

INCREASING PRODUCTIVITY AND REDUCING COSTS IS A
VITAL ALTERNATIVE TO RAISING TAXES OR CUTTING OR ELIMINATING SERVICES
IN LOCAL GOVERNMENT

By:
Richard G. McGraw

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First Reader: Charles Weber

Charles Weber

Second Reader: Albert Price

Albert Price

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ABSTRACT

In local government across the United States, public officials, both elected and appointed, are telling the taxpayers that there are two alternatives in solving the problem of increasing costs that confront government. These alternatives are to increase taxes or to cut back or eliminate services.

This paper examines vital alternatives by which local government can reduce the costs of services and increase efficiency and effectiveness of these services through productivity improvements rather than by increasing taxes or reducing or eliminating services and programs.

Productivity will be defined. Productivity improvement techniques will be outlined. Also, barriers that hinder the implementation of a productivity improvement program will be discussed. The paper then provides an overview of productivity improvement programs in five units of local government. Finally, a case study is presented outlining how productivity was increased and resulted in a substantial cost reduction in the County Clerk's Department of Genesee County, Michigan. The paper concludes by indicating that the research data collected and analyzed supports the hypothesis outlined in the paper. Furthermore, the 80's will be a period of cut-back management and program entrenchment in local government due to the scarcity of resources to finance these programs and services. Therefore, the public official will be forced to turn to improvements in productivity in order to resolve the above crisis.

I.

FORMULATION OF RESEARCH PROBLEM

The resources consumed to produce the services provided by state and local governments have grown to a magnitude that makes state and local government one of the major components of the American economy. The employment and expenditures of state and local government have increased greatly over the past two decades. "In 1960, these government units employed approximately 6.1 million workers, or 8.7 percent of the civilian labor force, and spent approximately \$46.5 billion on the purchase of goods and services, or 9.2 percent of the gross national product. By 1980, these governments employed 13.4 million, or 12.5 percent of the civilian labor force and spent on goods and services \$341.2 billion, or 13.0 percent of the gross national product."¹

In local governments across the United States, public officials, both elected and appointed, are telling the taxpayers that there are two alternatives in solving the problem of increasing costs that confront government. These alternatives are to increase taxes or to cut back or eliminate services. There is substantial evidence that taxpayers do not want taxes to be increased and in some cases are demanding that taxes be cut. There is also proof that the taxpayers would like local government expenditures reduced. "Voters in 13 states considered measures to limit taxes and government spending in the November 7, 1978 elections" according to Richard L. Lucier in his article "Gauging the Strength and Meaning of the 1978 Tax Revolt."² Furthermore, Jerome Rothenberg and Paul Smoke, in discussing the effects of Proposition 2-1/2 in Massachusetts stated, "In

the November 1980 general election, Massachusetts' voters overwhelmingly approved a strict tax limitation measure known as Proposition 2-1/2. This popular initiative, supported by 59 percent of the electorate, was designed primarily to reduce local property tax burden and to curtail the rate of growth of local government spending."³ Finally, the current recall of public officials in Michigan is further evidence to support this statement.

The public administrator or elected official has to deal with the problem of the continued increase in the cost of providing services to the public, such increases reflect inflation, as well as the expansion of current services or the creation of new programs. The graph to the right shows the history of expenditures in Genesee County, Michigan, a local unit of government. The data on the chart show that expenditures in Genesee County have increased from \$86.3 million in 1978 to \$109.7 million in 1983.⁴ This data, plus the figures stated in the first paragraph on page one, provide further evidence that expenditures in local government have increased.

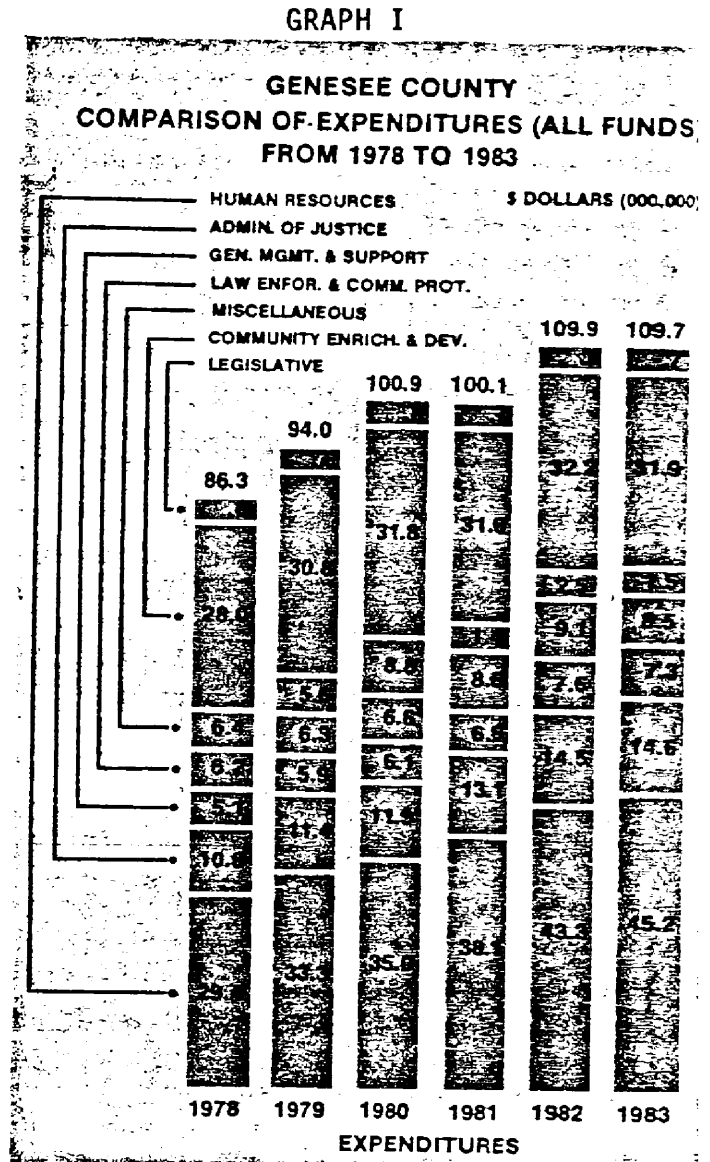
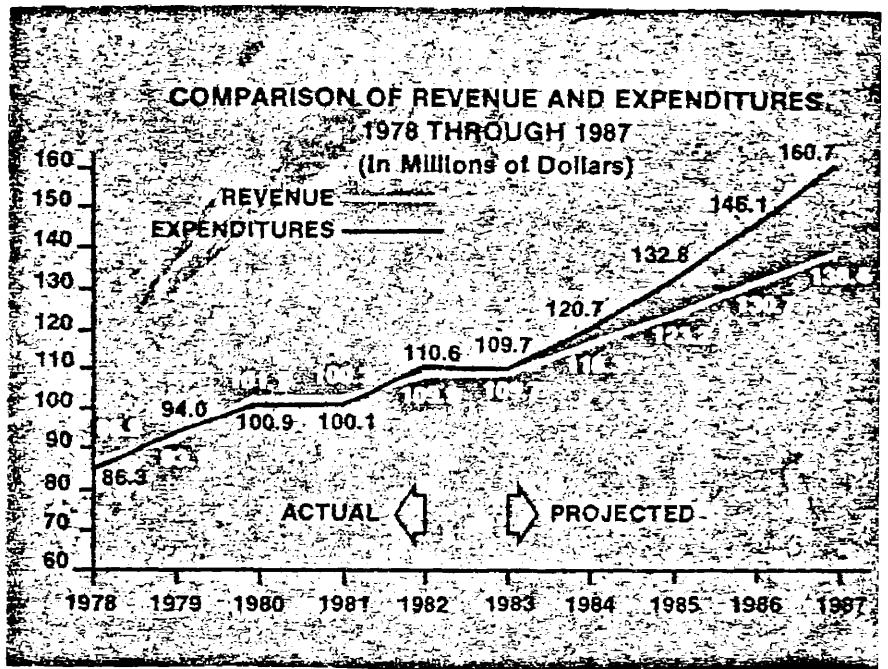


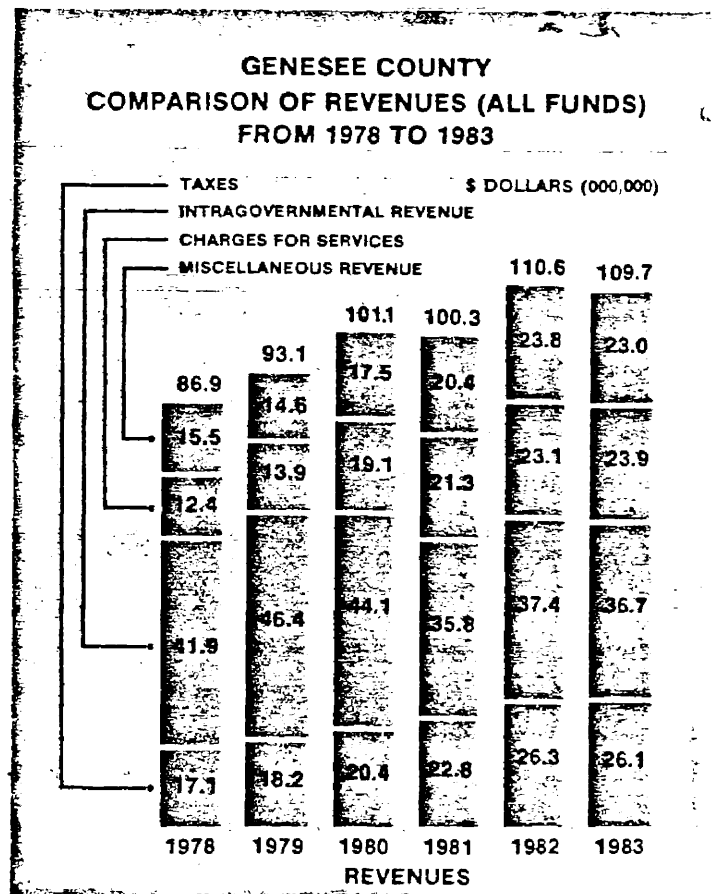
CHART I

At the same time, however, the public administrator is confronted with the problem of decreasing resources. The chart to the right provides a historical prospective and future trends of expenditures and revenues in Genesee County.⁵



GRAPH II

The County had to use fund balance (accumulation of excess revenues over expenditures in prior years) to balance their budget in 1979 and 1982. The decrease in resources was due to a decrease in property taxes and monies received from the federal government via the intergovernmental system. The trends of the various revenue sources are shown on the graph II to the right.⁶



The data shown in the preceding charts provide evidence that the cost of providing services is increasing drastically, whereas the resources to finance these services are in the process of diminishing in Genesee County. Furthermore, there is evidence that other local units of government across the United States face the same scenario.

The available resources for many local governmental units are fixed, growing slowly or even diminishing. Hence, public administrators and elected officials have to bring new vigor to their research for methods of getting more from the resources they have. As a result, this research paper provides a new focus on government operations based on previous research and experiences. This paper will discuss vital alternatives by which local government can reduce the costs of services and increase efficiency and effectiveness through productivity improvements rather than by increasing taxes, or reducing or eliminating services and programs. However, in order for this to take place, the public administrator or the elected official has to be supportive of such a program.

This section of the paper has provided a description of the problems to be investigated. A brief background on productivity, how state and local productivity interrelate to the national economy, and how productivity is measured and increased is presented in Section II. A clear, concise description of proven techniques for enhancing productivity is presented in Section III. Also presented is how these techniques are applied to local government activities and programs. The barriers or difficulties involved in measuring productivity are discussed in Section IV.

Outlined in Section V are the limitations of the study. The productivity improvement programs of four local units of government are portrayed in Section VI. A description of each program is provided. Major accomplishments, factors contributing to the success, and barriers incurred in implementing and operating each program are then outlined. Finally, the analysis of each program will conclude by providing some salient points about each program. The same approach as in Section VI is used in Section VII~~X~~ to review Genesee County's productivity improvement program. A case study is presented in Section VIII providing an actual experience of how productivity was increased in the Genesee County Clerk's Department. The final section of this paper (Section IX) presents conclusions drawn from the research by the writer and provides a brief list of challenges facing local government officials in the 1980's regarding the productivity issue.

FOOTNOTES

1. U.S. Department of Labor, Bureau of Labor Statistics, Monthly Labor Review: December, 1983, Bulletin 2166, "Measuring Productivity in State and Local Government," p. 1.
2. Richard L. Lucier, "Gauging the Strength and Meaning of the 1978 Tax Revolt," Public Administration Review, Vol. 39, No. 4, July-August 1979, p. 371.
3. Jerome Rothenberg and Paul Smoke, "Early Impacts on Proposition 2 1/2 in the Massachusetts State - Social Public Sector," Public Budgeting and Finance, Winter, 1982, p. 90.
4. Genesee County, 1983 Operating Budget, P. VII.
5. Genesee County, 1983 Operating Budget, P. VI.
6. Genesee County, 1983 Operating Budget, P. X.

II.

INTRODUCTION TO THE PROBLEM OF PRODUCTIVITY

Productivity is an economic term which identifies the quantity of goods or services which can be produced (output) from a specific quantity of resources - manpower, capital, energy, and raw materials (inputs). As an absolute ratio, the productivity rate indicates, as a single point in time, production capability based on resource availability. Productivity reflects increases or decreases in the efficiency of resource utilization or cost reduction or curtailment.¹

Increases in productivity permit wages to rise without cost or price escalation; allow more goods and services to be available without increased depletion of scarce resources; enable the individual employee to work fewer hours without reducing income; and provides the economic growth necessary to support the attainment of social objectives. In short, productivity growth reduces inflation, enhances the competitiveness of U.S. products in foreign markets, and contributes to improving the quality of life enjoyed by all Americans.

The implications of local government on the U.S. "productivity crisis" are significant. The cost of delivering public services will continue to rise dramatically. Pressures to reduce the tax burden will increase as the purchasing power of the dollar declines and the relative pinch of the tax bite increases. Demand for some public services will grow as private alternatives become infeasible.

Local government is not just a victim of these consequences; it is also a contributor. Low government productivity growth expedites tax hikes, which adds

to the cost of private sector production and service delivery, retards the expansion of necessary and desirable public services, and wastes scarce resources.

"A model developed by Baumol helps to explain further why the above conditions exist in local government. His hypothesis of the "unbalance growth of the economy," based on the assumption of differential rates of productivity growth in various sectors of the economy, offers insight into why less public service may be costing more dollars and thus generating "tax revolts". In Baumol's model, productivity increases for public services are assumed to lag behind such increases for the rest of the economy since these services are usually labor intensive. Consequently, high wages in the public sector are not as readily matched with higher productivity as they are in the private sector. To retain employees in the public sector, however, government wages must move upward with those in the more productivity sectors of the economy.

The result according to D.F. Bradford is that 'local governments can probably expect that costs will continue to rise cumulatively and at a more rapid rate than those in the rest of the economy, even if there is no increase either in the quantity or quality of the services provided. Increasing expenditures appears to be the price of simply standing still.' The plight that local governments' find themselves caught between that pressures by public employees for increased compensation and taxpayers complaints over the deteriorating quality of public services has been termed "Baumol's Disease."

Increasing public sector productivity can result in the reduction of the real costs of public services and a possible remedy to the "Baumol's Disease". In order to achieve an increase in productivity, the ratio of output to input must increase.

Public Sector Productivity

In the public sector, the term productivity encompasses both the efficiency and the effectiveness with which resources are consumed to provide services. In the absence of a free-market system, which acts as a quality control in the private sector, the public sector must develop surrogate indicators to assure that attempts to increase efficiency do not reduce effectiveness.

On one level, productivity relates to efficiency of governments in using resources to accomplish goals. In other words, it relates to whether more resources are required to pave the same number of streets at the same level of quality, or whether fewer resources can be consumed to achieve the same goals more efficiently.

Productivity in government also relates to whether or not the right goals are being accomplished. The question here is whether paving the streets is the appropriate goal or whether the preference of the citizenry is to build tennis courts with those same resources. The demand for private goods and services is validated by consumer choice at the marketplace. Misallocation of productive capacity in the public sector generates citizen dissatisfaction with governmental effectiveness.³

On still another level, government's contribution to productivity relates to the efficient and effective allocation of resources between the private and the public sectors for services or programs which enable us to achieve a preferred mix of public and private goods

for a given amount of resources. An example of this activity is the regulatory process whereby public and private dollars are allocated to reducing pollution, a social goal the costs of which may reduce the resources that otherwise would be available for increased consumption or investment.⁴

Mobilizing all resources to achieve the above goals is one of the responsibilities of government. The extent to which we understand the mechanism by which the resources are allocated between the public and private sector can influence both the way we attempt to accomplish these goals and the resulting efficiency and effectiveness with which we achieve them. It can also allow us to reduce the amount of resources utilized to accomplish the same or greater responsibilities.⁵

Sources of Productivity Growth

Increases in productivity result from using fewer resources or varying the mix of resources required to produce goods or services so that all the inputs to the production process are optimally utilized.

In government, as in all labor-intensive activities, many factors affect the extent to which manpower is effectively and efficiently utilized in the delivery of services. Among the significant influences on employee productivity are factors such as skill level, scheduling of work, availability of necessary tools and equipment, absenteeism and tardiness, health and safety, working conditions, career development opportunities, and supervision.⁶

Even in labor-intensive operations, like most governmental services, technology can significantly increase productivity through efficiencies of time and manpower or the capability to accomplish previously impossible tasks. Technological opportunities relate not only to new innovations but also to equipment utilization, reduction of downtime, scheduling, manning levels, and energy consumption.

Financial resources also determine the extent to which productivity can be increased. Not only do they represent the capability to acquire new technology or compensate manpower, they also generate resources through investment practices, billing and payment policies, and debt financing.

The costs and consumption of raw materials also contribute to productivity improvements. For instance, as energy becomes more expensive, it is important to look for ways to reduce energy consumption and at the same time achieve the same goals. Similarly, land is becoming relatively more dear, especially in concentrated metropolitan areas, making it important to minimize space needs and avoid the costs associated with land acquisition and maintenance.

The methods used to organize a job also contribute opportunities for improving productivity. For example, methods which are less redundant, more logical, and smooth flowing tend to cut down on the time, equipment, and manpower needed to accomplish the tasks. Certain methods will encourage high employee performance while other procedures will frustrate and alienate the worker, resulting in lower productivity.⁷

The environment within which the production activity is taking place must also be considered. The environment is affected by a number of factors, including regulations imposed at the federal, state or local level. Regulations can influence the types and costs of inputs to the process (equal employment opportunity, minimum wage) or the method by which the process is done (Occupational Safety and Health Administration). These regulations can negatively influence the ultimate efficiency and perhaps the effectiveness of the system. As perpetrators of regulations, state and local governments should consider the alternatives for achieving the publicly desirable goal before enforcing rigid, productivity-reducing regulations. Under the influence of regulation, government should seek, where possible, methods of achieving the social goal without adding costs or diminishing results, as some companies have done with significant benefit to their product price resulting in large gains in market share.

Furthermore, government must assess whether it should be in the business of delivering some of its services. In some cases, the market mechanism may have broken down so that the private sector is not doing what it can do best. In these cases, government has a responsibility only to correct the incentives, not to deliver the product or service more expensively or less productively.

Finally, it should also be noted that increases in productivity will result in savings (cost reductions or revenue increases) in the areas or departments where the productivity increases occur. However, this does not mean that the total productivity of the local unit government has been increased; whether or not the total productivity of the local unit of government increases will

depend on how the savings is used. The overall productivity of the local unit of government will increase if the savings are used to create additional cost savings or generate additional revenue. However, if the savings are spent on projects or items that are not conducive to increases in productivity, then the overall productivity of the local unit of government will probably not be increased and it could possibly result in a decrease in the overall productivity of the local unit of government.

This paper will confine its examination of productivity to the amount of physical output per unit of input and cost reductions. A case study of the Genesee County Clerk's Department will be presented in Section VII. The relationships of the resources used by the above department to produce its services (input) to the result of the work performed or services provided (output) will be examined.⁸

The case study will show that unit labor costs will decrease if productivity increases. Therefore, unit labor cost is the dependent variable affected by either wages or productivity. Furthermore, there are intervening variables that can offset the cost of the resource and have a direct effect on productivity. Examples of these intervening variables are type of organizational arrangement, labor unions, and other departments that support the department that is responsible for providing the service.

The next section will address techniques used in local government to increase productivity.

FOOTNOTES

1. Nancy Hayward and George Kuper, "The National Economy and Productivity in Government," Public Administration Review, Vol. 38, No. 1, Jan/Feb 1978, pp. 2-5.

2. William B. Neenam, Urban Public Economics, Wadsworth Publishing Company, 1981, p. 163-164.

3. David Bain, The Productivity Prescription, McGraw-Hill Book Company, New York, New York, 1982, p. 3.

4. R. Scott Fosler, "State and Local Government Productivity," Public Administration Review, Vol. 38, No. 1, January-February 1978, pp. 22-27.

5. David Bain, The Productivity Perscription, McGraw-Hill Book Company, New York, New York, 1982, p. 19.

6. David Bain, The Productivity Perscription, McGraw-Hill Book Company, New York, New York, 1982, p. 15.

7. David Bain, The Productivity Perscription, McGraw-Hill Book Company, New York, New York, 1982, p. 18.

8. Jesse Burkhead and Patrick J. Hennigan, "Productivity Analysis: A Search for Defiition and Order," Public Administration Review, Vol. 38, No. 1, Jan/Feb 1978, pp. 34-40.

III.

PRODUCTIVITY IMPROVEMENT TECHNIQUES

The purpose of this section is to describe the various tasks and techniques available to local government managers and analysts in improving the productivity of their operations. Since local government expenditures are primarily for personnel, equipment, and facilities, the focus will be on those areas with specific emphasis on work simplification and work standards, since these techniques were used in the case study. This will also familiarize the reader with these techniques and assist in the review of the case study. A fourth area deals with improving the return on capital funds, since this is an area where substantial opportunities exist for productivity improvement.

The techniques described in this section have been used for years by industrial engineers in bringing about greater productivity in almost all private sector industries; in addition, they have been applied selectively to local government operations.¹

Personnel

Since the majority of government expenditures are for salaries and wages of personnel, the greatest potential for productivity improvement lies in enhancing the efficiency of personnel. Four basic techniques are available for doing this.

- o Improving the efficiency of the job (work simplification).

- o Determining the appropriate amount of work to be accomplished (work standards).
- o Motivating the employees through improved accountability, assignment of vertical responsibility, participatory management, rewarding performance, and overcoming resistance to change.
- o Determining the correct mixture of staff capabilities and support.

Work Simplification

One of the most powerful tools available for improving the efficiency of any operation is work simplification. It has been applied quite successfully in the private sector, particularly in manufacturing operations; but its use in the public sector has been limited.

Work simplification is the systematic evaluation of operations to determine the most efficient process for accomplishing a desired result. It involves six steps:²

Select a job to be improved and concentrate on it. Look for operations that:

- 1) involve large numbers of employees who perform routine and repetitive tasks.
- 2) consume large numbers of man-hours.
- 3) Result in bottlenecks or backlogs in workload.
- 4) Seem to require much "chasing around".

5) Appear to involve considerable amount of idle time.

Examine the operation in detail and develop a flow chart including all steps. The flow chart will be very useful in verifying that all activities involved in a given operation are correctly understood and in providing a perspective on the complexity of a seemingly simple operation.

For each step shown in the flow chart ask the following three basic questions:

- 1) can the step be eliminated?
- 2) can it be combined with another step?
- 3) can a simpler step be substituted?

Based on the answers to these questions, develop a flow chart for a revised method and then ask the same three questions for each step in the revised flow chart.

Once you are satisfied you have developed the most efficient operation possible, calculate the savings and present your findings to the appropriate personnel.

Implement the recommended changes.

The application of work simplification also can result in many forms being combined or eliminated and forms being automatically generated by the computer rather than being prepared manually.

Work Standards

Productivity improvements can also be achieved by establishing work standards, which specify the amount of time required for an experienced employee to complete a job following a prescribed method. Work standards are used primarily for determining the proper staffing levels for specific jobs or tasks. Every year government officials and budget analysts struggle with decisions regarding the appropriate staffing levels for various departments. These decisions could be made much easier through the establishment of work standards. In addition to providing a strengthened decision making capability, work standards have several other uses, including the ability to monitor employee performance, schedule work assignments, and evaluate alternative operating methods. Work standards are particularly useful to supervisors at all levels of an organization in measuring and comparing the performance of their employees and in establishing a continuous performance feedback system.

Improvements in productivity are achieved because:

- o The correct number of employees will be assigned to a given task.
- o The ability to monitor employee performance will allow supervisors to identify high and low performance and take appropriate action.
- o The ability to schedule work assignments will assist managers in developing the most efficient schedule possible.

The following techniques are available for establishing work standards:³

Technique	Explanation
Time Study	All steps required to accomplish a job are observed and timed directly by stop watch.
Predetermined Time Standards	All basic tasks required to perform a given job are identified, then work standards are developed by using predetermined standards for the normal time required to perform these basic tasks.
Work Sampling	A given job is observed at random intervals to determine the allocation of time to specific tasks. From this the amount of time required to perform each task can be evaluated and standards set accordingly.
Activity Logging or Time Ladders	Employees record beginning and ending time for each task accomplished during the day. Standard times required for each task can then be developed.

The proper technique to use in establishing work standards depends primarily on a number of factors, including: (1) the accuracy required, (2) the availability of analysts to set the standards, and (3) the nature of the operations and positions being evaluated (i.e. clerical, technical, professional). Applied properly, any of these techniques can yield usable accurate results. For most local governments, activity logging or time ladders is the preferred method since it generally requires the least amount of analyst time, yields results which are sufficiently accurate for budgeting and operating purposes, and involves the employees in setting the standards. Since activity logging or time ladders is the method used in the case study, it will be explained how it is used to develop work standards.

The steps involved in activity logging or time ladders include:⁴

- 1) Reviewing the organization being studied and the operations being performed to identify study requirements.

2) For each job for which standards are to be established, defining work activities that are:

- o meaningful
- o clearly defined (in terms of beginning and ending points)
- o measurable in terms of work units (such as number of documents or pieces of paper) processed during a time period.

3) Training supervisors and employees regarding the purpose of the study and how their various activities are to be reported.

4) Assisting supervisors in managing and monitoring the activity logging or time ladder program during the study period. Examining the daily activity or time ladder program during the study period. Examining the daily activity log or time ladder forms to ensure they are being completed correctly.

5) Summarizing the data at the end of the study period.

6) Analyzing the data with management.

7) Documenting the work standard to be applied to each job. Management should explain the new standards to the employees and the rationale for their development.

When combined with the previously described work simplification methods, work standards can be very useful in improving the productivity of any operation as is illustrated in the case study.

Motivating Employees

One of the major problems facing local government is maintaining morale and motivation among employees. The intent here is to present an overview of the more successful and easily applied techniques since these techniques were not used directly in the study. These include:⁵

- o Redesigning jobs to achieve vertical responsibility and holding employees responsible for results;
- o Involving employees in productivity improvement efforts;
- o Rewarding performance;
- o Overcoming resistance to change.

Determining the Correct Mixture of Staff Capabilities and Support

In addition to evaluating and redesigning work procedures, setting job standards and taking steps to motivate the employees, the proper mixture of staff capabilities and support should be determined.

The most common problem in this regard is lack of clerical support for professional and technical personnel. Consider the highly trained and paid building inspector who spends the first one and one half hours of his day setting up appointments to conduct inspections, or the police officer who responds to minor calls which could have been handled over the telephone by clerical personnel. In each of these cases, additional clerical support could relieve these individuals to do the jobs for which they were trained and are paid.

Another problem is lack of space or equipment. Crowded working conditions can reduce efficiency significantly. Yet, additional space is usually less expensive than additional personnel. The same is true for small items of office equipment (dictaphones, memory typewriters, etc.) and other types of supportive equipment (computers, field radios, etc.)

There are no clear cut solutions to these problems; however, the administrator who realizes that they exist and addresses them directly will have made progress toward productivity improvement.

Facilities

Expenditures for capital facilities usually represent the second largest item in local government budgets. It is critical that these facilities be acquired at the least possible cost and utilized to the maximum extent possible. The purpose of this section is to discuss some common problems involved in determining the need for capital facilities, financing the acquisition, and maximizing their use, and to suggest some possible solutions to these problems:

Determining the Need

Determining the optional size, configuration, and location of the capital facilities required to support local government program goals is the most critical step in developing an efficient capital improvement program. Unfortunately many capital budgets evolve from long-range capital improvement plans which reflect nothing more than department's or programs director's "wish list". Frequently, little rigorous analysis is done of the real

need for the items included in the capital budget. Obviously the acquisition of a fire station, library, or park which may not be needed is an extremely unproductive use of funds. These problems are not insurmountable, but they require strong leadership from the chief administrative officer.

Acquiring at Least Cost

1) Purchase, construct, or lease - The decision of how to acquire a given facility can be a difficult one, requiring the evaluation of a number of factors. If a jurisdiction has not planned sufficiently ahead of time, construction may not be feasible. Similarly, if a governmental unit has reached its limit on bonded indebtedness and thus has to use current revenues, leasing may be the only feasible alternative. However, when such constraints do not exist, the method of acquisition should be carefully evaluated.

In addition, the present value of the costs and savings of each method should be calculated. This will allow a proper comparison to be made between alternatives.

2) Debt Versus Current Revenue Financing - The second major decision which must be made when acquiring capital facilities is whether to finance with debt instruments, current revenues, or a combination of the two.

A number of factors may make debt financing desirable. When bonds are issued to finance a project, the costs are spread out over a generation of users of the public facility. Debt financing also allows construction or

purchase of a facility now, rather than in the future when construction costs could be higher. Bonds can be used to help avoid fluctuations in tax rates. Since future dollars are cheaper in inflationary periods, use of long-term bonds may be preferable.

Alternatively, there are several advantages to financing with current revenues. One benefit is that a jurisdiction avoids paying the interest costs associated with debt financing. While current revenue financing may allow a government to avoid holding a referendum, it will not help it avoid the close scrutiny which the expenditures will receive during public hearings. By employing current revenue financing, a jurisdiction avoids committing itself to a large fixed cost in future periods. An improved credit rating can often be obtained through pay-as-you-go financing. Similarly, "bonding capacity" can be reserved for when needs are more critical.

Many factors should be considered in deciding whether to finance capital projects through debt or current revenues. There are advantages and disadvantages applicable to each financing method. Generally, the types of financing used will depend on such factors as:

- o legal debt limitations
- o administrative debt limitations
- o cost of the facility
- o useful life of the facility
- o nature of the facility
- o other planned capital projects

The total cost of financing is primarily dependent upon the type of financing methods chosen.

If debt financing is chosen, then the borrower should obtain funds at the lowest effective interest costs. The first step in doing this is to obtain the best credit rating possible. Secondly, a jurisdiction should pattern the maturity of the debt to minimize the percent value of the costs the issue. Finally, the issue itself should be timed to take advantage of the variations in market ratings during the year.⁶

Optimizing Use

Optimizing the use of public facilities should be part of the task of determining the need for additional facilities.

The problem of inefficiencies is not such one of techniques as much as a lack of proper attention being paid to the problem by local government. By examining facility use closely and following the suggested approaches discussed below, a jurisdiction can realize significant improvements in facility use.

A common problem concerns facility design. As a general rule the designers of offices, libraries, fire stations, and other municipal facilities do not consider potential alternative uses by other agencies. For example, the use of removable partitions and open spaces in office facilities can enhance potential uses by other units. By maintaining such flexibility, a government unit can avoid having to acquire additional facilities necessitated by changes in workload or services provided.

Another common problem is that agencies will attempt to plan for peak uses, rather than average uses. Thus, when scheduling facility use, attempts should be made to even out the usage throughout the day and week to the maximum extent possible. When peak usage occurs that cannot be avoided, the additional space should be acquired on a short-term, temporary lease basis.

In optimizing facility use, a third area to examine is the possibility of cutting down on wasted space. A review of the total floor space occupied by files and bookcases might be quite revealing. Standards should be establishing for purging the files of unnecessary materials. If possible, permanent files should be microfilmed. Use of specialized areas, such as conference rooms, might also reduce the total number of such areas which are required. In order to minimize wasted space, such as halls, stairwells, and heating and air conditioning shafts, a governmental unit should consider hiring a professional to design the office layout.

Finally, standards should be developed for use in determining the amount of space which should be allocated to a given agency. Such standards when developed based upon efficient space utilization and in turn applied to each department.

Equipment

Optimizing Use Before Acquiring More

In general, optimizing the use of equipment should follow the same principles which were discussed in the previous section dealing with facilities. In order to obtain maximum use of all equipment, it is necessary to evaluate the manner in which, and the percentage of time, each item is being used.

The first question to ask is, "can any of the equipment be pooled?" If so, then the total number of items of each type of equipment can probably be reduced. For example, rather than assign a given number of vehicles to specific departments, the establishment of a motor pool would most likely result in the need for a fewer total number of vehicles.

A second consideration is whether the job can be done with less expensive items. For example, many jurisdictions have chosen to convert to intermediate and in some cases, compact automobiles for police patrol work.

It is important to remember, however, that significant personnel productivity improvement can be achieved through use of additional equipment, especially labor saving devices such as computers, dictophones, and word processors.

Preventative Maintenance

The importance of a sound, preventative maintenance program cannot be overemphasized. Usually, preventative maintenance is performed on large items, such as motor vehicles, but not other items such as typewriters, small tools, and printing equipment. The lack of a sound preventative maintenance program causes a number of problems. Equipment has to be replaced sooner, personnel may be less productive because of frequent equipment failures, more items are needed on hand at any given time, and salvage values can be reduced significantly.⁷

Capital

When productivity improvement programs are discussed, the productivity of capital is often omitted. Yet, many governmental units have a substantial amount of idle cash on hand which is not earning interest. A number of jurisdictions have implemented effective cash management systems with significant increases in interest revenue.

A number of techniques are available for improving the productivity of capital, and these are discussed below:

Accelerating Receipts

The sooner a governmental unit is able to get receipts into interest bearing accounts, the higher will be the interest income. This can be accomplished in two ways. First, incentives can be provided to citizens to pay their taxes sooner. Second, receipts can be accelerated through the use of a bank lockbox, which is a post office box to which a bank has access. As payments are received, the bank will deposit the payments to the governmental unit's accounts, to begin earning interest immediately and then send the records to the governmental unit. As a result, receipts are accelerated by several days; thus more funds are available for deposit in interest-bearing accounts.

Delaying Payments

While it is sound fiscal management to take advantage of purchase discounts, a governmental unit should not pay its bills sooner than necessary. For example, a purchase invoice with credit terms of "2/10 net 30" should be paid on the tenth day, since the effective annual interest rate of such payment is 36%. However, if the governmental unit is unable to take advantage of the discount, the invoice should not be paid until the thirtieth day. By delaying these payments, additional funds are made available for earning interest.

Pooling Cash Accounts

The number of types of bank accounts which are open should be carefully examined by combining them or transferring all idle cash to a concentration account, additional funds can be made available for investment.

Forecasting Cash Flow

A one-year cash flow forecast should be developed after the above described tasks have been accomplished. This forecast will serve as a guide to the controller or treasurer in determining how much can be invested. Generally, longer term investments yield higher interest rates. Therefore, funds which will be available for investment for as long as one year can be invested at higher interest rates than those funds which are available for a shorter period of time.

By following these four suggested techniques, the average local government can increase its interest income substantially. This is an area which is often overlooked, and yet in many cases has the greatest potential for productivity improvement.

This section has discussed productivity improvement techniques. Section IV will discuss some of the barriers that are faced by local government in implementing productivity improvement programs.

FOOTNOTES

1. Price Waterhouse & Company, "Improving Productivity in Local Government", Price Waterhouse Review, Vol. 25, No. 1, 1980, pp. 15-22.
2. Price Waterhouse & Company, "Productivity Improvement Manual", Price Waterhouse & Company, New York, New York, 1977, pp. 2-4.
3. Barry M. Mandt, Raymond T. Olsen, and Harold J. Steinberg, "Managing Public Resources", Peat Marwick International, 1982, pp. 14-16 and 90.
4. John M. Greiner, Roger E. Dahl, Harry P. Hatry, and Annie P. Miller, Monetary Incentives and Work Standards in Five Cities, The Urban Institute, 1977, pp. 88-89.
5. David Bain, The Productivity Prescription, McGraw-Hill Book Company, New York, New York, 1982, pp. 16-25.
6. Price Waterhouse & Company, "Productivity Improvement Manual", Price Waterhouse & Company, New York, New York, 1977, pp. 12-16.
7. Barry M. Mandt, Raymond J. Olsen, and Harold J. Steinberg, "Managing Public Resources", Peat Marwick International, 1982, pp. 104-108.

IV.

BARRIERS TO PRODUCTIVITY IMPROVEMENT

The purpose of this section is to discuss the major barriers to productivity improvement and explain how to overcome these obstacles. Listed below are some of the specific problems with which the local administrator may have to deal.¹

Difficulty in Measuring Productivity

It is difficult to improve productivity if it cannot be measured and productivity measurement in the public sector can be an extremely challenging task. Within the past few years the literature has abounded with discussions of how to measure local government productivity. The major problem in measuring output (assuming we define productivity as the ratio of output to input) is that for some governmental agencies it is almost impossible to quantify the amount or to measure the quality of the service being provided. For example, how does one measure the output of a police department's patrol function? The crime rate for certain "preventable" crimes and the number of man-hours devoted to patrolling may provide some indication of output, but neither really measures it. Even for a more quantifiable service, such as refuse collection, the seemingly obvious output measure, "number of pick-ups made or tons of refuse collected" does not tell the whole story. Issues such as the cleanliness of the streets and citizen satisfaction with services also need to be addressed.

To overcome this obstacle, a local government needs to do some hard thinking about what specific level of service (quantity and quality) it

desires to provide at a given cost. It can then begin to develop measures which reflect productivity. In many cases it may have to resort to surrogate productivity measures. In the above cited patrol function example, a true output measure may never be found. However, the percent of time spent by sworn officers in patrolling activities may be acceptable as a partial indicator of productivity. From this, the Chief Administrator, the productivity team, and the police department personnel can begin evaluating how to increase the percentage figure.

Unions

Contrary to popular opinion, unions do not as a general rule resist productivity improvement efforts. However, a city or county manager attempting to initiate a productivity improvement program may find that existing agreements with these union groups may create barriers to productivity improvement. Since productivity improvements usually entail changing job descriptions, unions are concerned with potential job losses, seniority, wages, working conditions, and fringe benefits.

In jurisdictions in which the union is strong, it is important to secure their support. This is not difficult if they are involved at the beginning in the program's design and implementation. They can be of invaluable assistance in developing ideas for productivity improvement. To help ensure that resistance is not incurred in implementing specific changes, provisions should be made for personnel occupying positions which are going to be eliminated or significantly changed, and considerations should be made to ensure that compensation, fringe benefits, and working conditions are at least comparable to prior circumstances.

Lack of Management Accountability

Managers in local government, particularly first and second line supervisors are almost never held accountable for the productivity of their operations. This lack of accountability creates very little incentive to improve efficiency and allows these managers to actively resist efforts to improve productivity without penalty.

The lack of a profit motive, difficulty in measuring output and productivity, and lack of appropriate incentive systems account for this problem. Accountability can be substantially enhanced by establishing a reporting system. The problem can also be overcome by rewarding performance with praise and promotions.

Lack of Analytical Talent

Of primary concern to local government managers implementing productivity improvement programs is the issue of who will comprise the productivity team. For jurisdictions with sufficient funds and a strong commitment to productivity improvement, this is not a problem. However, the majority of local governmental units lack the funds to hire additional staff and are pressed to find personnel on the existing staff available to serve on the productivity team.

There are a number of ways in which additional staff or talent can be secured. These include:

- 1) Look at the existing staff, particularly in the manager's office and the budget office. By reordering the priorities of the current workload, additional staff-time can be made available and reassigned.

2) Contact the local universities to request free support from graduate students seeking to either complete course requirements or obtain practical work experience.

3) Apply for grants from the U.S. Department of Housing and Urban Development or the National Science Foundation to carry out specific productivity improvement efforts. Each year these organizations award a number of grants to local governments for this specific purpose. The grant funds can be used to hire productivity analysts.

Resistance to Change

Resistance to change by local government employees can have a significantly negative effect on a productivity improvement program. Of all the employees in an organization, managers are usually the most resistant to change in their operations. Many managers will pay lip service to the concept of productivity improvement, but will adamantly refuse to adopt suggested changes which would enhance operational efficiency.

Two things can be done to overcome this resistance:

1) The legislative body and chief administrator can provide their total support of the program. They can let everyone know that productivity improvement is a major goal of the local government unit and that everyone should be working toward it.

2) The productivity team can learn to "sell" their ideas to the right people. They can do so, however, only with the complete support of the local governmental unit's legislative and administrative bodies.

Politics Taking Precedence Over Productivity

Examples abound of cases where productivity improvement efforts were attempted, but local politics took precedence. For example, the location of public facilities is often determined by which commissioner's or councilman's district is involved, rather than on the basis of the most economic location. Similarly, agencies which provide more visible services, such as police, fire, and trash collection, often obtain more liberal budget allocations than do other agencies. Yet a strong case can often be made for improving productivity through the reallocation of funds.

The best way to deal with this problem is to ensure that the appropriate personnel fully understand the impact of their decisions. Productivity, per se, can be a very sensitive political issue and to the extent that the local administrator can achieve greater public awareness of areas where productivity improvements can be made, he will have gone a long way towards solving this problem.

Budget Procedures

Governmental budget systems almost always discourage productivity. The incentive is not to spend less, but to spend more. This is particularly relevant toward the end of a fiscal year when department heads are frantically spending the remainder of their budgets from fear of having them reduced. As every budget strategist knows, last year's expenditures will be the base upon which next year's budget will be calculated. The successful department head is one who develops new "programs" and justifies a large budget. Where the private sector rewards performance through the

pricing mechanism, in the public sector performance is discouraged through the budget system.

As a first step toward overcoming this barrier, the chief administrative official should evaluate his own government's budget process. Selected department heads should be asked how the process affects the productivity of their operation. Meetings should then be held with the budget director and the budget staff to discuss the need for productivity improvement and how certain budget decisions offset productivity. For example, the short-run effect of eliminating replacement capital equipment from an agency's request is to reduce the budget. However, the long-run effect may be a substantial reduction in productivity, since more manpower will probably be required to do work which could have been done more efficiently with the requested capital equipment. Questions of this nature should be thoroughly evaluated from a productivity improvement point of view and then decided upon.

Lack of Executive Support

The need for strong executive support is critical. A productivity improvement program cannot be designed, implemented, and left to the productivity team to carry out. This point cannot be overemphasized. It is not so much a barrier to productivity improvement as it is a common failing and because it is such an important factor to the success of any productivity improvement effort.

Legal and Administrative Constraints

The final major barrier to productivity improvements concerns legal and administrative constraints. These may take a number of forms. For example, a typical organizational constraint is created when elected positions direct departments over which the chief administrative officer has no control. The constraints which unions impose on operational changes have already been discussed. Legal constraints can take other forms, such as requiring a given level of service.

There is no magic solution to overcoming these problems. Those constraints which are locally imposed are certainly easier to deal with than those over which local government officials have no control. It is for this reason that local government agencies which are partially controlled by federal and state governments are less likely candidates for productivity evaluations. This problem can be partially alleviated by ensuring that those who are in position to change these constraints understand their impact on costs and productivity.

FOOTNOTES

1. Price Waterhouse & Company, "Productivity Improvement Manual", Price Waterhouse & Company, New York, New York, 1977, pp. 26-28.

V.

LIMITATIONS OF THE STUDY

In developing the design for the research paper, the writer incurred the following limitations and problems:

- o "At present the most comprehensive measure of output per man-hour is published quarterly by the Bureau of Labor Statistics, covering the private economy. A rational measure, one that covers both the private and public sectors, is not available."¹ Therefore, the comparison of specific measures of outputs and inputs for each local unit of government could not be made.
- o In the literature review of the productivity improvement programs of the five units of local government, the complete source of total outputs and total inputs was not available to determine the specific increases in productivity. The units of local government in the study used only labor as an input factor in the denominator. However, the measures should include both labor and capital inputs in the denominator, since productivity is increased by not only saving labor, but also by saving capital and intermediate inputs. Measures of productivity shows changes in the use of all measured inputs per unit of output. Measures of output per worker may increase only because inputs of capital or intermediate goods have been substituted for labor inputs. Furthermore, no indicators were provided to show specifically that the productivity improvement studies had a positive effect on the efficiency and

effectiveness on the service delivery of the departments studied. The information available only related to the type of productivity study conducted, the cost savings and manpower reductions achieved, and the unit cost of services provided before and after the study. Also existent was a implication that the efficiency of the service increased and that effectiveness increased or did not decrease. However, no detailed indicators were presented in the studies to support these connotations.

- o The literature and studies reviewed only addressed specific areas of local government and did not address all areas of government. Furthermore, the studies were limited to large and medium sized units of local government. The studies addressed only positions of a labor or clerical type nature and did not directly address positions of top or middle management. Finally, the studies did not address the human resources element, such as motivation or job satisfaction of productivity improvement.

The universe of the study included both City and County forms of local government. The research addressed studies where there were increases in productivity and cost reductions. It included departments that perform many different types of functions and provide a variety of services. Furthermore, the studies showed that various methods could be used to achieve increases in productivity and cost reductions. These methods included work measurement, purchase and use of mechanized equipment, changing organizational arrangements, use of the private sector to provide the service instead of the public sector, and contracting of services versus providing the service by employees of the municipal unit.

The data obtained by the review of literature on the subject matter, the review of productivity studies conducted in the local units of government, and the review of the case study in the Genesee County Clerk's Department indicated that increases in productivity usually result in a reduction of cost in the agencies of local government where the increases in productivity take place. Furthermore, there was no evidence that the increase in productivity had any negative affect on the delivery of services.

FOOTNOTES

1. Jerome A. Mark, "Progress in Measuring Productivity in Government", Monthly Labor Review, Vol. 95, No. 12, December 1972, p. 3.

VI.

OVERVIEW AND ANALYSIS OF SELECTED PUBLIC SECTOR PRODUCTIVITY IMPROVEMENT PROGRAMS IN LOCAL GOVERNMENT

In the past twelve years, a host of productivity programs have blossomed in local governments. This section will discuss some of the more notable productivity improvement programs that evolved during this period. The productivity improvement programs of New York City, Dallas, Texas, Phoenix, Arizona, and Milwaukee, Wisconsin will be addressed in this section.

The analysis of each program will provide a description of the program, and describe major accomplishments of each program. Factors that contributed to the success of each program and barriers that were incurred in the implementation and the operation of each program will be discussed. Many of these factors and barriers that were addressed in Sections III and IV will be highlighted here in this section of this paper. The analysis of each program will conclude by providing some salient points about each program.

New York City

Description of the Program

The first local government productivity program to be so titled was initiated by John Lindsay while Mayor of New York City in 1972. It was by far the largest productivity program in local government at that time.

"In scale and complexity, the City of New York stands by itself, a different order of magnitude than any other local government. It has a population two-and one-half times that of Chicago, triple that of Los Angeles, and ten to fifteen times that of a more typical city. Its budget also houses the public school system, it embraces a hospital system with some 75,000 beds in nineteen different facilities and the third-largest public university system."¹

The initial program was both a statement of improvements already effected and a prospectus for improvements to come. It stated accomplishments and established objectives for the nine administrative agencies, four departments - police fire, corrections, and consumer affairs - the model cities administration, and for certain city-wide programs. It included all the operating agencies subject to the Mayor's direction, but did not cover the quasi-independent Boards of Education and Higher Education or the offices of independently elected officials. The quasi-independent Health and Hospitals Corporation was included, but the Off-Track Betting Corporation was omitted.

The projects to be carried out under the productivity program were classified in four separate categories:

- o Where output was easily measurable - e.g., the number of tons of refuse collected per sanitation truck shift, to reduce the unit costs and improve the responsiveness of City operations.
- o Where output was very hard to measure - e.g., in providing police or fire protection, to improve the deployment of resources so as

to maximize the probability that resources will be available at the time and place they are needed most.

- o To improve the organization and processing procedures of government, particularly through imaginative use of computers.
- o To develop new technological devices and approaches - e.g., the development of plasticized rapid water for firefighting, to make the best possible use of every increasingly expensive city employee.

Major Accomplishments

The following accomplishments were achieved by the Program.

Unit costs were reduced and responsiveness was improved. Examples of these improvements are listed below:

1) Rat Control - The number of premises inspected increased from 6.1 to 20.1 per man day and cost per inspection was reduced from \$9.10 to \$2.74. Exterminations per man day increased from 2.25 to 11.1 and unit cost was cut from \$22.50 to \$4.89. Man days per ton of refuse removed were reduced from 8.95 to 1.56 and cost per ton was cut from \$179 to \$31.²

2) Park Cleaning - workers were shifted from permanent work stations to mobile, three-person crews with a daily schedule and an estimated number of hours required to complete the work. Compliants decreased sharply and output doubled.

3) Street Patching - The average productive hours of repair crews had been only 37 percent due to excessively large crews and driver restrictions

on asphalt delivery. Resurfacing increased from 350 miles to 700 miles from May through October of that year. Furthermore, there was a 250 person reduction in the work force.

Improving Deployment

1) Fire Response - The traditional three-engine, two ladder response was scrapped in favor of a probability-based adoptive response system.

2) Police Dispatch - The computerized dispatch system permitted 87 percent of the 20,000 calls per day to be answered within 15 seconds.

3) Sanitation Deployment - A new work schedule put 17 percent more workers on duty on Monday and 8 percent more on Tuesday, the days when workload was heaviest, with comparable reductions in end-of-week staffing.

Below is a schedule outlining man-days available and man-days required.³

Sanitation Workload-Workforce Disparity						
	<u>M</u>	<u>T</u>	<u>W</u>	<u>Th</u>	<u>F</u>	<u>S</u>
1. Man-days available	4,676	4,676	4,676	4,676	4,676	4,676
2. Man-days required for collection and high priority cleaning	4,546	4,066	3,646	3,598	3,538	3,406

Improvement Government Organization and Procedures

1) Capital Construction - a new information system for capital construction was introduced to schedule and monitor progress on 2,300

construction projects. The time required to plan and construct a building was reduced in half and contract awards increased from \$250 million to \$900 million.

2) Fund Control - The new system for vendor payments reduced departmental processing time from 58.4 days to 11.2 days, total processing time from 90 to 35 days. Dollar savings were also realized.

3) Use of Computers - Many new systems were introduced which resulted in the reduction of personnel.

Factors Contributing to the Success of the Program

1) The program was built on the skills and talents of qualified personnel.

2) Qualified management personnel were hired to oversee the programs.

3) The strong initiating role of the staff in the Executive Office of the Mayor.

4) Most results from the program were achieved immediately or within a two-year period, therefore, the improvements were immediately visible and achieved immediate recognition from the public.

5) A strong role for outsiders was used in initiating or developing improvements vs existing bureaucracy and therefore management could manage the programs while outside consultants installed the new system or methods to increase productivity.

Barriers Incurred in Implementing and Operating the Program

1) Tensions and resistance were created among senior career staff in the City. Also tension between the "new people" and the "old people" was another problem. As a result, there was continued conflict which resulted in a delay in implementing several programs.

2) Management indicated another deterrant to productivity-increasing changes was the opposition of these changes by the unions. However, Victor Gotbaum, Executive Director of District Council 37, AFL-CIO, stated, "The goal of the productivity improvement program was how to screw the worker and the union as much as they can."⁴

Conclusions

New York City's productivity improvement effort defies any simple and straight forward assessment. However, a few salient points stand out.

1) The success of the productivity programs should not obscure the long and painful process by which it became successful. The key elements were: the productivity program was the capstone of a frustratingly slow six-year effort to improve the performance of City government. It was based on a massive and unprecedented investment in analytical talent - industrial engineers, management analysts, systems analysts, and program planners, in addition to contractual consultants and researchers.

2) Productivity bargaining which was tried during the Lindsay Administration, with few exceptions, cannot be regarded as successful.

3) The City's capacity to continue a large centrally managed productivity program was sharply reduced with the departure of most of the analysts when Lindsay's administration ended and Beame's administration started, since the career civil servants were not trained to carry the program on and there was not strong support from the top.

4) The large budget reductions incurred after the Lindsay Administration resulted from substantial productivity gains due to reduction in the workforce. Furthermore, the unions have made substantial concessions, implicit or explicit in work rules to achieve and lessen the reduction of personnel. As a result, further productivity gains were achieved due to the environment rather than specific productivity improvement programs.

Dallas, Texas

Description of the Program

Dallas experienced rapid capital growth after World War II and as a result is America's eighth-largest city. Dallas has all the problems of a new city - the need to provide supporting facilities and services for its developing areas and to assimilate large numbers of newcomers to the city. At the same time, however, it is beginning to face problems and situations now common in the older cities of the east and midwest. The white-middle class has shown an increasing preference for residence in the suburban areas outside the city's boundaries.

Dallas has no formal city-wide program for improving productivity. Instead, an effective but unstructured productivity program functions

largely through the City Manager's continuing pressure on the operating agencies and through the efforts of the Office of Management Services to identify opportunities for productivity improvement and assist the agencies in realizing them. The administration has, in addition, created a favorable environment for the more aggressive and innovative department managers; some significant productivity gains have, as a result, come from department initiative with little pressure from the Manager's office or technical support from Office of Management Services.

Major Accomplishments of the Program

The following are major accomplishments achieved by the program:⁵

Department of Building Services

1) Through reorganization of the department and educating maintenance employees in cleaning practices, the cost per foot to clean a building was reduced from \$2.50 to \$.96.

2) A Honeywell Delta 2000 system was installed to provide remote surveillance and control over city buildings twenty-four hours a day, seven days a week. The system handles heating, air conditioning, control and security, and fire protection. The savings from the system is \$264,000 in salaries and fringe benefits.

Department of Streets and Sanitation

1) A series of changes were introduced to increase the productivity of garbage and trash collection. Collections were performed by three- per-

son compactor truck crews - two loaders and a driver. A new system was designed that resulted in the use of only two-person crews using modified cat trucks which allowed the driver to load from one side of the alley and the loader from the other. This change resulted in a reduction in the collection work force from 861 to 663 and a savings of approximately \$1.3 million.

The Water Utilities Department

1) The meter reading and inspection divisions were reorganized and consolidated. The result was a reduction in personnel and annual cost reduction of \$250,000.

2) Procedures were standardized, methods improved, and work simplified. Forecasts of work volume were developed, and a staff scheduling model was developed to assure efficient work flow. Finally, a reporting system was installed to better monitor performance and labor costs on an ongoing basis. The resulting savings were \$75,000 annually.

3) A similar work management approach to the Accounting and Finance Division saved another \$43,000 per year.

4) A study was conducted by a consultant on the work of the repair and maintenance work force that worked on fire hydrant maintenance; the repair of street ruts; and back hoe care. The result was that the operation was reorganized on a geographic instead of functional basis. This reduced travel time, cut back the number of supervisors required, improved the balancing of workload among crews, and increased the capacity to provide

special skills and equipment where needed. The total savings effected by these changes amounted to \$186,000 per year.

5) Four district operations were combined into two. This resulted in the elimination of 69 positions for an annual savings of \$494,000.

Police Department

1) The department replaced high-paid police officers with civilians and uniformed public service officers to handle routine inquiries and investigations. This resulted in an annual savings of \$210,000.

Fire Department

1) The establishment of four new fire stations will be manned by transfer of existing fire department personnel. This resulted from a detailed analysis of deployment by a consulting firm. The annual savings will be \$600,000 per year.

Factors Contributing to the Success of the Program

1) Dallas was successful in creating in its department or agencies a climate conducive to productivity improving innovations.

2) Top management supported the environment where research and innovation were critical to success. The Mayor of Dallas, when these improvements were made, was Erik Johnson who was also President of Texas Instruments, a relatively high- technology firm built on heavy investment in research and development. Furthermore, the City Manager supported the

programs and elected to build a strong centralized structure of departments (building services, data processing services, office of management services) which helped to consolidate and provide more efficient operation of services.

3) The Office of Management Services played key roles as problem identifiers, peddlers of good management techniques, coordinators and overseers of agency studies and performance analysis.

4) Employees of the City of Dallas were not unionized and therefore management had flexibility in work organization and method of the kind that does not exist in a unionized environment. However, the good relationship between management and the employees contributed to the successful implementation of these improvements.

Barriers Incurred in Implementing and Operating the Program

The productivity strategy has been unstructured, opportunistic, pragmatic, and adaptive rather than systematic and comprehensive. The City has "picked its spots", concentrating its productivity efforts on opportunities with a high potential for payoff and low departmental resistance.

Conclusions

The productivity program in Dallas falls more within the internal discipline of the executive branch of the city government than are the productivity programs of most other cities. It is unlike New York City where a complex problem of negotiating productivity increase with strong employee unions existed. Also, unlike its counterparts in New York City, Phoenix,

and Milwaukee, the City Council in Dallas is not deeply involved in the details of the productivity improvement program. The City Manager consequently has a relatively free hand in shaping the productivity improvement effort so long as he remains within the limits dictated by the political sensitivities of the community and the City Council. The basic strategy employed by Dallas has worked well. Opportunities for substantial productivity gains have been exploited with central staff of minimum size. It has maintained a high ratio of productivity savings to investment required to produce them largely because it has been selective rather than comprehensive.

There is a city profile survey conducted on an annual basis. A portion of this survey deals with citizen attitudes and experiences towards various city programs and services. The responses to this survey indicate that generally the citizens of Dallas are generally satisfied with the type of services and level of service. Therefore, it can be assumed that increases in productivity have had a positive effect on the efficiency and effectiveness of service delivery in the City.

Description of the Program

Milwaukee has a population of 636,212. This City is less than half as old as New York; however, it has the problems of an old city. Furthermore, Milwaukee has not encountered the political turmoil of other cities. The Mayor and other elected officials have had a long tenure in office. Therefore, these officials are more familiar with the programs and operations of the City than most of their counterparts in other cities. This provides the sustained support needed for long-term changes in government.

The formal beginning of the productivity improvement program started in 1950. It began with a four-person management analysis unit in the Budget Bureau. The responsibilities of the unit were gradually extended over the years to cover special management studies, review of vacant positions, record and forms control, review of data processing applications, space utilization review; this unit also acted as staff support for the City Council's Special Committee on Organization and Methods.

The Management Analysis Section of the Budget Department is responsible for management studies of various city programs. The Management Analysis Section has completed both management analysis and budget research reports as well as budget information releases. Not all these deal with productivity issues nor do all of them result from special studies. Yet, a high proportion of them are productivity related.

Studies performed by the Management Analysis Section are undertaken with the approval of the City Council. In fact, the Management Analysis Section will usually request a City Council resolution before initiating a

major study. Usually, the implementation of the recommendations of a completed study will require action by the City Council. This process might be regarded as limiting the free rein of the Director of Budget and Management Analysis. It has, on the other hand, offsetting advantages in the education of political participants in the uses of research and the opportunities for improvement in operations. It also produces a very realistic research agenda, limited largely to projects that the Council regard as both important and actionable.

Major Accomplishments of the Program

The program resulted in the following major accomplishments:6

Bureau of Sanitation

1) The reorganization and consolidation of the Bureau of Street Sanitation and the Bureau of Garbage Collection and Disposal resulted in annual cost savings of \$3.8 million and a reduction of 471 positions.

Water Distribution Division of Public Works

1) A study recommended new leadership for the division and a new structure of management systems. A new top management position was created over the distribution division and some organizational changes effected. The specialized crew system was eliminated with new general repair crews trained to handle all aspects of water main repair. Crew sizes were reduced and locator techniques were systematized. The staff was reduced from 133 to 98. The annual savings were \$500,000.

2) Contracting out of services to private industry has been used to reduce cost or improve performance. Some of the services contracted out were:

- o Laundry for the Health Department at a net savings of \$60,000 per year from the elimination of six positions.
- o Bookbinding, at a savings of \$80,000 per year.

Factors Contributing to the Success of the Program

1) The central role of the City Council in both the initiation of studies and action on their recommendations seems to have prevented the development of strong differences between the Mayor and Council that are likely in cities with a more conventional division of legislative and executive responsibilities.

2) Citizen's endorsement of the productivity improvements had a positive effect on the implementation of these improvements.

3) Reductions have ordinarily been effected in a manner designed to minimize potential employee union grievances.

Barriers Incurred in Implementing and Operating the Program

1) The unions have opposed a number of productivity improvements. There have been no strikes or serious job actions, however, the reorganization of the refuse collection in the Bureau of Sanitation went to arbitration. The arbitrator ruled in favor of the City.

2) There has been opposition to the proposed changes by senior staff of the affected organization. It has contributed to delays in implementing the changes necessary to facilitate the productivity improvements.

Conclusions

Milwaukee's twenty-five year sustained effort in productivity improvements is certainly unique in America's large cities in terms of longevity and in the magnitude of the results achieved from a relatively small investment.

The sustained and effective effort in Milwaukee built credibility for management analysis and educated political leadership to its uses. "The proof of Milwaukee's pudding is in the eating. Management Analysis has survived twenty-five effective years, because it adapted successfully to the realities of City politics and government".

Phoenix

Description of the Program

Phoenix has a population of approximately 789,704 and is still growing. It has few significant problems of traffic circulation. Its slums are limited and compared to the east, relatively new as well as low in density. It does have a high crime rate by virtue of the high level of burglaries.

Phoenix' present productivity improvement program had its genesis in 1969. The responsibility for the program was assigned to the Budget and

Research Department. A new division titled "Operations Analysis Division" was created under the Budget and Research Department to administer the program.

The Work Measurement staff was set up in the Budget and Research Department. The staff was comprised of employees that were already employed by the City. These employees were trained and transferred to the Budget and Research Department from other departments within the City.

The work measurement staff established the "Work Planning and Control System." The objective of this system was to establish work performance standards for every employee of City government for which work measurement and work standards were regarded as appropriate. These standards were applied to individual positions, the only approach that accounts for qualitative differences in the workload, work organization, and differences in types of equipment used. To do this required a very substantial investment of industrial engineering time to set the initial standards and to revise them as required.

For all jobs for which standards have been set, the department reports monthly on actual performance in relation to standards. The Operations Analysis Division prepares a program-by-program summary that goes to the City Manager. There is, as a result, a process of continuing monitoring of performance and a distribution of data that brings performance and changes in performance to the attention of the chief officials of the City and the departments.

Major Accomplishments of the Program

The program has achieved the following accomplishments:⁷

Refuse Collection

The study by the Operations Analysis Division revealed that the refuse collection crews could be reduced from three members to two members. Furthermore, the study recommended that the regular garbage collection crews be reduced from three members to one member and that Shu-Pak trucks should replace the rear-loader compactor trucks. The result was an annual savings of \$900,000 and a reduction of 46 percent of the collection work force.

Centralized Office Copying System

The City's thirty-one decentralized office copiers produced a total of 8.6 million copies with machines and supply costs of \$342,000. A study revealed that nearly 50 percent of the copying was done in runs where fifty-one or more copies of the original were made. A decision was made to set up a Rapid Copy Center in the City Print Shop and require City agencies in and near City Hall to use the Center when more than fifty copies were required. Special envelopes and messenger services were introduced to make sure that work was expedited. The Center used an addressograph-multigraph total copy system. The high-speed bond copiers were removed from the City offices and slick paper, low speed electrostatic copiers substituted. The result was that the average cost per copy was reduced from 3.2¢ to 1.7¢ per copy with an annual savings of over \$100,000.

Building Inspections

A study by the Operations Analysis staff revealed that a general inspection program requiring one inspector to do all the inspections. Originally, there was an electrical inspector, plumbing inspector, and mechanical inspector. The annual savings was \$750,000.

Factors Contributing to the Success of the Program

1) The City Council initiated the program and has been very supportive of it since inception.

2) City of Phoenix employees are not unionized, since collective bargaining by municipalities is not authorized by Arizona law. As a result, unions were not a factor in implementing and operating a productivity improvement program.

3) The City took steps from the beginning to allay employee concern with the productivity improvement program. In explaining the program, the emphasis was placed on the creation of improved and simplified work procedures rather than on having employees work harder. More importantly, the City guaranteed that there would be no layoffs; any reductions in staff would be effected through attrition or through reassignment of employees to other jobs.

Barriers Incurred in Implementing and Operating the Program

The City had few serious difficulties in the implementation of the productivity improvements. There was a more general problem of enforcing or more accurately, using the standards.

Conclusions

Few local units of government in the United States have done as much to improve productivity and have been as successful in doing so as Phoenix. Virtually no other local unit has done the job "by the book", sending operations analysts out to examine nearly every city job. Few monitor performance in anything like the detailed scope of Phoenix's monthly work planning and control reports. "Charles Hill, Director of Operations Analysis Division, calculates the balance sheet to date as comprising total benefits of \$7 million annually against costs of \$1.6 million annually for a "profit" of \$5.4 million and a benefit-cost ratio of 4.5 to 5.1."⁸

This section has addressed the productivity improvement programs in four local units of government. The next section will address the productivity improvement program in Genesee County, Michigan.

FOOTNOTES

1. Frederick O'R. Hayes, Productivity in Local Government (Toronto: D.C. Health and Company 1977), p. 97.
2. Edward K. Hamilton, "Productivity: The New York City Approach", Public Administration Review, Vol. 32, No. 6, November-December, 1978, p. 788.
3. Edward K. Hamilton, "Productivity: The New York City Approach", Public Administration Review, Vol. 32, No. 6, November-December, 1978, p. 792.
4. Edward Handman, "A Conversation with Victor Gotbaum," Public Administration Review, Vol. 38, No. 1, January-February 1978, p. 19.
5. Frederick O'R. Hayes, Productivity in Local Government, (Toronto: D.C. Health and Company, 1977), p. 19-37.
6. Frederick O'R. Hayes, Productivity in Local Government, (Toronto: D.C. Health and Company, 1977), p. 53-69.
7. Frederick O'R. Hayes, Productivity in Local Government, (Toronto: D.C. Health and Company, 1977), p. 149-168.
8. Frederick O'R. Hayes, Productivity in Local Government, (Toronto: D.C. Health and Company, 1977), p. 167.

VII.

OVERVIEW AND ANALYSIS OF THE PRODUCTIVITY PROGRAM IN GENESEE COUNTY

This section addresses the productivity improvement program in Genesee County, Michigan. Genesee County is an urban county with a population of approximately 443,680. The County's legislative body and its administrative body for many functions is the County Board of Commissioners.

The productivity improvement program was established in 1974 by the establishment of the Management Analysis Division of the Controller's Office by the County Board of Commissioners. This division contained three employees. The purpose of this division was to review all requests from County departments for additional staffing and to ascertain if there was justification for their request. The responsibilities of the division were gradually extended to cover departmental, organizational, and operational studies, records and forms control, and space utilization review.

The priority of each study was determined by the Personnel Committee which is a standing committee of the Board of Commissioners. The criteria used by the Board to determine the priority of each study was: (1) what was the potential of reducing personnel since personnel costs account for roughly 75 percent of County expenditures; (2) could procedures be streamlined to provide better and faster service to the public; and (3) could the revenue generated by the department be increased. Based on this criteria, the Personnel Committee assigned a priority ranking to each study.

Major Accomplishments of the Program

1) Denial of requests by County departments for additional personnel where the request could not be justified nor did the workload warrant it. These reviews and subsequent denials of departmental requests for additional personnel resulted in an annual cost savings of \$440,000 and a curtailment of the hiring of 17 additional employees.

2) The study of the County Clerk's Office which will be addressed in the next section resulted in an annual cost savings of approximately \$325,000 and reduction of 13 positions.

3) Study of the Detention Section of the Sheriff's Department resulted in the reduction of annual overtime costs of \$420,000.

4) The Study of the Probate Court resulted in productivity improvements and annual savings of \$210,000 which was achieved by a reduction of 7 positions.

5) A productivity study of the administration component of Community Mental Health resulted in a reduction of 15 positions and an annual savings of approximately \$390,000.

All of the above studies resulted in an increase in productivity since the labor (input) needed to provide the service was reduced and the level of service remained the same or increased (output).

Factors Contributing to the Success of the Program

1) The productivity improvement program had the support of the Board of Commissioners.

2) At the start of the program, the goals, objectives, and methods to be used in the program were discussed with the union, therefore, the union was not actively opposed to the program.

3) Several key department heads saw the need for the program and studies at the beginning of the program were performed in these departments. The studies were used by these managers as a management tool to improve the operations of their department. It also showed other department heads that the program was there to assist them and not as a gestapo type program.

4) Any reduction in staff resulting from the studies were affected through attrition and not by layoff.

Barriers Incurred in Implementing and Operating the Program

1) Some County-wide elected officials saw the program as a threat to their empire and therefore were very reluctant to have a study performed on their department. Furthermore, if a study was completed, the department head fought the recommendations of the Management Analysis Division.

2) The difficulty of hiring qualified staff to perform the studies.

Conclusions

The productivity improvement program in Genesee County has been successful. It has increased productivity in the department where studies

have been made and has resulted in annual cost savings of approximately \$2 million. Furthermore, it has assisted the Board of Commissioners in determining a reasonable service level for mandated programs. The only problem incurred was that the Commissioners did not approve the full implementation of selected studies of elected official's departments, due to the political pressure exerted by these officials.

VIII.

CASE STUDY

A brief description of the County Clerk's Department and its functions will be discussed prior to a discussion of the methodology that was used to gather and analyze data.

The County Clerk's Department is responsible for handling and processing the records of births and deaths, issues marriage licenses, records and indexes, assumed business names and partnership certificates, accepts various professional registrations, and processes passport applications. The County Clerk also has chief responsibility for all elections in the County. The department is also responsible for the administration of the Campaign Finance Reporting Act and accepts all local filings of campaign financial statements. The department also records all documents that are processed through Circuit Court.

The department employs 46 individuals and is divided into four main functional areas. These are the administrative unit which consists of the Clerk, his secretary, and administrative assistant. This unit is responsible for the overall supervision of the office. The second functional area is the campaign finance and election divisions. This unit consists of a supervisor and six clerks. The prime responsibility is to oversee the elections held in the County and to administer the Campaign Finance Reporting Act. The next functional unit is the general division. This division consists of 15 employees. The responsibilities of this division

are to process and record birth and death certificates, marriage licenses, record and index assumed business names and process passport applications. The last division of the County Clerk's Department is the legal division. This division consists of 21 employees. The primary responsibility of the division is to process and record Circuit Court records and provide support to the Judges of the Circuit Court.

Organization of the Study

The study was requested by Michael J. Carr, County Clerk and approved by the Board of Commissioners on September 30, 1978.

The objective of the study was to determine the manpower needs of the department and to ascertain if productivity could be increased and the cost of operating the department reduced.

The Controller's Office Management Analysis staff met with the Clerk's Office administrative staff on October 1, 1978 to define the objectives of the study and outline the data that needed to be collected and analyzed during the study. In addition, a meeting was held with the remaining staff subsequent to the above meeting to explain the purpose of the study and how it would be conducted.

The study was broken down by division. The first task of the study to be completed was to determine how the work flowed through each division. This was accomplished by the use of flow charting and work simplification techniques. These techniques illustrated which documents were processed through each work unit and identified the activities that needed to be performed on each document during the processing process.

The second task to be completed was to determine a description of the activities that each employee performed and when these activities were performed. This task was accomplished by use of an interview sheet.

The third task was to identify how long it took to perform each activity by an employee. This was accomplished by having an employee complete a time ladder for each day for a specific period of time. The purpose of this time ladder was to have each employee record the amount of time each employee spent on each activity daily. The time ladders were completed in quarter-hour time segments.

The Management Analysis staff of the Controller's Office used work sampling to verify the results of the time ladders prepared by the employees of the County Clerk's Department. Work sampling technique is similar to the time ladder technique except the technique is performed on a random basis. The work sampling was conducted during the same time period as the completion of the time ladders by the employees of the County Clerk's Department.

The fifth task in the study was to summarize the data and determine the number of manhours (input) that were needed to process the various documents (output) in each division and determine the cost associated with each document. A pre-test and a post-test was used to determine the cost of processing documents before and after the study. Furthermore, a review was made to determine if the results of the study had any positive effect on the efficiency or effectiveness of service delivery in the Clerk's Office.

The variables associated with the study were the input variable of labor and the output variable of units processed by each division. If the

input variable (manhours) decreased and the output variable remained constant then productivity increased. Likewise, if the input variable remained constant and the output variable increased, the result was an increase in productivity.

In contrast, if the input variable (manhours) increased or remained constant and the output variable (document processed) remained constant or decreased, productivity would decrease.

Analysis of Data

The number of employees in the County Clerk's Office was reduced from 46 to 32. Furthermore, personnel costs were reduced from \$1,131,164 to \$798,807, a savings of \$332,357. The chart below shows the inputs and outputs before and after the study.

CHART I

GENESEE COUNTY CLERK'S STUDY
COMPARISON OF COSTS
BEFORE AND AFTER STUDY

BEFORE THE STUDY (PRE-TEST)						AFTER THE STUDY (POST-TEST)						
Description of Function	Number of Employees	Average Hourly Wage Rate	Number of Hours	Total Costs	Number of Documents Processed	Unit Labor Costs	Number of Employees	Average Hourly Wage Rate	Number of Man-hours	Total Cost	Number of Documents Processed	Unit Labor Cost
Campaign Finance	3	\$12.90	5,502	\$ 70,976	612	\$ 115.97	2	\$12.90	3,668	\$ 47,317	701	\$ 67.50
Elections	4	12.80	7,336	93,901	4	23,425.25	3	12.80	5,502	70,426	4	17,606.50
Legal	21	11.51	38,514	443,296	7,887	56.21	14	11.51	25,676	295,531	7,849	37.65
General Administration	15	14.99	27,580	412,375	20,559	20.06	10	14.99	18,340	274,917	21,772	12.63
	3	---	---	110,616	---	N/A	3	---	---	110,616	---	N/A
TOTAL	46			\$1,131,164			32			\$798,807		

From the data shown in Chart I, the following observations can be made:

1) Productivity was increased in the Campaign Finance Division, because the number of man-hours (input) was decreased from 5,502 per year to 3,668 per year, while the number of campaign finance documents (output) increased from 612 to 701. Furthermore, the unit cost was reduced from \$115.97 per document processed to \$67.50 per document processed.

2) There was the same number of elections held before and after the study. However, the number of man-hours (input) needed to conduct the above elections decreased from 7,336 before the study to 5,502 after the study. This resulted in an increase in productivity since the output (number of elections) remained constant while the number of man-hours (input) to conduct the same number of elections was reduced from 7,336 to 5,502.

3) The productivity also increased in the Legal Division. The number of legal documents (output) decreased from 7,887 documents before the study to 7,849 documents after the study. However, the number of man-hours (input) needed to process these documents decreased more. The number of man-hours were reduced from 38,504 before the study to 25,676 after the study. Furthermore, the unit costs were reduced from \$20.06 per document processed to \$12.63 per document processed. The result was an increase in productivity since the number of man hours (input) decreased more than the decrease in the number of documents (output) processed. In addition, the unit labor cost was decreased from \$20.06 to \$12.63 per document processed.

4) The General Division of the Clerk's Office also shows an increase in productivity. The number of man-hours (input) was reduced from 27,570 hours before the study to 18,340 hours after the study. The number of documents processed increased from 20,559 before the study to 21,772 after the study.

The above analysis supports the hypothesis that increases in productivity can result in cost reductions in local government. The output units increased, remained the same, or decreased slightly, whereas, there was a substantial decrease in man-hours (input units). Also, the unit labor cost was reduced in each situation.

Furthermore, there were no complaints from citizens, judges, or attorneys that used the County Clerk's services. Nor were there any long lines of the above individuals waiting to be serviced by the County Clerk personnel. Therefore, it has to be assumed that there were no negative effects on

the efficiency and effectiveness of the delivery of the Clerk's services. However, there was no survey conducted with the citizens, judges, or attorneys to ascertain if there was a positive effect on the efficiency or effectiveness of the County Clerk's services.

The next section addresses the conclusions drawn from this paper and discusses some of the prospectives of productivity in the 1980's.

IX.

CONCLUSIONS

The problem faced by public administrators today is that the costs of providing services to the public have increased drastically, whereas resources to finance these services have diminished. This paper has presented a vital alternative to the problem, by citing examples showing that increases in productivity can result in cost reductions in local government.

The research and the data collected, analyzed, and used in this paper supports the above hypothesis. This paper has shown that productivity improvements and cost reductions can be achieved in various types of local government, under different types of organizational arrangements and in diverse political environments. It also has shown that productivity improvements were achieved in various types of municipal services and the methods used to achieve the productivity improvements ranged from reorganizing a department to the study of individual employee positions. Finally, it has shown that increases in productivity can have a positive effect on the efficiency and effectiveness of providing services to the public. For example, the review of the City of Dallas productivity improvement program indicated that a city profile survey is carried out annually by the Office of Management Services. A portion of the survey questionnaire deals with citizens' attitudes and experiences towards various city programs and services. The responses to these questionnaires indicate that generally the citizens of Dallas are satisfied with the services and the level of ser-

vice. Information obtained on the Dallas productivity program indicates that the officials of the City feel that the productivity improvement program has a positive effect on the efficiency and effectiveness of providing service delivery since the annual survey did not indicate otherwise.

Even though the limitations outlined in Section V did exist, they were not substantial enough to impede the importance and the positive contribution of the paper.

There will be many challenges facing the public official in local government in the 80's. The current era is a period of cut-back management and program entrenchment in local government due to the scarcity of resources to finance these programs and services.¹ Furthermore, the tax limitation movements provide evidence that the taxpayers do not want their taxes increased to finance the above services. Therefore, the public official will be forced to turn to improvements in productivity in order to resolve the above crisis.

FOOTNOTES

1. Martin D. Hanlon, "Public Sector Productivity in an Era of Entrenchment", National Productivity Review, Vol. 1., No. 1, Winter 1981-82, pp. 100-109.

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