Solution Analysis
4. Choosing Evaluation Criteria
5. Specifying Policy Alternatives
6. Evaluating: Predicting Impacts of Alternatives and Valuing them based on a Criteria
7. Recommending Actions

Forecasting Revenues

Good revenue estimations or forecasts are considered by most to be more of an art than a science. In addition to good judgment, economic savvy and a variety of methodologies go into the process. Any particular methodology will lead to a different estimate. To say the least, an analyst should understand the revenue system and have a good understanding of all the factors that have impacted past revenue collections. Revenue estimates are normally conducted out of the budget office or the comptroller's office (Axelrod 1995; Wang 2006). Most state and local governments will begin revenue projections about six months before the beginning of budget implementation. The advantage to starting early is that it allows analyst time to revise their estimates as they get closer to the actual day of implementation and determine whether revenue collections will exceed or fall short of expectations (Fleeter and Walker 1997). To say the very least, a state or local government should forecast revenues and expenditures over a couple of years regardless of the level of economic and political stability in the jurisdiction. Hence, forecasting is an integral part of any model assessing expenditure or revenue patterns over time. *Forecasting* is an attempt to predict future revenue collection based on present administrative, structural conditions, demographic and economic factors. For example, the federal government has predicted that the social security fund will practically disappear in the next twenty years based primarily on the number of persons currently contributing to the fund and those taking money out of the fund.

Depending on the size ($) of the budget in a jurisdiction, forecasters should begin the process anywhere from 6 to 18 months prior to the beginning of the fiscal year. A good time frame is useful because it saves a lot of time and effort on the part of agency directors who are charged with preparing their budget. It is not efficient or effective to budget for funds that may or may not exist. Hence, budget forecasts should be modified as new information is added to the equation. The Office of Management and Budget (OMB) and the Congressional Budget Office (CBO) along with Presidential advisors estimate the federal

budget, while state and local budget officials handle the responsibility at lower levels (Lee, Johnson and Joyce 2008; Mikesell 2014; Nice 2001).

Key Factors to Consider When Forecasting Revenues

- *Revenues should be projected separately*. Because each revenue source is distinct and has its own set of nuances it is rational to estimate them separately. By so doing, it limits the number of errors and may bring greater balance to the overall estimates due to over and under estimates for individual tax expectations.

- *Focus efforts on the large revenue sources*. As indicated in Table 5.1, the property tax is one of the largest sources of income for a local government. Hence, it is important that great care be taken in this preparing this estimate. Small revenue sources do not have a great impact on the budget.

- *Historical data is the key to success*. Revenue projections do not tend to change dramatically over time. As a result, data and financial records should be closely examined. Once this data is examined, projections can be made after adjustments are made for other factors in the environment such as demographic shifts and economic development. Further, it is important that the analyst pay attention to items that may not reoccur. For example, the government may receive a grant for five years that is not renewable.

- *Underestimate rather than overestimate budgets*. Although budgets are based on solid economic factors, the ramification of budget deficits can be very political in nature. State and local elected officials do not want to explain budget deficits to voters because the repercussions could be felt in the next election cycle. Therefore, estimates should be somewhat conservative.

- *Good Judgment*. While a state or local government's tax base may seem stable, it is important that estimators keep an eye on other nearby jurisdictions that may have an impact on their revenue estimates. Further, estimators may receive estimates from other sources that are not in line with their estimates. Ultimately, it is up to the judgment of the estimator to decide what to consider in the estimate.

Forecasting Models

Riley and Colby (1991) discuss five models that local governments can use when estimating revenue. Deciding which model to use can be determined by a number of factors. Particularly, the size of the city's budget and resources available to conduct the estimate are important. The first model is called a *simplistic model*. This model is based on historical data. An analyst would simply use trend analysis and extrapolate the data for the current fiscal year. In addition, expected changes in the use of services that might be relevant to revenue collections are also considered. For example, a factory that closes with several hundred residents may have a disparate impact on revenue collections. The second model is a *multiple regression model*. A multiple regression model uses factors such as unemployment, population shifts, and changes in the economy to predict revenue. An *econometric model* synchronizes revenue estimates with a review of interdependent variables, such as the consumer price index, interest rates, cost benefit analysis, net present value (NPV), internal rate of return (IRR), and construction activity. The fourth model is called a *microsimulation model*. This model uses various forms of data such as a sample of IRS returns to predict future trends. The last model is an *input-output model*. This model uses purchase and sales data to ascertain where the revenue is produced.

Most local governments use the simplistic model because it is very clear-cut and uses data and financial resources that are readily available. Liner (1983) argues that multivariate regression is not an appropriate tool for local government revenue projections. However, he does make a case for time series analysis since it makes use of internal data that is readily available and can be computed using simple equipment such as a calculator. A three to five year period is typically used in the model (Bretschneider and Gorr 1999). Special attention should be paid to calculating property tax estimates. Liner (1983) suggests that revenue should be split into component parts and then the analyst has to decide whether to analyze actual revenues or the base of the revenue sources. Property tax revenue has assessed value (base), the tax rate, and the collection rate (actual). Further, it may be necessary to separate, real versus personal property. It may be useful if the analyst can prepare graphs or charts showing the revenue trend over time. The amount of time designated to this process will clearly be dictated by the size and level of importance for the revenue source.

State governments are more likely to use one of the more sophisticated models because their budgets are larger and more complicated. Axelrod (1995) argues, "the critical phase in revenue estimation is calculating the effect of the economic assumptions on the tax base for each tax" (p. 78). For example, income taxes come from three major sources of income: wages and salaries, corporations, and other non-wage income such as rents, dividends and interests. Analysts can then use the set tax rates to estimate revenue. Lastly, they can adjust the estimate for various exemptions, deductions, refunds or expected delin-

quencies.

"For sales, excise, and other consumption taxes, it is necessary to estimate, tax by tax, the effect of economic activity on wholesale and retail sales. After deducting exemptions, analysts come up with a new tax base to which they apply the tax rates. Property taxes are determined by the assessed value of property and the appropriate tax rates, and adjusted to reflect exemptions, deductions, and statutory tax limits" (Axelrod 1995, p. 78).

Selecting the Best Forecasting Model

Mikesell (2004) discusses six points that are useful as a guide to forecasting. First, the user should completely understand the revenue source. This includes administration and collection measures. Further, forecasters should ensure that the variables included in the model are as close to perfect as possible. Unreliable data for the dependent variable in particular compromises the validity of the estimate (Liner 1996). Second, the data should be plotted in a graph to show the movement of the revenue. Forecasters can use this information to determine the effects of other variables on the revenue. If possible, corrective measures can be taken to improve the administration or collection mechanisms.

The third point is honesty in reporting. Elected officials often have their own agendas and may seek to manipulate the process with low or high forecasts in an attempt to increase or decrease expenditures. Mikesell's (2004) fourth suggestion considers "what" the forecaster is trying to do with the revenue source. For example, if an annual forecast is needed, then a regression model would suffice. If a long-term forecast is needed, then a trend extrapolation model would work. Fifth, each revenue source should be estimated separately. There are too many factors that are indigenous to a particular revenue source that would inflate or deflate the total revenue source. It is easier to compensate for errors in separate revenue models. Lastly, revenue sources should be monitored throughout the year and compared with the projections. With that stated, the forecaster should be aware that a change in revenue projections for one month may or may not make a drastic difference for the rest of the year. Regardless to what is found, the forecaster should use the information to improve the model (see also Riley and Colby 1991 and Liner 1996).

Generally speaking, state and local governments initiate budget projections about six months prior to the beginning of the next fiscal year or budget cycle. The size of the budget and the number of factors affecting the budget are likely indicators of how much lead time is needed (Bretschneider and Gorr 1999).

Types of Forecasts

- *Status Quo Model*: This model assumes that the future will look a lot

like the present. For example, if a state spent $75,000,000.00 on capital expenditures last year, then it will cost approximately that amount this year. This model works well in stable governments. The major advantage of the model is that it is simple and easy to administer. The major disadvantage is that any shift in economic conditions will compromise the validity of the model (Nice 2001).

- *Extrapolation Model*: This model uses current trends (time-series data) in revenue and expenditures to explain future revenue and expenditure trends. Extrapolations can use constant increments, constant percent changes, simple growth models using the average annual compounding formula, or linear or nonlinear time trends in which revenue for the budget year is estimated as an arithmetic function of time ($R = a + bt$). For example, if property tax receipts have increased an average of 2% over the last five years, the model would assume that they would increase 2% during the forecasted year as well. While more accurate than the status quo model, it does have the same disadvantages. For example, the model does not examine cause and effect relationships between the revenue sources and a particular economic factor (Bretschneider and Gorr 1999; Mikesell 2014; Nice 2001).

- *Judgmental or Brainstorming Model*: In some instances, budget managers have substantive experience and knowledge of the nuances of a jurisdiction. They essentially use all of their contacts that also have longevity and the exact information that they need to project the budget. Initially, all sorts of data and information are generated. Then, these data and information are analyzed and scored for usefulness. Third, the best information and data are synthesized. Lastly, the best information and ideas are considered in the model. The obvious disadvantage to this model is dependence on the experts. While human judgment is important, it is enhanced tremendously with known facts that are quantifiable (Gianakis and McCue 1999).

- *Delphi Model*: In this model, experts discuss forecasts under the auspices of a moderator who handles only the logistical part of the discussion. Each participant is asked the same question by the moderator with the intent or hope that a consensus can be reached. The advantage of the model is that participants are not pressured to accept the position of other participants. This model also serves to allow minority views to be espoused (Gianakis and McCue 1999; Nice 2001).

- *Time-Series Model*: A time-series model can be simple or very complex. The model essentially attempts to break down and explain all of the component parts to the budget into four components: a long-term trend, seasonal variation, cyclical variation and irregular variation. The model addresses questions such as: When are the most property taxes, user fees, and sales taxes collected? When are public utilities the most heavily utilized? (Liner 1996; Gianakis and McCue 1999; Mikesell 2014, 2003; Nice 2001).

- *Multiple Regression Model*: A regression model is a more complex time series model that estimates revenue using several independent variables such as the unemployment rate and income levels. The advantage of this model is that it is relatively simple to estimate each revenue source separately (Bretschneider and Gorr 1999; Gianakis and McCue 1999; Mikesell 2014).

- *Econometric Models*: These models estimate revenue "within a simultaneous system of interdependent equations that express theoretical and empirical relationships between economic and fiscal variables" (Mikesell 2014, p. 486). The advantage to this model is that it allows the user to examine revenue sources that are not dependent on other revenue sources.

Cost-Benefit Analysis and Cost-Effectiveness Analysis

These two techniques "attempt to relate the costs of projects or programs to performance, and both quantify costs in monetary terms. They differ, however, in the way they measure the outcomes of programs" (Lee, Johnson and Joyce 2013, p. 494).

Cost-benefit analysis (CBA) compares the cost of a program with the benefits of the program. The alternative that yields the greatest net benefit at the least amount of cost is normally chosen. In addition to a dollar amount being placed on the variables in the analysis, benefits are also assessed from a quantitative perspective. Both of these techniques are quite dependent on data, so the analyst should ensure that he/she has the most reliable data available (Makowsky and Wagner 2009).

The main objective of these and other techniques is to improve internal and allocative efficiency in public spending. Spending today does not equate to spending tomorrow. As a result, it is necessary for budget analysts to be aware of items such as: present value, discount rates, recurring costs, and compounded interests when putting together cost-benefit models. [42]

There are some problems associated with cost-benefit models. One problem

Chapter 7
Financial Management

Chapter Seven Overview

Although the focus of this book is not on financial management, the subject matter is crucial to politicians as well as bureaucrats given the stream of time that we live in. The chapter begins by discussing financial solvency and then moves on to five specific topics. These topics include: cash management, risk management, procurement, cutback management, and debt management. These and similar topics have become increasingly more important due to poor cash management, insufficient tax bases, an increase in the use of technology, an increase in the number of retirees, population growth in some areas while other cities suffer from population depletion and slow industrial and economic activity. The overall objective of this chapter is to introduce students to basic concepts and techniques that can be used to effectively manage governments during economic prosperity as well as economic downturns.

Financial Condition

Under the right set of circumstances it may be necessary for a local government to use financial practices that it may not commonly employ. With that in mind two important practices are discussed in this section. First, financial practices that may compromise the financial position of a local government are examined. Second, practices that can sustain an operating deficit are discussed.

Financially Solvent or Not?

Financial solvency or *financial condition* can be defined as the ability of a local government to finance its services on continuous basis. Specifically, "financial condition refers to a government's ability to (1) maintain existing service levels, (2) withstand local and regional economic disruptions, and (3) meet the demands of natural growth, decline, and change" (Nollenberger, et al 2003, p. 2).

Maintaining existing services includes maintaining current services funded by existing revenue, funding programs that are funded by outside sources, maintaining capital facilities, and providing for future liabilities that may be currently unfunded (pensions, debt, lease purchase agreements or post-employment benefits).

Economic disruption can occur in a number of different ways. This includes, but is not limited to: recessions, high unemployment, tax delinquencies, and lower investments as a result of lower interest rates. Good planning can lessen the impact of these factors.

Growth and decline in a municipality is fairly common. However, stability can also create financial pressure. Population shifts and changes in the population can destabilize a budget. For example, the population of an area could maintain numerical stability, but not economical stability. For example, what would happen if 20% of a city's middle income population was replaced with a low income population? Would that shift affect social services and compromise the government's financial health? More than likely it would affect the entire system. However, existing tax payers may be less inclined to support these new programs. As a result, decision makers have to decide if the current tax and revenue structure can sustain expanding the new or current program. Can reserve funds or other mechanisms pay for the service? If a government cannot meet this sort of challenge it is not financially sound.

Measuring financial condition is not as easy as it appears. There are a number of factors that hinder the process. According to Nollenberger, et al (2003), "the nature of a public entity, the state of municipal financial analysis, and the character of municipal accounting practices" may hinder measuring financial condition.

First, let's examine the nature of a public entity. Success is measured in the private sector in dollars. However, success in the public sector is not concerned with making a profit, but with efficiency and effectiveness of programs and services. This includes issues of health and welfare, political satisfactions and other subjective measures. As a result of subjective measures, determining financial solvency is more difficult.

Second, municipal financial analysis focuses on cash and budgetary solvency with less attention to long run and service level solvency with few exceptions. The one exception to this is with regards to investments. Hence, more attention to long run and service solvency has to improve in order to overcome this obstacle. Another issue with respect to financial analysis is the lack of normative standards. For example, what is an acceptable level of debt? What is a healthy reserve fund balance? Benchmarks established by credit rating agencies should be used in conjunction with subjective factors such as the diversity of a municipality's tax base.

Accounting practices is the final component that should be examined when considering financial solvency. As mentioned in chapter 1, governments use fund accounting. Fund accounting stresses legal compliance and balancing the flow of money rather than examining program cost accounting and the measurement of long term financial health. Budgets do not tend to show the detailed cost of services provided, postponed costs, the unfunded pension liabilities, or employee benefit liabilities. Nor do they show "the reductions in

purchasing power caused by inflation or the decreasing flexibility in the use of funds that result from increasing state and federal mandates. Financial statements and budgets do not show the erosion of streets, buildings, and other fixed assets. Finally, these reports are prepared for a one year period and do not show in a multiyear perspective the emergence of favorable or unfavorable conditions" (Nollenberger, et al 2003, p. 3).

Nollenberger, et al (2003) developed a *Financial Trend Monitoring System* (FTMS) paradigm with eleven financial conditions factors that should affect management practices and legislative policies related to financial solvency. The paradigm is split into two dimensions: financial factors and environmental factors. Table 7.1 shows the two dimensions along with the defining organizational setting of each. This is not an exhaustive list of organizational settings (see also Rivenbark, Roenigk and Allison 2010).

Table 7.1 Factors Affecting Financial Condition

Financial Factors:

A. Revenues: growth, flexibility, elasticity, dependability, diversity, and administration.
B. Expenditures: growth, priorities, mandated costs, productivity, and effectiveness.
C. Operating Position: operating results, fund balances, reserves, and liquidity
D. Debt Structure: short term debt, long term debt, debt schedules, and overlapping debt.
E. Unfunded Liabilities: pension obligations, pension assets, and post-employment benefits.
F. Condition of Capital Plant: maintenance effort, capital outlay.

Environmental Factors:

A. Community Needs and Resources: population, density, age, income, property value and distribution, home ownership, vacancy rates, business activity, crime and employment rates.
B. Intergovernmental Constraints: intergovernmental mandates and restrictions on revenue.
C. Disaster Risk: potential for natural disasters and local preparedness.
D. Political Culture: attitudes toward taxes, services, and political processes.
E. External Economic Conditions: national and regional inflation, employment and market conditions.

In order to use the system, analysts simply have to address the issues as they are laid out. Nollenberger, et al (2003) lays out three basic evaluation questions for each area: Financial, Environmental, and Organizational Setting.

Financial Factors: Does your government currently pay the full cost of operating, or is it postponing costs to a future period when revenues may not be available to pay these costs?

Environmental Factors: Do the environmental factors provide enough resources to pay for the demands they make?

Organizational Setting: Do your management practices and legislative policies enable your government to respond appropriately to changes in the environment?

Essentially, the analyst examines each of the aforementioned characteristics using directional arrows. For example, population and density are found in the community needs and resources list of environmental factors. So, if you are assessing a municipality, determine if the population is increasing (↑), decreasing (↓), or remaining level (-) as indicated with the appropriate symbol. The same procedure is used for density, income movement and the other characteristics. Notice that the system does not require the user to insert an amount. You are simply concerned with the direction of the characteristic at this juncture. The direction of the arrow will determine whether further investigation is needed. In some cases, more analysis is needed regardless to the direction of the arrow.[43] If additional analysis is needed, the user should use graph, tables, and other visual tools to show the trends.[44]

After which, the results should be evaluated. As mentioned, trend analysis is the primary tool that the system uses. Trend analysis will allow the user to: identify unfavorable trends, determine when the unfavorable trend began, consider mitigating circumstances, identify the causes underlying the unfavorable trend, compare the indicator trends to one another, compare the economic condition of the local government to national or regional trends, determine whether further analysis should be done, compare the trends to the benchmarks used by crediting firms, take other factors into consideration, and add his/her professional judgment. Last, policy statements should be developed to plan a strategy to manage the areas of concern (Nollenberger, et al 2003).

Exhibit 7.1 provides a partial example of a financial solvency statement for Jefferson City. The exhibit has several pertinent items. First, it shows the major financial indicators for the city over the last three fiscal years along with estimates for the latter two years. In the revenue section, we can see the direction of each revenue stream over time. However, note that it is necessary to explain why user fees decreased over time despite the fact the growth is still positive. Also, it is not necessary to create a chart for every single revenue source. Elected officials tend to be more concerned with major sources of revenues. However, you can use your discretion when using tables and graphs. In addition to revenues and expenditures, you should also create a table and chart for the other

financial categories in your budget. These should include items such as operating expenditures, debt structure and the capital plant.

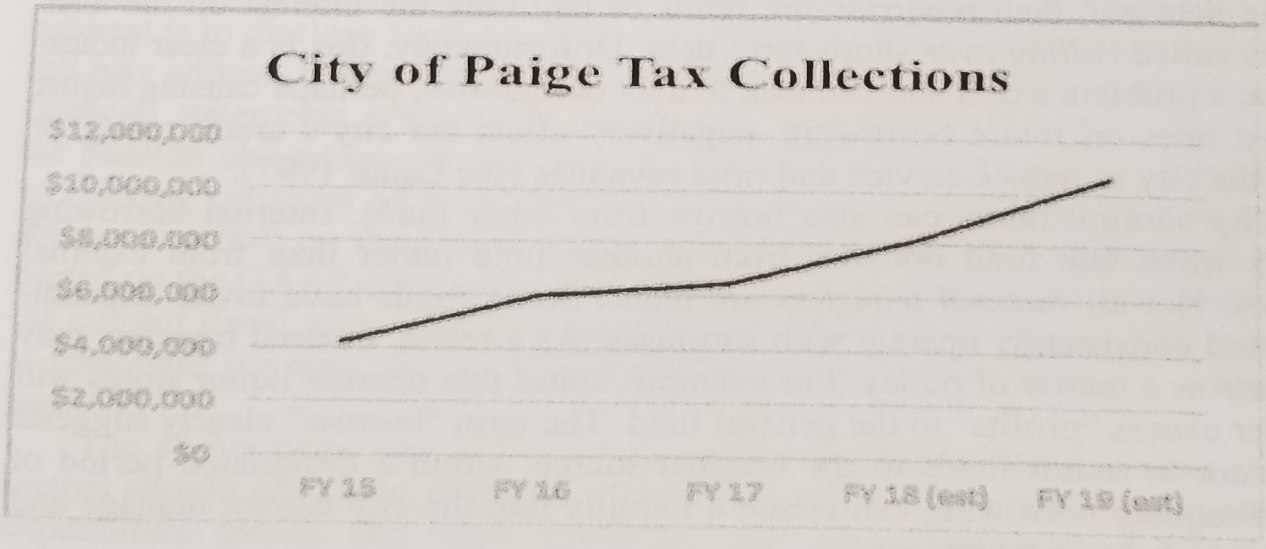
Exhibit 7.1 Financial Solvency Model for Jefferson City

A. Revenue	FY 15	FY 16	FY 17	FY 18 (est.)	FY 19 (est.)	Dir.
Property Taxes	$5,890,423	$6,234,129	$6,398,490	$6,589,123	$6,657,239	↑
Sales Taxes	1,239,459	1,298,098	1,359,128	1,459,872	1,590,213	↑
Franchise Fees	239,125	$245,908	251,908	275,234	289,990	↑
User Fees	245,129	254,890	278,568	278,578	279,001	↑
TOTAL	$7,624,136	$8,033,025	$8,288,094	$8,602,807	$8,816,443	

Revenue Explanations: Each revenue source has increased incrementally over-time. However, user fees have clearly leveled off as a result of more residents using internal roads rather than the toll roads. This is more than likely the direct result of widening Stateline Road to three lanes.

*B. Expenditures**	FY 15	FY 16	FY 17	FY 18 (est.)	FY 19 (est.)	Dir.
Personnel	$5,336,895	$5,703,448	$5,967,428	$6,021,965	$6,171,510	↑
Utilities	152,483	160,661	165,762	172,056	176,329	↑
Supplies	304,965	321,321	331,524	344,112	352,658	↑
Equipment	686,172	642,642	580,167	774,253	793,480	↑
Capital Fund	1,143,620	1,204,954	1,243,214	1,290,421	1,322,466	↑
TOTAL	$7,624,135	$8,033,026	$8,288,095	$8,602,807	$8,816,443	

* Figures are rounded to the nearest dollar amount.



Expenditure Explanations: Expenditures for the city are consistent with revenue allocations over time. The data in the table shows growth in each subcatego-

ry and the graph indicates overall growth. Hence, expenditures are stable with little volatility.

Detecting an Operating Deficit

Generally speaking, a deficit in one year may or may not cause much consternation. The government may use reserves to cover the deficit. However, frequent short falls should raise a red flag. If a city ignores the causes of the deficit or continues to maintain the same level of services and expenditures at the current pace without a commensurate increase in revenues, more serious issues will have to be addressed. The following paragraphs briefly discuss several items that suggest that a government may have an operating deficit.

In some instances, governments may have a *budget surplus*. This allows them the flexibility to put money into a *budget reserve* to be used when *budget shortfalls* occur. Reserves are also useful because they can reduce the need to increase taxes. However, if the budget reserve continues to drop over several years, it could be an indicator that expenditures are exceeding revenues (Nollenberger et al 2003).

Short-term borrowing can be another indicator of operating deficits. *Short-term borrowing* is debt that is incurred and expected to be paid within a single fiscal year and is usually done for cash flow purposes, particularly if the government's major funding source is property taxes. Property taxes are usually paid every six months. As a result, a government might need to borrow to pay bills. If revenues or fund balances are not high enough, *tax anticipation notes* (TAN) can be issued to cover operating needs. The debt service will be paid when the next property tax collection takes place. In some cases, a city can pay off the debt and then reborrow the funds or pay only the interest on the loan. This is called *rolling over* short- term debt. Unfortunately, this is a clear indicator that a problem exists and can lead to debt obligations, perhaps causing higher interest rates on future borrowing, negatively affect the city's credit rating, or force the city to reduce service and raise revenues (see Lauth 1997).

City administrators can also borrow from other funds. Internal borrowing occurs when one fund borrows from another fund rather than from external sources. Not all *internal transfers* are loans. Some funds have lower expenditures and consistently operate with surpluses. As a result, internal transfers may be made as a matter of policy. For example, states that operate liquor stores will transfer excess "profits" to the general fund. The term "borrow" clearly suggests the intent to return funds to the original source within a designated period of time. Frequent borrowing can create a liability that the city cannot manage and subsequently impact services.

A city can also sell assets to bring in *one-time revenues*. If one-time revenues are used to fund current operating expenditures, rather than for one-time

expenditures, the city is sustaining a deficit. *Saleable assets* include items such as buildings, land, as well as equipment. Selling city assets may affect services, in that services may have to be reduced the following year unless more revenue can be generated. Furthermore, if the assets that are sold are not excess, the city may incur additional costs to procure replacements in the future.

Accounting gimmicks can also be used to balance a budget. For example, if the last day in a pay period falls on the last day of the fiscal year, the staff may wait the extra day to record that expense. As a result, expenses for the current year appear smaller. Typically, three accounting gimmicks are used to manipulate the budget: 1.) postponing current cost to future periods, 2.) accruing revenues from a future fiscal year to the current fiscal year, and 3.) extending the length of the current fiscal year. An example would include: extending the period from 12 to 13 months, so that revenues collected in the 13th month can be counted in the current fiscal year (Nollenberger et al 2003).

Deferment of a payment is the last practice that is indicative of an operating deficit. This occurs when a city receives invoices in the current fiscal year, but delays the payment until the next fiscal year. For example, a city only pays invoices when it has the cash available to make the payment. Deferment of payment of the city's obligation to the pension fund is a major indicator of financial stress.[45]

Another indicator of financial stress is deferment of maintenance expenditures for things like streets, public buildings, equipment, and bridges. If these items are not maintained, it has a negative domino effect on everything else. Service is likely to diminish, efficiency will drop, and replacement costs are likely to increase (Mikesell 2014; Nollenberger et al 2003).

The techniques and gimmicks that have been discussed are used to try to solve budget deficiencies. However, they are detected when the government undergoes the audit at the end of the year. A major reason for auditing a government is to disclose such practices. For example, delaying payment of the payroll may address the budget problem, but the expenditure will be recorded on the financial statements prepared in accordance with GAAP. The same is true for the pension obligation—it will be recorded as an expenditure and a fund liability. Paying pensions on a pay-as-you-go basis on the budget basis will not resolve a shortfall on the GAAP basis since the true pension liability will be reported on the GAAP statements. The same is true for accruing future revenues in the current fiscal year—GAAP reporting will reveal this practice. This is why it is important for state and local governments to have their financial statements audited.

The above items essentially reinforces the point that agency heads and directors should pay close attention to activities within their agency, revenue and expenditure trends, and other conditions that could impact their budget and cause a deficit.

External Cash Management Practices

Determining how much money is needed at one particular point in time can be an arduous task for a local government. Basically, expenditures must equal revenues collected by the end of the fiscal year. Two problems can arise when revenues are collected and expenditures are made. First, there could be a *cash flow problem*. A cash flow problem occurs when the amount of revenue available is not sufficient to cover immediate expenditures. Barring any unforeseen occurrences, cities do not tend to have cash flow problems because they know when tax collections are due. Hence, they can time their expenditures with revenue receipts. At the other end of the spectrum, a city may have an *idle cash problem*. This problem occurs when a city has more money on hand than its immediate financial obligations and does not take any measures to invest the surplus funds. Good c*ash management* occurs when a city meets all of its financial obligations and invests the balance.

The concept of cash management is another concept that is not as simple as it may appear. In order to engage in cash management, a government needs to know how much money is available at any given time and how much is needed to pay obligations. Further, estimates of future revenues may also be needed. This may require daily, weekly, or monthly forecasts. This information can be used to construct a *cash budget*. There are four steps to calculating a monthly cash budget: 1.) Estimate cash receipts for the month, 2.) Estimate cash disbursements that will take place during the month, 3.) Subtract cash receipts from cash disbursements to determine excess or deficit (*net cash flow*), and 4.) Add this month's balance to the prior month's balance to find the projected total cash balance.[46]

Khan (1997) and Larson (2004) discusses six ways to achieve effective cash management: managing liquidity, accelerating collections, maximizing investment earnings, reduce borrowing, managing disbursements efficiently and providing accurate and timely reporting, and depositing checks in a timely fashion (see also Hughes 1997).

- *Managing Liquidity*: There should always be enough funds on hand to meet obligations.
- *Accelerating Collections*: Monies owed should be collected in the most efficient and effective manner available.
- *Maximizing Investment Earnings*: Available cash should be invested until they are needed. However, the government should minimize exposure to risk.
- *Reduce Borrowing*: Careful cash management can help prevent the need for internal borrowing from other funds or issuing tax anticipation notes to cover budget shortfalls.
- *Manage Disbursements Efficiently*: Determine the most effec-

tive manner to disburse funds by reducing guess-work and reducing the opportunity of fraud. Determine if a centralized or decentralized disbursement system works best.

- *Depositing Checks*: Checks should be deposited as soon as possible. This can reduce the amount of time that is needed to collect the payment and clear the banking system (*float*).

Once the government has determined that funds are available for investment, analyst can use the *Economic Ordering Quantity Formula* (EOQ) to determine the cash position of the government (Khan 1996; Larson 2004; Smith, Sun, and Lynch 2017; Thai 2004). "In this approach, an analyst weighs carrying cost, which foregone earned interest represents, against the total cost of the transaction. This model recognizes that the government incurs an opportunity cost for holding rather than investing idle cash. And each bank transaction (for example, transferring from securities to cash) involves an administrative cost to the government. If the government is to save idle cash and earn more than its administrative cost for investing, then it must recognize that more transactions drive up the cost of investing. To make money on investments, more transactions require a higher cash amount to invest" (Smith, Sun, and Lynch 2017, p. 255-256; see also Khan 1997). Smaller governments tend to hold a certain number of days' expenditures as cash rather than use sophisticated methods. Exhibit 7.2 provides a formula to calculate optimal transfer size, number of transfers, average cash balance, and initial cash balance.

Exhibit 7.2 Economic Ordering Quantity Formula

$P = b\,(T/c) + vT + i\,(c/2)$

P = Total cost of cash management
b = Fixed cost per transaction of transferring funds from marketable securities to cash or vice versa
T = Total amount of cash payments or expenditures over the period
c = Size of the transfer, which is the maximum amount of cash
v = Variable cost per dollar of funds transferred
i = Interest rate on marketable securities

The formula used to solve for the *optimal transfer size and initial cash balance* is:

$$c = \sqrt{2bT / i}$$

The *average cash balance* is:

$$c = \sqrt{2bT/i} \,/\, 2$$

The *total number of transfers* is computed by dividing the cash payments (T) by C.

Transfers = T/c

Let's look at an example. Jefferson City has total cash payments of $8 million (T) for a 6-month period. The payment over this period is steady. The cost per transaction is $75 (b), the interest rate is 4% for the period (i), and the cost per dollar of funds transferred is .06% (v). Therefore:

$$c = \sqrt{2bT/i} = \sqrt{2(75)(8{,}000{,}000)/.04} = \$173{,}205.08$$

So, the optimal initial cash balance and transfer size is $173,205.08, and the average cash balance is $86,602.54 ($173,205.08/2). If you divide $8,000,000 by $173,205.08 you will find that the total number of transfers equals 46 (46.19). The total cost of cash management for the 6-month period:

= $75 ($8,000,000.00 / $173,205.08) + .0006 ($8,000,000 / 1) + .04 ($173,205.08 / 2)

= $3,464.10 + $4,800.00 + $3,464.10
= $11,728.20

^ Note that the interest rate (i) and the cost per dollar of funds transferred (v) is converted in the formula (4% = .04 and .06% = .0006).

Managing Cash Internally

Regardless of the size of a government agency, day-to-day functions require funds to be spent by cash or check. As a result, it is important for managers to manage cash internally by instituting controls on spending and records in order to limit mismanagement of funds, fraud and abuse. Managing cash internally improves bookkeeping, improves internal controls, and auditing. Even though it is impossible to completely eliminate problems, these pointers will improve the process.[47]

- Use checks as much as possible to pay for services. Checks should always be associated with an invoice or voucher. Cash is harder to trace and invites theft and fraud. In addition, this

not only prevents fraud, but overpayment, double payment, and no payment. Petty cash is the only exception to this rule.

- Never write checks payable to cash. This impedes the auditing process. Again, a voucher or invoice should be included with all transactions.
- The person writing the checks should not be used to reconcile the accounts. It is more difficult to cover up a potential crime when a second person is involved in the process.
- Checks should be used in numerical order and signed only by authorized staff. Checks should never be presigned for later use. These three things make it easier to track checks and allow minimum time for checks to be negotiated.
- Maintain firm control over blank and voided checks.
- Use separate bank accounts for each fund in order to maintain merging of funds. This also facilitates the auditing process.
- Sporadically audit petty cash. This should not be an elaborate and costly procedure.
- Make sure that the correct check number is placed on vouchers and invoices.
- Cash and checks should be deposited at least once a day. It should be done more often if a large sum of money is involved. This lessens the likelihood of theft, robbery and allows the investment of idle cash.
- Use computer technology to facilitate fund transfers as well as any other financial transactions. This includes accepting credit card payments.
- Negotiate with banks for better rates as well as services.
- Take advantages of discounts for prompt payment.

Risk Management

Risk is a very active term that is used formally or informally in government at all levels. Like most things, there is a cost associated with risk, *cost of risk* (cost of loss and cost of uncertainty). As a result, it is necessary for city officials to be proactive in managing risk. This might entail using a small army of staff, who may have additional responsibilities, to perform risk related functions. More often than not, risk managers tend to be found in or work very closely with the finance office. What are the responsibilities of risk managers? Given the continued complexity and dynamic nature of government it is difficult to construct an exhaustive list of responsibilities under the label risk manager. Nonetheless, the following list highlights some of these functions (Miller and Hildreth

1996; Lee, Johnson and Joyce 2013; Young and Reiss 2004; Smith, Sun, and Lynch 2017; Keown, Martin, Petty, and Scott 2005).

- Risk Financing (including the purchase of insurance)
- Management of insurable risks
- Maintain records of losses, loss costs, premiums, and related costs
- Occupational health and safety programs
- Workers' compensation management
- Compliance with regulatory and legal requirements
- Catastrophe planning
- Contract review
- Security
- Coordinate all activities involving risk
- Public policy research
- Some involvement in employee benefits
- Some involvement in the management of financial risk and accidental losses

From a budgetary perspective there are two important issues related to risk: purchase insurance to cover the risk or self-fund the risk. If you opt to purchase insurance, then you have fewer problems. The amount of the insurance is a known amount, but you also have to cover any deductibles that might be needed. If you self-fund the risk (self-insurance is an oxymoron—by definition, insurance means you transferred the risk to someone else), there may be all kinds of problems. Many governments self-fund health care for employees and liability. However, several questions are raised. How will the government finance it? Use an internal charge for each funding source? Use general fund money? Fund it on a pay-as-you-go basis? These are the kinds of issues that are involved in self-financing.

Framing Risk Management

According to Young and Reiss (2004), risk management incorporates five fundamental elements: 1.) Mission Identification, 2.) Risk and Uncertainty Assessment, 3.) Risk Control, 4.) Risk Financing, and 5.) Program Administration. Exhibit 7.3 provides a framework that describes the major components of risk management (See Appendix 7A for an example of a risk management assessment plan).

1. **Mission Identification:** Mission identification provides the goals and objectives associated with risk management as they relate to the overall purpose of the bureaucratic and political structure. It is very important in this step that ana-

lysts ensure that the plan advances the goals of the organization and those of political leaders.

2. **Risk and Uncertainty Assessment:** This is a three-pronged process that includes *risk and uncertainty identification*, *risk analysis*, and *risk measurement*. Identification of risk and uncertainty is "a systematic process of discovering an organization's risks and exposures to risk" (Young and Reiss 2004, p. 481). Given the dynamic nature of government, identifying risk is an ongoing process. There are two basic types of risks: *asset exposure* and *liability exposure*.

Physical structures, funds (stocks, bonds, money, etc), personnel, or intangible assets (community reputation, bond rating, credit score, etc) fall into the asset exposure category. Liability exposure focuses on legal liability, moral, and ethical responsibilities. There are numerous forms of liability exposure. This includes things such as premise liability (injuries on government property), contractor liability (work performed by entities employed by the government), employee liability, product or service liability (firefighting services), environmental liability (leaks in land-fills or water treatment facilities), employment practices liability (sexual harassment and discrimination), police and law enforcement liability (wrongful arrest, excessive force).

There are many other types of exposures that may relate to specific types of government agencies and departments. Although legal exposure may be easier to identify than moral liability, they are equally important. For example, placing a water treatment facility in a poor neighborhood because the residents are the least likely to resist the move rather than choosing the best location based on other well-grounded factors could lead to exposure (Young and Reiss 2004).

Risk analysis helps analysts to determine how dangerous conditions lead to actual losses. Large governments may have a number of sophisticated techniques and devices at their disposal to determine risk, but smaller governments with fewer resources are more often than not left to use other less costly means. This includes things such as: examining the causes of previous loss, soliciting feedback from similar cities about their losses, seek advice from risk control staff about common vulnerabilities, conduct informational sessions with staff at every level, consult the government's risk manager or insurance broker, identify and examine incidents that could have been disastrous (Young and Reiss 2004).

Risk measurement focuses on the impact of risk on the cities resources and on its capacity to maintain services. Since some ventures are more risky than others, it is wise to focus on or prioritize activities that may have the greatest impact on the organization as a whole. Measurement can vary based on the size of the government. Larger governments, with greater resources, "may conduct a quantitative analysis of their loss history to determine the frequency, severity, and financial or operational impact of different types of losses. Smaller local governments may have to rely on intuitive estimates of the effects of what they believe to be their greatest exposures. In such cases, "measurement" may be limited to categorizing risks according to frequency (how often losses occur) and severity (the financial and other impact of losses when they do occur) (Young and Reiss 2004, p. 484; see also Miller and Hildreth 1996).

3. **Risk Control:** *Risk Control* emphasizes "avoiding, preventing, reducing, transferring, or neutralizing risks and uncertainties (Young and Reiss 2004, p. 484). This can include items such as wearing safety goggles to complex evacuation plans. Risk avoidance, loss prevention, loss reduction, uncertainty reduction, and contractual risk transfer are the major categories in risk control.

Risk avoidance is simply avoiding some activity that can cause a risk of loss. This is difficult to carry out since the government must provide services even during difficult circumstances. For example, a government may close one lane of a highway because of bridge construction in order to avoid possible liability issues (Miller and Hildreth 1996).

Loss prevention controls are intended to prevent losses from occurring such as work place safety techniques and procedures that limit the opportunities to commit fraudulent acts and theft. *Loss reduction* controls limit the amount and magnitude of losses that do occur from accidents. This would include things such as the wearing of protective gear inside hazardous waste areas or having an adequate number of fire extinguishers in the right places.

Uncertainty reduction procedures are designed to direct attention to the areas where risks are most likely to occur. Examining an agencies loss history to see where resources should be concentrated can expedite this process. Another option is to contract the risk producing activity to an outside entity. This is called *contractual risk transfer*. The third party entity would assume any responsible for losses resulting from loss. "Responsibility is generally assumed through a combination of contractual indemnification, hold-harmless agreements, and insurance requirements" (Young and Reiss 2004, p. 484). For example, a city may contract with an outside vendor to collect waste.

Whether to choose one method or another depends solely upon the government. There are a number of possible risk methods. In some cases, the government must employ risk control techniques while others are optional. When risk control methods are optional, cities should fully research their functions and use limited resources in the most productive manner.

4. **Risk Financing**: *Risk financing* has two components: 1.) securing reimbursement for losses that occur and, 2.) provide resources to programs that decrease uncertainty and risk or improve positive outcomes. Examples include: "qualifying with the state as a self-insured entity, buying insurance, establishing a letter of credit, and participating in a public risk pool" (Young and Reiss 2004, p. 484). Another example is establishing a safety program for an agency.

There are two categories of risk financing, risk retention and risk transfer. *Risk retention* occurs when a government assumes all or part of the risk or loss. *Risk transfer* occurs when another organization, like an insurance company, assumes the risk and pays for the loss when it occurs for a premium. Governments can use an amalgamation of risk financing techniques (Miller and Hildreth 1996; Young and Reiss 2004).

5. **Program Administration**: Program administration is concerned with a variety of technical and general management actions, such as purchasing insurance, creating hedging arrangements, administering claims, and implementing loss control programs and safety instruction. In order to be the most effective, staff should have technical as well as management capabilities (Miller and Hildreth 1996; Young and Reiss 2004).

Procurement

Similar to the private sector, the government must spend revenues to purchase (*procurement*) equipment in order to maintain the infrastructure as well as provide services in the most efficient and effective manner (Lee, Johnson and Joyce 2013). Thai (2003) defines procurement as "buying, purchasing, renting, leasing, or otherwise acquiring any supplies, services or construction, and it also encompasses the development of requirement and specifications, the selection of vendors, the solicitation of sources, the preparation and award of contracts, and all phases of contract administration" (p. 421).

Why is it important to discuss procurement? First, the government must provide services in an efficient and effective manner. Second, the government must secure equipment at the most reasonable price available. Third, the government must ensure that the procurement process is free of fraud and abuse. Lastly, given the size of government, procurement also helps the government to achieve some of its broader economic goals.

The remainder of this section discusses the procurement of equipment at the most reasonable price using a life-cycle cost technique. There are two things that are important in the procurement process when a life-cycle cost application is used: cost and quality. Cost entails the bid price of the item, the life-time maintenance cost of the asset, the energy cost, and the final disposal cost or repurchase price of the item (Ammons 2002). Quality refers to the degree to which

the government needs are met with the purchase. Responsible bidders should be required to submit documents indicating the expected energy consumption, anticipated life span of the equipment, and expected use over a one-year period (McManus 1997; Gianakis and McCue 1999: Nollenberger et al 2003). All of this information is vital in order for this process to be effective.

The basic formula for a life-cycle cost model is:

Life-Cycle Cost = Acquisition Cost + Lifetime Maintenance Cost + Lifetime Energy Cost – Trade in Allowance – Expected Resale Value

The example in Exhibit 7.4 shows the results of applying the life-cycle cost model to the purchase of two trucks with similar horsepower and amenities. If you focus your decision to purchase on the price of the trucks in this example, you would buy the truck from the second bidder because it is six thousand dollars cheaper than the other truck. However, when you look at the other items, particularly energy cost and diesel mileage along with maintenance cost, you note that the disparities between the two trucks changes dramatically.[48]

Exhibit 7.4 Life-Cycle Costing

Life-Cycle Cost	*Truck Bid 1*	*Truck Bid 2*
Bid Cost	$45,000.00	$39,000.00
Expected Use	100,000 miles	100,000 miles
Life Expectancy	6 years	6 years
Efficiency Rating	85%	75%
Energy Cost ($2.69 per gallon)	$17,936.03 (15 mpg)	$26,900.00* (10 mpg)
Maintenance Cost	$8,814/6yrs	$21,000.00/6yrs^
Life-Cycle Cost	$71,750.03	$86,900.00

Life-Cycle Cost Difference $15,149.97 ($86,900.00 - $71,750.03 = $15,149.97)
*(100,000 miles / 15mpg) x $2.69 = $17,933.33; and 100,000 miles / 10mpg x $2.69 = $26,900.00

^ $1,469.00 per year for Bid 1 and $3,500.00 per year for Bid 2.

Source: Lee, Roderick C. 1996. "Life-Cycle Costing." In *Budgeting: Formulation and Execution*. Eds. Jack Rabin, W. Bartley Hildreth, and Gerald J. Miller. Athens, GA: Carl Vinson Institute of Government, University of Georgia.

In fact, the cost difference of the two trucks over a six-year period is almost $15,150.00.[49]. So, which truck should the government purchase? It is pretty clear that the truck from the first bidder should be accepted. However, the government should ensure that the information that is used in the model is accurate and based on tried and tested measures from responsible bidders. Further, the government should be certain that it will keep the truck for a six-year period. If any of these values change, the difference between the two bids will change as well (Nollenberger et al 2003). Also, note that if there are multiple bids, you must subtract the two lowest bids from each other. There are a number of other items that can be used in a life-cycle cost model such as trade in value of an existing piece of equipment, acquisition cost, failure cost, labor cost, and expected resale value. For obvious reasons, more information allows decision makers to make more informed decisions.

Cutback Management

Without question, cities are more likely to see fewer resources than surpluses in their budgets. As a result it is necessary to engage in what is called *cutback management*. In simple terms, this is implementing cost cutting reductions in resources while attempting to maintain services at their current level. Under the worst conditions, cutback management can lead to the demise of programs as well as a reduction in services. Quite naturally, this process can and does have an adverse impact on all sectors of the economy.

Causes of Cutbacks

According to Levine (1996) cutbacks result primarily from five things: problem depletion, erosion of the economic base, inflation, taxpayer revolt, and limits to growth. *Problem depletion* occurs when a public sector problem is solved, eliminated, controlled or the pressure to solve the problem subsides. This can be long or short-term problems/crises such as program consolidation, program termination or school closing (Levine 2004). For example, the city of Memphis, Tennessee recently closed several schools due to low enrollment rates, and as a result they consolidated the students into one school. On one hand, this caused many political headaches despite the fact that it saved the city money. On the other hand, it created more busing expenditures.

A second cause of cutbacks is *erosions in the tax base*. There is an array of items that can cause the tax base to erode in a city. This includes things such as: the relocation of citizens to suburbs, an aging population, the movement of industry to other locations, aging or deterioration of the housing stocks resulting in lower valuations, and the growth of dependent populations (Raymond and Menifield 2011). Levine (2002) offers further explanation of this phenomenon in his

discussion of *environmental atrophy*. He points out that those who cannot afford to move to the suburbs are left to make up for the loss in the tax base and as a result are worse off. The third cause is *inflation*. Inflation is an increase in the amount of money and credit relative to available goods resulting in a substantial and continuing rise in the price level. The funds needed to operate a government efficiently and effectively has continued to rise dramatically over time. Some suggests that it has doubled in the last ten years. Unless the government raises taxes or other revenue generating tools, they are forced to cut back services.

Taxpayer revolt is the fourth reason that Levine (1996) argues causes cutbacks. "These explanations usually include reference to the difficulty of tracing the well-being of individual taxpayers to specific government services, the desire of voters to alleviate the impact of inflation on their personal disposable incomes, the backlash of taxpayers against the salary increases of unionized public workers and the services offered to the poor and minorities, and the cumbersomeness of financing local services through the mechanism of the property tax" (p. 131). The last cause of cutbacks is limits to growth. The Midwest saw many of their cities become "rustbelts" because of the out migration of businesses to the west and south. Many cities are landlocked. They have no ability to attract new residents or businesses. There is a severe imbalance between imports and exports in the United States. This is particularly true when we look at depletable resources and energy sources such as fossil fuels. There is currently no end in sight for this problem. Generally speaking, history suggests that economic growth will slow down in the foreseeable future.

Cutbacks in government are particularly difficult because it will inevitably impact all aspects of service. Levine (1996) argues that change in services is most palatable when those affected have something to gain. Unfortunately, the impact of cutbacks consistently means that the outcome will have a negative impact on the consumer and as a result cooperation will be at a minimum. There are also a plethora of traditions, procedures and agreements in place that will constrain the ability of the government to make the cuts. This includes things such as affirmative action and collective bargaining agreements, veteran's preferences and civil service procedures. Cutbacks also affect the morale of public servants. They are not inclined to work harder during these periods to make up for a decrease in staff or revenue. Last, cutbacks affect the overall behavior of administrators and staff because everyone is forced to deal with having fewer resources (Levine 1996).

Cutback Strategies

There are five general strategies that can be used to cutback resources. The first strategy is to resist or *smooth* the cuts. Generally speaking, budget managers engage in what is called *budget maximizing*. That is, they attempt to get the maximum budget as possible. As a result they will almost instinctively resist the

cuts. In some cases, managers will cut the most pertinent services first to show policy makers that they need their entire budget allotment. When this and other strategies do not work, managers will reluctantly try to limit the impact of the cuts without reducing services, selling assets, instituting layoffs and defaulting on contractual obligations.

The second option is to make a one-time drastic cut with the hope of recuperating later or small cuts over several fiscal years in order to minimize the impact. The problem with making a large cut is that the funds may never return to their current levels. The problem with small cuts is that the agency may function at the same level suggesting that the cuts were warranted. As a result, the funds are less likely to return at the same level in the near future. Public outcry over either one of these is also likely to impact decisions. In fact, some agency heads may use this tactic in order to advertise their resistance. Like most tactics, it can come with political repercussions because politicians are not ignorant of the behavior.

One commonly used technique is to make across the board cuts. While this may help to improve morale among the employees, it is not a good management strategy because all agencies are not equivalent and do not contribute equally to the goals and objectives of government. In some cases, agencies and programs may be cut after they are prioritized based on the goals of the government. However, these debates essentially facilitate things such as the *budget maximizing strategy* and political turf battles.

The fourth strategy looks at the *efficiency* versus *equity* question. Efficiency is "meant to mean the sorting, sifting, and assignment of cuts to those people and units in the organization so that for a given budget decrement, cuts are allocated to minimize the long-term loss in total benefits to the organization as a whole, irrespective of their distribution" (Levine 2004, p. 514). Equity "is meant to mean the distribution of cuts across the organization with an equal probability of hurting all units and employees irrespective of impacts on the long-term capacity of the organization" (Levine 2004, p. 514). This quandary results from the cost of providing services to the various groups and the makeup of personnel. The poor, elderly and minorities are the most dependent upon the government and tend to be the most costly to serve. Hence, blind cost cutting based on restricted productivity measures can be very damaging to them. This quandary is further exasperated due to the recent rise in minority employment and the prevalence of laying-off the last one hired first. Nonetheless, history suggests that the politically weak are disproportionately adversely impacted by budget cuts (Levine 1996; 2004).

The fifth and final cutback mechanism is *attrition*. That is, employees leave the public work force and create a void. Administrators can and often do leave the position open for a period of time in order to save resources. In some cases, it may be possible to shift those responsibilities to other employees or outsource the tasks at a cheaper rate. However, the implications of shifting the responsi-

bilities to other employees can be financially detrimental to the agency in the long run. If an organization can run smoothly without the position it would clearly suggest that the position was not needed and thus should be removed from the organization chart. This is probably the most commonly used method. It is very hard for a government to lay off employees. There are both civil service laws as well as collective bargaining agreements that have to be followed. By the time you try to go through this process, one or more years may pass. Thus, it is easier to just use attrition to cutback resources.

Druker and Robinson (1993) point out several additional strategies that have been employed at the state and local levels. These include: freezing vacancies, implementing an early retirement plan, offering voluntary leave, implementing mandatory furloughs and layoffs, reducing hours, job sharing, increasing the workweek, deferring pay increases, reducing the cost of benefits, shutting down operations, implementing user fees, cutting salaries, lagging payrolls, and reorganizing the work force (see also Lauth 1997). Marlowe and Nyhan (1997) made these additional suggestions based on work examining the Palm Beach County Government: reduce travel and office equipment, privatize functions, reassign costs, defer capital spending, implement franchise fees, defer library projects, reduce the level of service, and defer replacing equipment.

Debt Management and Investment

Why do governments incur debt? States and local governments can incur *debt* when "(1) covering deficits (annual expenditures greater than annual revenues)[50], (2) financing capital-project construction, and (3) covering short periods within a fiscal year in which bills exceed cash on hand" (Mikesell 2014, 543). As shown in Exhibit 7.5, the amount of state and local debt has grown from FY 1994 to FY 2004. The data also indicates that the total amount of debt outstanding and long-term debt increased by almost $900 million over the period. Also, the amount of full faith and credit bonds more than doubled and long-term debt for education nearly tripled.[51] Hence, it is apparent that governments are moving towards greater debt rather than less debt. As a result, it is important that governments have a debt management policy to facilitate debt.

Exhibit 7.5 State and Local Debt, FY 2003-04 and 2013-14

Type of Debt	2003-2004	2013-2014
Debt Outstanding	$1,941,374,559	2,974,441,429
Short-Term	26,666,271	34,245,302
Long-Term	1,047,993,941	2,940,196,127
Full Faith and Credit	345,517,973	549,149,427
Nonguaranteed	702,475,968	

Long-term Debt by Purpose:		
Public Debt for Private Purpose	301,634,651	549,149,427
Education	143,466,341	
Utilities	164,898,088	
Other	437,994,857	
Long-Term Debt Issued	207,806,935	302,026,228
Long-Term Debt Retired	166,552,039	309,167,503

Sources: http://ftp2.census.gov/govs/estimates/04slsstab1a.xls
https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=SLF_2014_00A1&prodType=table

Debt Management Policy

The Government Finance Officers Association (GFOA) lists a debt management policy as a "recommended practice." Specifically, they recommend that state and municipal governments adopt a comprehensive written debt management policy. Further, they recommend that these policies be reviewed and revised annually to reflect changes in debt policy (www.gfoa.org).

A debt management policy provides benefits to citizens and bureaucrats. First, it assures bondholders that debt burdens and operational debt expenditures will be maintained at controllable levels with a plan to meet capital infrastructure needs. Second, it provides staff with a framework to work from and assures the legislative body that any proposals brought forward by staff meets the policy mandates set out by the legislative body. Third, it assures continuity in financial operations whether there is a change in the legislative body or management personnel. Last, Moody's Investor Services points out that a strong debt management policy is a practice that a city can use to strengthen its credit position. Since debt has a potential long term impact on future budgets it is important that it is issued with great care. If something goes awry in the process, the ramification for tax-paying citizens can be a source of great consternation. The basic rule of debt policy is to never issue debt for a project that has a life span shorter than the debt payback period (see Chapter 6). Knowing when to issue debt is an important question. This is particularly true for long term debt. However, long-term debt could very well be appropriate for long-life capital structures such as public buildings. Economic development by definition often requires financing large scale expenditures prior to an expansion in revenue. If future revenue will cover the cost of the project, an argument can be made to fund the project using long-term debt.

However, some governments with large fund balances and a growing general fund opt to use the pay-as-you-go method to funding capital projects out of the operating budget. As discussed earlier, there are several advantages to using

this method. However, there are inefficiency and inequity issues that could arise. Mikesell (2004) points out four factors. First, given population shifts, individuals paying for the project may not be present to receive benefits when the project is completed. Second, the high cost of the project in a single year may discourage construction even if it is reasonable. Third, it might cause instability in the tax rate. It might be artificially high during the construction phase and artificially low when the project comes to fruition. Last, it "produces annual debt service charges that are fixed by contract (see also Mikesell 2014, p. 674). Therefore, when the areas tax base grows, the tax rate required for debt service for a project will decline over time" (p. 555).

Appendix 7D&E contains the Debt Management and Fiscal Policy (General Policy) and the Debt Management Policy for the city of Lawrence, Kansas. As shown, the policy contains some additional items not discussed in the earlier paragraphs. This includes: the structure of debt financing (possible source of funding); debt administration and financing; refunding of debt; conduit financing; arbitrage liability management; and credit ratings. It is important that governments consider all of these items when creating a debt management policy.

Additional Budget Options

Cutback and debt management has also caused governments to look more closely at utilizing zero-based budgeting and performance budgeting techniques. *Zero-based budgeting* (ZBB) is a future oriented budgeting strategy that requires analysis of current and future expenditures, "allows for tradeoffs between programs and units below their present funding levels, allows a ranking of decision packages by political bargaining and negotiation so that attention is concentrated on those packages or activities most likely to be affects by cuts. As a result, ZBB allows both analysis and politics to enter into cutback decision making and therefore can incorporate an expression of the *intensity of need* for resources by participating managers and clients while also accommodating estimates how cuts will affect the activity levels of their units" (Levine 2004, p. 515-516). With that said, ZBB is not without faults, analysis and political disagreements can come at a high price. While elements of ZBB are currently utilized, it is not widely used today.

Performance based budgeting (PBB) concentrates on agency-activity objectives and outcomes rather than the purchase of resources. In simple terms, the budget is tied to accomplishing objectives (see Chapter 1). As a result, agencies that fail to reach their stated outcomes can be targeted for cuts. Again, if the budget maximizing strategy is at work, this would suggest that agency heads are requesting the maximum amount of funds that they can get and only use performance measures that they know they can accomplish (Mikesell 2014).

Conclusion

While there are many other tools that can be used to assist city administrators and analysts in improving the financial position of the city, the chapter provides a sample of several administrative and management techniques that can be useful when applied at the right moment. Other important topics not covered would include items such as bond management and economic development. It is important that administrators realize that economies do not tend to turn around overnight. This is particularly true in situations where management practices are in disarray. However, the chapter shows that minor changes can have a major impact on budget decisions and the morale of staff and supervisors.