ZERO-BASED BUDGETING IN AMERICAN INSTITUTIONS
OF HIGHER EDUCATION

DISSertation

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This study describes the status of zero-based budgeting in institutions of higher education in the United States. Purposes were to determine (a) knowledgeability of the chief financial officers about concept and techniques of ZBB, (b) Institutions' use of ZBB and other widely-used budgeting techniques such as Incremental, Formula, Planning, Program-ming and Line-item budgeting system, and (c) the chief financial officer's perceptions of ZBB.

A questionnaire constructed from literature was mailed to two hundred randomly-selected institutions of higher education in the forty-eight contiguous states and authorized to offer at least a one-year program of college level studies toward a degree. The 136 returned useable responses were tabulated according to institution type, size, and amount of budget.

It was concluded that most officers of the institutions under study were knowledgeable to some degree about the concept and techniques of ZBB. The utilizing ZBB is increasing: 3 percent had used, 9 percent were using it, and 17
percent planned to use it. At the time of the study Line-item was the most common budgeting system for both public and private institutions, and the next most common was Incremental. It was also concluded that chief financial officers agreed most that ZBB heightens the role of planning and policy analysis and would prevent history, tradition, or custom from becoming the justification for maintaining certain expenditures. They agreed that ZBB would improve the quality of management information compared to their institution's current budgeting system, but at the time of study did not believe ZBB to be the best budgeting system for higher education. They agreed most that this system requires more time and effort for budget preparation in the first year and subsequent years of implementation than is required for their current budget system(s). In implementation of ZBB, "alternative selection" is one of the elements which most managers would have greatest difficulty with. Finally, chief financial officers of the institutions under study were uncertain whether ZBB would work or fail as a budgeting system.
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CHAPTER I

INTRODUCTION

Especially during the past decade, most American institutions of higher education, due to inflationary pressures, cost increases, and a decline in student enrollments, have been faced with severe financial crises. In order to survive them, the managers and the administrators of these institutions perhaps need to call for a new method of decision-making, particularly with regard to budgetary processes which enable them and the board of trustees to make decisions for achieving the most effective use of their available financial resources.

In this regard, there are arguments among administrators that the conventional budgeting systems being used by most American colleges and universities do not provide enough information, concerning their activities, to make difficult but wise financial and economic decisions. Most administrators believe that their institutions are in need of a new and effective budgeting system which allows them to incorporate the necessary information concerning all activities on all levels. The institutions' financial resources could then be used more effectively because funds would be distributed among those activities according to
soundly-developed priorities. Thus, the administrations and boards of trustees could make the best decisions for achieving the most effective use of their available financial resources. One of these new budgeting systems is called Zero-Based Budgeting (ZBB). Some administrators believe that this system provides a more rational basis for solving the fiscal problems of higher educational institutions through efficient and economical allocation of financial resources.

The process of ZBB starts in the preparation of a decision package which explains the operation of each department and lists various levels of operation, with a cost applied to each level. Management reviews the budget and determines the level of priority for each item. In contrast to the conventional budgeting system, usually done on an incremental basis, ZBB demands that all activities be evaluated yearly from a zero base, an action which involves decision-making from the lowest level of management to the top.

A search of related literature revealed that there is little evidence concerning the attitudes and the reactions of the college and university administrators to this sort of budgeting. Their feelings about ZBB and their beliefs in it and about it have not been studied systematically. This study will be concerned with the perceptions, attitudes, and
reactions of those who are responsible for the budgeting process of the institutions of higher education throughout the country and with the system's applicability and capability for budgeting in higher education institutions.

Statement of the Problem

The problem of this dissertation was the status of Zero-Based Budgeting as a practice in institutions of higher education in the United States.

Purposes of the Study

The purposes of this study were

I. To determine to what extent the chief financial officers of the selected institutions of higher education are familiar with the general concept and with the technique of Zero-Based Budgeting;

II. To determine how many of the selected institutions of higher education;

1. have utilized the process of Zero-Based Budgeting,

2. are now utilizing Zero-Based Budgeting,

3. plan to change their current budgeting system to Zero-Based Budgeting;

III. To determine how many of the selected institutions of higher education are using one (fully or partially) of the following budgeting systems: Incremental, Formula, Planning, Programming and Budgeting system, and
Line-Item budgeting. Responses were categorized according to size (student enrollment), type (private or public), and amount of the budget of institutions;

IV. To determine the chief financial officer's perceptions of ZBB as a management tool and budgeting system in the institutions of higher education;

V. To discuss the status of Zero-Based Budgeting in institutions of higher education in terms of appropriate generalizations.

Research Questions

In keeping with the stated purposes of the study, the following research questions were proposed.

1. To what extent are the chief financial officers of the selected institutions familiar with the general concept and technique of Zero-Based Budgeting?

2. How many of the institutions of higher education fully or partially (1) have used ZBB, (2) are now using ZBB, (3) plan to use ZBB within the next three years?

3. How many of the institutions are using fully or partially one of the following system(s) and which one(s) are they using? Incremental Budgeting; Planning-Programming Budgeting system; Line-Item Budgeting; Formula Budgeting.

4. What are the chief financial officers' perceptions of Zero-Based Budgeting as a management tool and budgeting system?
5. What generalizations and/or other conclusions can be reached concerning the status of ZBB in higher education in the United States?

Background and Significance of the Study

Institutions of higher education, through budgets, translate their actual and working objectives into terms of income and expenditures. They allocate financial resources from a department to a faculty member, from a college to a department, from a university to a college, or from a public or private funder to the university (6, p. 2). For colleges and universities, budgets are determined by their educational programs, their need for supporting services connected to those programs, and by the limitations imposed by their resources (16).

Because institutions of higher education are non-profit organizations, the goals and objectives of these institutions differ from those in business and industry. The main objective of business enterprises is profit, which is determined by price placed on its goods and services produced and the quantity sold (6). They are profit-oriented institutions, and the price of their products must be above the cost in order to make profit survive. In institutions of higher education, in most cases, the price of the product is set at far below the cost. Thus, the latter, in order to stand on their own feet, find it necessary to look for
revenue from other resources to at least break even. Because of the differences between the goals and objectives of the colleges and universities and those of business and industry, the process of budgeting in the former should perhaps also be different from those in business and industry.

Authorities of the institutions of higher education are aware of these unique differences, in the goals and objectives of their organizations, that are differences in addition to limited financial resources, increasing rate of inflation, and the constant decrease in the size of the student enrollment (6). However, instead of developing a new budgetary system, or modifying the existing budgetary processes which fit best their institutions' financial practices, they turn to the budgetary practices of business and industry or governmental agencies. That creates more problems and confusion for their institutions. In the literature on institutions of higher education, terms such as accountability, cost-benefit analysis, PPBS, MBO, and ZBB are not uncommon, and the educational managers are using these terms as much as are the managers of business enterprises (17, p. 7).

In the area of higher education, the governmental practices of budgeting reform are also evident. Many institutions of higher education still employ some of the management systems that have been applied at the Federal
levels, such as Planning Programming and Budgeting System (PPBS) which was developed by Robert McNamara in the Defense Department and adapted by President Lyndon Johnson, or Management by Objectives (MBO), which was brought from the private sector to the White House when President Nixon was elected, or the technique of Zero-Based Budgeting (ZBB) which was applied at the federal level by President Carter (12). The above systems, and other managerial systems, such as line-item budgeting and formula budgeting, which are common at the state level, are the accepted practice in a large number of the private businesses and industries and state agencies, and became accepted among the managers of the institutions of higher education (6).

Among these terms and practices, the technique of ZBB is the latest budgeting technique which has gained by both industry and governmental some acceptance. This system of budgeting has been developed more rapidly than any other system, and it has become an extremely popular management system in recent years (12, p. 5). In the last few years, the administrators of institutions of higher education have taken their first step toward adapting such a system of budgeting. Although this technique of budgeting, like other management techniques, was first borrowed from business, then from the government, and then adapted to higher education, like other management systems which have not been
very successful (12), many believe that this system could be a very useful tool in the area of higher education if it were implemented properly.

Zero-Based Budgeting is a system of budgeting which serves as a microeconomic approach (5, p. 5) and is "designed to transform objectives into an efficient operating plan" (6, p. 52). The concept of ZBB is relatively simple and is a "total rejustification of every activity from base zero, instead of incrementing the new on the old" (5, p. 24). Its process can be applied to educational budgeting, but must be done with caution (17, p. 58). This is a new approach to the educational agencies, and it will help top management see at a glance the cost impact of several levels of funding and allows senior managers to evaluate a budget on several levels, because in this system of budgeting the decision packages provide detailed consequences of various funding efforts (17, p. 63).

The businesses and governmental agencies which have used this technique of budgeting are not in close agreement as to its advantages when it is compared to the traditional system of budgeting. However, in these organizations it has been reported that ZBB is useful in analyzing ineffective operations, and its cost-saving gives it popular political strength which tends to counter negative reports (16, p. 407). The technique of ZBB has proven successful in
budgeting for the so-called "soft areas" of service and support activities of the businesses and industries, and because the institutions of higher education primarily are a kind of service activity organization, it can be a useful tool for these institutions.

In higher educational institutions, ZBB can be applied to levels of activities such as academic, administrative, and support services in either public- or private-funded institutions. Its application will assist the administrators of the institutions of higher education in planning their various programs and analyzing for cost effectiveness (13). It involves middle- and lower-management personnel who are forced to identify, examine, evaluate, and justify all the institutions' existing and projected activities. It can be applied even to some extent to evaluate the outcomes of not- or less-funded projects (17, p. 58) and to force the management personnel to consider the future economic demands of a program. As James O'Neil cited, ZBB is an ideal system which can be applied to "trouble areas" (17, p. 63). It is acceptable for standard accounting procedures, and in the institutions of higher education it may be applied on a trial basis in one or several departments without any disruption of the whole institution's budgeting process.

As Draper and Pitsvada described, the technique of ZBB is a very "neat," tidy system (8, p. 97) which is systematic
and formalized. This system has some characteristics like such immediate predecessor systems as MBO and PPBS (8, p. 97). This system integrates planning and budgeting. By using this system the top managers of the organization will provide more detailed information on every facet of the organization's operations. It creates a better organizational data base from which to set goals and objectives than does any comparable system (4, p. 276).

Zero-Based Budgeting promotes creativity and innovation on the part of lower level managers in a variety of ways. By applying this process, managers will accept more responsibility for the activities that follow as a result of their recommendations (4, p. 247) and become personally committed to achieving results that support such recommendations.

Zero-Based Budgeting takes more time, especially during the first year of implementation, than other conventional budgeting systems need (4, p. 250). It requires a considerable volume of paperwork to install and implement, and it is impossible for an individual manager to read and evaluate all submitted materials which are related to this budgetary system and necessary for ranking the packages for the final budgeting decision-making. In the implementation of ZBB, the attitude of the people preparing the budget is very important. It is common for the managers of any organization to resist any new technique that may eliminate jobs
The administration personnel, by implementing Zero-Based Budgeting, will be much more concerned with the level of their appropriations than with whether there is a need for them at all.

The other area of difficulty in the implementation of ZBB is the definition of programs, especially in the area of higher education, because of the interrelationships that exist between programs. As Steiner noted, the programs may be defined differently, depending on the level of the decision-making involved. Decisions made at higher levels may require more comprehensive programs (3).

In order to apply effective ZBB, the system must be managed effectively. Adequate manager and personnel training for this system are necessary. Managers need to be able to learn and to apply the technical portion of ZBB, because in this system the techniques of cost benefit analysis, the alternatives selection, and the assignment of ranking are detailed and complex and therefore call for good experience and rational judgment (4, p. 250). After installation and during implementation of ZBB, if the top manager of the organization fails to feed back the final disposition of and rationale for the actions taken on each decision package forwarded, the result of the implementation will fall close to failure (17, p. 65).
Zero-Based Budgeting must be designed individually for each organization in order to fit best with the organization's structure, culture, and goals and objectives. This system needs adequate communication; the organization's reporting must be carefully studied. The American Association of School Administrators recommended that the benefits of ZBB depend heavily upon satisfactory human relationships and an adequate communication system in an organization, as well as on its methods or techniques (9, p. 131). Due to the nature of different organizations, a "canned approach" to this system of budgeting cannot work (8).

In recent years, educators, especially school administrators, have become very interested in ZBB, and this resulted from the fact that the educational administrators are interested in a better and more effective management tool to meet their planning and control needs (9, p. 31). O'Neil and Manceri claim that this system "can be a useful tool for education" (17, p. 58). William B. Fisher and Robert H. Stauffer believe that this kind of system, with some possible modification such as combination with program budgeting, provides a more rational basis for meeting the educational institutions' fiscal problems and their allocation of their scarce financial resources (10, p. 21).

Logan Cheek, who has worked closely with the Greece Central School District (7) cited a number of advantages of the use
of ZBB in the educational institutions. He believes that it will control staff expenses and combine planning, budgeting, business proposals, and operational decision making into one process. By the use of ZBB the management has a follow-up tool to determine the level of achievement on each program, relative to the cost and effectiveness of the program (7). Poll believes that a systematic process such as ZBB can assist local school districts in stemming the tide of rising budgets. Further, he believes that ZBB is a possible alternative for educational institutions (20). Many other writers are also claiming ZBB to be the most significant and powerful budgeting technique (Bergeron, 1978; McFarlane, 1973; Tourangeau, 1977; Carter, 1977), but there are also a number of other writers who have the opinion that the implementation of this technique of budgeting needs caution (Cornish, 1978; Weischasle, 1977; O'Neil and Manceri, 1977; and Wildavsky, 1973).

Harvey believes that ZBB is difficult to implement and needs great care for its effective employment (12, p. 43). He strongly believes that there are more factors leading to failure of it than factors for its successful implementation (12, p. 43). Temple and Riggs believe that elimination of an old program or addition of a new program, which is called for in ZBB, cannot be achieved easily, and sometimes achieved not at all, because the institutions cannot readily
adjust their costs quickly or easily. It is extremely difficult to relocate or terminate the personnel of an institution in a short period of time (23). Some opponents to the implementation of ZBB in institutions of higher education are of the opinion that in this area it will not work well, because in these institutions, which are service-oriented institutions, most of the budget goes for the salaries of the faculties, staff, and personnel (70-90 percent of the budget). The existence of tenure, unions, court suits, and so forth make the reduction of the staff very difficult, even impossible (12, p. 43).

For most institutions of higher education it is very hard in a short period of time to change some of the institution's fixed costs which have been financed over a period of several years (13). Among those who are against the implementation of ZBB, Anthony (1977:83) argues that if the Federal Trade Commission looked at it in terms of false and misleading advertising, there would be a "prima facie case that the term zero based budgeting is fraudulent" (3, p. 83).

At the date of this present study, the implementation of ZBB has occurred almost entirely in business and industry. It has been implemented in most state governments and other governmental agencies. Among educational institutions, a number of school districts and colleges and
universities across the country have become interested in
the use of it to overcome some of their management deficiencies and the increasing financial crises which they are facing.

Zero-Based Budgeting is a very new technique; its history is not more than ten years long, and only in the last few years has it received wide acceptance among business and governmental agencies. In the educational institutions, this new system has not been practiced widely, and most of the administrators of these organizations have not been well acquainted with the experience of those who have used this technique in their organization. Zero-Based Budgeting's usefulness and applicability is in doubt among most educational administrators. Educational management needs more knowledge about it and the findings of their peers who are using it. The administrators want to know more about this system, and they have a number of questions about it which need to be answered so that they can evaluate the possibilities of application of it in their own institutions. They need to know whether ZBB will be a useful management tool for the educational agencies, whether it will replace the current accounting system of these institutions, and whether it will offer the administrators of higher educational institutions a better approach to the planning and control process so vital in managing their educational agencies. The
administrators need to know whether ZBB is an effective way to control the institution's costs so as to receive the greatest return on their limited resources (9, p. 23).

Because of the organization and the structure of the ZBB the administrators of higher educational institutions cannot ignore its potential, but also they cannot deny the problems in implementation and application. Some of the potentials and problems already have been experienced by those school districts, or colleges and universities, which utilized this system in the past or are in the process of its utilization. Still, there might also be other problems not discovered yet. Administrators need to know more about the effectiveness of this system, especially the problems which arise during installation and in the first year of its implementation, the problems of staff training, its costs, and the amount of time needed for such implementation.

Administrators want to know more about the outcome of the implementation of this system. There are still many questions which should be answered, such as whether it is worth trying, whether the benefits, exceed the cost of implementation, and what hazards, if any, result from application. They need to know whether application of ZBB brings any changes in the areas of budget and management control in the higher educational institutions using it and, if so, whether in light of those changes, it can be recommended
further, and does this system of budgeting need some modification? Or does it, like other budgeting or managemental techniques which have been developed/brought in by governmental agencies like PPBS, by Lyndon Johnson, which was never fully successful, or the MBO which was not effectively applied as a management system in the government (12), change the financial aspects of the institutions of higher education?

To answer the above questions and many more other questions we need more time and study. It will take years and more research for the full impact and value of Zero-Based Budgeting to be known. This study will attempt to do part of the research which is needed to understand this system of budgeting better and to reveal the perception of those who are more familiar with budgeting in the institutions of higher education, with budgetary problems, and with the effectiveness of this budgetary technique in solving problems and increasing the management controls of these institutions.

Definition of Terms

Following are terms as used in this study, but whose usage might be subject to varying interpretations.

**Budget.**—"A statement of financial position of an administration for a definite period of time based on the
estimate of expenditures during the period and proposal for financing them; a plan for all coordination of resources and expenditures" (25, p. 144).

**Budget Program.**—A segment of an organizational program budget related to an individual major goal or activity of the organization (17, p. 6).

**Chief Financial Officer.**—A person who is responsible for the accounting and financial function of an institution of higher education. His title is varied in different colleges and universities as "Vice-president of Business Affairs," "Vice-president of Fiscal Affairs," "Business Manager," or "Vice-president--Finance" (2, p. 15).

**Decision Package.**—"An identification of a discrete function or operation in a definitive manner for management evaluation and comparison to other function, including consequences of not performing that function, alternative courses of action, and costs and benefits" (25, p. 2).

**Decremental Budgeting.**—"The previous year's budget is reduced by a set percentage" (12, p. 4).

**Formula Budgeting.**—The National Association of College and University Business Officers (NACUBO), defines Formula Budgeting as "the technique by which the financial
needs or operating requirements of an educational institution may be determined through the application of a formula" (14, p. 157).

Miller defined formula budgeting as "an objective procedure for estimating the future budgeting requirements of an institution by manipulating data about future programs and by utilizing relationships between programs and costs" (19, p. 6).

**Incremental Budgeting.**—Attention will be "directed towards the changes or marginal differences that occur between existing appropriations and proposed expenditures. Such a process accepts the existing base and examines only the increments which extend the current budgeting program into the future" (14, p. 17).

**Institutions of Higher Education.**—All educational institutions beyond the secondary level, including community colleges, junior colleges, four-year colleges, and universities.

**Line-Item Budgeting.**—In Line-Item Budgeting, the budget will be developed around line-item expenditures, such as salaries, equipment, travel, etc. (12, p. 5).
Management Information System.—"An organized method of providing administrators and others in the management process with information needed for decisions, when it is needed, and in a form that aids understanding and stimulates action" (12, p. 5).

Planning Programming and Budgeting Systems.—The National Association of College and University Business Officers has defined Program Budgeting as "essentially a planning device that ultimately leads to a conventional departmental budget for operation and control."

Zero-Based-Budgeting.—An "operating planning and budgeting process which requires each manager to justify his entire budget request in detail, and shifts the burden of proof to each manager to justify why he should spend any money. This procedure requires that all activities and operations be identified in decision packages which will be evaluated and ranked in order of importance by systematic analysis (19, p. 8).

Organization of the Study

The first chapter of this study has dealt with the statement of the problem, background of the study, and the procedures for collecting and analyzing the data. Chapter two of this study will deal with the related literature about Zero-Based Budgeting, its process, its philosophy, and
its importance in the area of higher education. In this chapter through literature the advantages and disadvantages of the use of Zero-Based Budgeting will be analyzed and the opinions of the experts in general in favor of or against such a budgeting system will be examined.

Chapter three of this study will deal with other conventional budgeting systems which are in wide use in institutions of higher education, with emphasis on their advantages and disadvantages. Chapter four will deal with the procedures for collection and treatment of the data. In chapter five, the findings will be analyzed and presented. Finally, chapter six of this study will be devoted to the summary of the study, conclusions of the findings and some recommendations for further study of the different higher educational institutions' budgetary aspects.
CHAPTER BIBLIOGRAPHY


14. Minmier, George S., An Evaluation of the Zero-Base Budgeting System in Governmental Institutions, School of Business Administration, Georgia State University, Atlanta, Georgia, 1975.


CHAPTER II

THE EMERGENCE OF ZERO-BASED BUDGETING

This chapter is a review of literature pertaining to the emergence of Zero-Based Budgeting: its history, concept, technique, and arguments for and against it in general and in the area of institutions of higher education.

Introduction

American institutions of higher education in last two decades, especially in recent years, have faced the greatest financial challenges in their history. These challenges mostly occur because of the lack of adequate fiscal support and a means of convincing the public and the federal agencies of higher education's financial needs. Institutions of higher education in recent years have come under great pressure to be more efficient and effective. This pressure resulted from inflation, declining birth rate, the recession, the energy crisis, unionism, student consumer movement, and costs, combined with an increasingly high degree of public apathy (59, p. 351).

History of the institutions of higher education in the United States shows that in the past there was a positive value placed on the needs and benefits of higher education for the nation (59, p. 351). There was considerable
financial and moral support which resulted in a significant growth in student enrollment and tremendous enlargement of plants and facilities (59, p. 351). As the result, the educational institutions of higher education, for example during 1960s, became a major enterprise. By 1970, the number of student enrollments in these institutions reached 8.5 million (37, p. 34), more than doubling during the decade. These students were being taught by a third of a million faculty members at almost three thousand colleges and universities (37, p. 34). By 1979, according to Digest of Education Statistics 1980 (61, p. 106, table 72 and table 98), student enrollment in all American institutions of higher education reached to over 11.2 million and the number of faculty members was more than 822,000 at more than 3,134 colleges and universities (6, p. 81).

Although the student enrollment in the past decade was more than in the decade before, the rate of growth was slower. Opinion polls show that in recent years American citizens lost a significant amount of faith in the leadership of these higher educational institutions, and because of the very size and expenses of these institutions, a great pressure has been put upon them from many sources, including trustees, coordinating boards, state legislators, and Washington agencies to account more openly for their expenditures and to manage their operations more efficiently, and
to justify or eliminate their high-cost, unneeded programs (37, p. 34). The administrators, in order to manage their institutions more effectively with limited resources, have sought new management approaches and techniques.

The administrators have been led to adopt a variety of administrative and management tools developed initially to manage large business organizations and federal agencies (37, p. 34). Although they have not accepted all of these managerial techniques and their values equally, by considering appropriateness of them for institutions of higher education, a significant step was taken toward better and more efficient management. Such tools and techniques may give the decision makers and the administrators a better chance to acquire more related information on which to base their judgment and decision, although Millett in 1962 stated:

Ideas drawn from business and public administration have only a limited applicability to colleges and universities. More than this, the essential ideas about business and public administration such as they are, actually promote a widespread and unfortunate misunderstanding of the nature of the college and university in our society (33, p. 4).

Nonetheless, according to the literatures, there have been a number of attempts to transplant business practice and governmental agency managerial techniques to the college and university campuses.
Among these business practices, the technique of Management Information System (MIS), Planning, Programming, Budgeting Systems (PPBS), and the planning models can be named. Some are tailored to a specific need at a specific campus, and others, more general, have been used by a variety of colleges and universities (15, p. 35). Also, a number of colleges and universities have developed a "department of institutional research" in order to prepare information for use by various administrators for better and more effective decision making (15, p. 39).

There are a number of other management agencies, outside the campuses, with the main goal of achieving better management techniques for the administration of the colleges and universities. Among those agencies, the National Center for Higher Education Management Systems (NCHEMS) is one of the leaders. This center, located in Boulder, Colorado, is supported primarily by contracts with the U.S. Department of Health, Education and Welfare, and is funded by grants from major foundations. Also, some advances have been made by other consulting groups, including Rand Corporation, System Research Group, and Peat, Marwich, Mitchell and Co., and Education and Economic Systems, Inc. Several other agencies have also been cognizant of the need for uniformity in planning and analyzing trends in higher education. Among these agencies, The National Commission on the Financing of
Postsecondary Education and The National Association of College and University Business Officers (NACUBO) have assumed the tasks of defining terms and developing modeling techniques to address higher educational institutions' needs and costs (59, p. 352) and of developing new administrative tools and techniques. For example, much of the early conceptual work in program budgeting was done by the Rand Corporation for the U.S. Department of Defense and in their adaptation to higher educational institutions (37, p. 35). Other administrative and managerial techniques which have been developed for the business and governmental organizations, and then adapted by the higher educational institutions are Management Information System (MIS), Modeling, Management by Objectives (MBO), and Organizational Development (OD), and the very recent one, Zero-Based Budgeting (ZBB).

The emergence of ZBB in institutions of higher education came about because of a need to cope with the institutional problems and to enable administrators and boards trustees to make decisions for achieving the most effective utilization of available financial resources (19, p. 21). Some educators believe that ZBB is one answer to the dilemma. Harvey, 1977, notes, for example, that carefully-used ZBB can make a valid contribution to the institutions of higher education because the concept and
theory of this budgeting system are sound and very simple (23, p. 3). According to others who oppose it, however, it is very difficult to implement both in business and in the institutions of higher education, and the result of implementation will not be as effective as theory predicts.

The concept of ZBB simply is that when developing an organization's budget it is better not to use the previous year's budget as a base (incremental), but rather to start from a zero base, hence the term "Zero-Based Budgeting." This technique, according to Harvey, requires a justification of all expenditures (23, p. 3).

Developmental Background of Zero-Based Budgeting

Although Peter Pyhrr has been known as the father of ZBB, the U.S. Department of Agriculture was the first known organization in the U.S. to use it. The term was first used in an obscure volume entitled "Instructions for 1964 Agency Estimates" (8). In this work, David Bell, Director of the Budget in the U.S. Department of Agriculture, had been instructed to develop a different approach to the Department's budgeting. Bell suggested rejustifying all the existing programs from zero (8). His suggestion was approved by the Secretary of Agriculture, Orville Freeman, who then instructed that the Department of Agriculture use ZBB for the Department's 1964 Fiscal Year budget estimate.
In the same period of time, Texas Instruments used the ZBB to evaluate research and development projects and called it "Objective-Strategies Tactics" (OST). It was used to determine the cost or benefit of a specific research and development project by the use of decision packages and a ranking procedure which helped the director of research and development decide what project was not to be selected. The highest-ranked, selected project was then sent to the executive office for final approval to proceed on an R & D project (8).

Texas Instruments, in preparing its 1969 budget, because it was faced with serious competitive problems with a predicted profit erosion, decided to cut 5 percent of its cost throughout the entire company. This decision allowed Texas Instruments to cope with some problems serious at that time (8), and which forced an alternative to its budgeting system. Peter A. Pyhrr, a system analyst working in the Staff and Research Division of Texas Instruments at that time, convinced TI's top management that the same system being used for OST could be modified and adapted to the other segments of the company, meaning that each segment of the company's operation should be judged from zero base (8, p. 15). Pyhrr then authored an article for Harvard Business Review in which he described his so-called new budgeting system and which was read by many businessmen and
governmental leaders, including Mr. Jimmy Carter, the Governor of the State of Georgia. Carter became very interested, and Mr. Pyhrr was hired by Carter to install ZBB for the Georgia State budget in its 1972-73 fiscal year. Later, Carter, as the President of the United States, gave the order to install ZBB techniques for the 1979 Federal budget (8).

A number of business and industry executives also became interested in Pyhrr's idea and later adapted the system for their organizations. The number included Southern California Edison, United California Bank, Westinghouse Electric, Xerox, and Allied Van Lines (8). Among governmental organizations, the Federal Reserve System, the States of Texas, New Mexico, Illinois, and the city of Honolulu were among the first organizations to adopt the system (8). By 1976, the National Association of State Budget Officers and the Congressional Research Service were able to identify at least eleven states that appeared to be using ZBB in reviewing governmental program activities from zero base or from a base below current operating level (8).

Among education organizations, Greece Central School District, in Greece, New York was the first school district to implement ZBB, doing so for their 1975-76 budget. Then the Memphis, Tennessee, public schools installed it (25). In Hamilton Canada, McMaster University introduced ZBB in

The Concept of Zero-Based Budgeting

The idea of ZBB is neither new nor revolutionary. In looking closely at the financial history of private and public organizations, whether profit or non-profit, it is quite noticeable that all these organization applied the concept of ZBB somehow during their financial life. The concept, since it requires justification of every budget dollar, was actually employed in the formulation of their first year budget, in budget revision during major reorganization of the entity, or during a substantial addition to the organization's budget due to a new major product line or new service which should justify starting budget from ground zero (22, p. 24).

According to Merewitz and Sosnick, the theory of ZBB is simple. They believe that "... the essence of zero base budgeting is simply that an agency provides a defense of its budget request that makes no reference to the level of previous appropriations" (30, p. 61). As Minmier stated, this system requires that "the total cost of every item in the proposed budget must be justified and approved" (35, p. XV). McGinnis stated that it is "a process requiring the
justification of every dollar of an organization's projected expenditures for the forthcoming fiscal year" (31, p. 22).

Pyhrr, often called the father of ZBB, described it at his company, Texas Instruments: "... Rather than tinker endlessly with its existing budget, Texas Instruments prefers to start from base zero, view all its activities and priorities afresh, and create a new and better set of allocations for the upcoming budget year" (39, p. 111).

Carter, as Governor of Georgia, in his budget address on January 13, 1972 described ZBB and explained that "zero-base budgeting requires every agency in state government to identify each function it performs, and the personnel and costs to the tax payers, for performing that function" (27, p. 5). Zero-Based Budgeting, as Robinson said, is not a "magic formula," but is simply a technique which premises that the budget in an organization for the next year starts from zero, and every expenditure, whether old or new, must be justified on the basis of its costs and benefits (43, p. 84). This concept began as a means of answering the traditional question concerning gaining rationality in allocating an organization's financial resources (43, p. 84) rather than by conducting endless revisions of existing budgets. Texas Instruments started this budgeting system by deciding to start each year's budget from ground-zero review of all
activities and priorities, and from this has sought to
develop a new and better blue print of the allocations (38,
p. 84).

As Murray explained, the technique of ZBB, as the name
implies, is a

method of forcing manager to defend every operation
under their control before any funds are allocated to
them. The manager starts out with the assumption that
he has zero dollars to work with. From that point on,
he must break down and identify every function or pro-
gram under his jurisdiction, evaluate each in terms of
costs, intrinsic merits and alternative solutions—and
then rank each item, with a dollar value, of a priority
list (13, p. 20).

Austin and Cheek, who have each contributed a number of
articles/books about ZBB, state that

zero-base budgeting is a planning and budgeting process
requiring each manager to (1) establish objectives for
his or her function and gain agreement on them,
(2) define alternative ways of achieving those objec-
tives, (3) select the most practical way of achieving
of each of those objectives, (4) break that alternative
up into incremental levels of effort, (5) assess the
cost and benefits for each incremental levels, and
(6) described the consequences of disapproval (5, p.
2).

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Research described the process of ZBB, as a technique which

. . . would require the identification of measurable
objectives, that is long-range goals, for each program
and would compel the measurement of performance and the
evaluation of accomplishments through key indicators of
success. Further, ZBB would force agency head and
Congress to consider alternatives for achieving those
objectives, including private solutions and the initia-
tives of state and local governments (2, p. 19).
Process of Zero-Based Budgeting

ZBB, because of its nature, can be applied best to the service and support areas of an organization. As John M. Walker, Vice-President and Treasurer at Texas Instruments, notes, "Zero-Base Budgeting is useful wherever spending alternatives exist—especially in the service and support functions of a company" (13, p. 11). If ZBB is used in an industry, it finds its main use in areas where expenditures are not determined directly by manufacturing operation; it has its best result if it is used in areas in which the manager has discretion to choose between different activities (and between different levels of activity) having different direct costs and benefits (27, p. 112).

According to Austin and Cheek, ZBB is usually practiced in the organizations in any area on which cost/benefit analysis can be conducted and in the areas for which the standard costs are not available or cannot be economically developed. For example, such areas include the classic overhead functions of finance and accounting, personnel, insurance, legal and management service, marketing, and research engineering. ZBB also will be beneficial if used in capital budgeting (5, p. 3). In the institutions of higher education, because they are primarily a service activity organization (according to the most literature), ZBB will be a very useful technique, but a number of writers oppose the approach,
believing that in the area of higher education ZBB will not be beneficial. This matter will be discussed later in this chapter.

It appears that ZBB, whether in business and industry, in governmental agencies, or in institutions of higher education, can be simplified into four basic steps.

1. Define the organization's decision unit: The first step of the process of ZBB is to define the organization's decision units. According to Cheek in a paper presented to the New York State Association of School Business Officers in December 1976

   a decision unit is the lowest practical organizational unit that is knowledgeable of the spending request, and its impact will very likely be responsible and accountable for implementing the proposal, if approved, and has some flexibility in choosing between two or more spending options (38, p. 84).

Decision units will vary in size or by activity in different organizations. A decision unit in an organization can be a cost center (such as administrative-service section), a group of people performing the same function (for example, all the department's secretaries), or it can be a multi-functional project, program, or product that can be tied to broader organizational objectives (5, p. 4). Austin and Cheek described decision units as a "cluster of activities for which a given manager can be held accountable, and for which we can define an input (or cost) and output (or benefit)" (5, p. 4).
In institutions of higher education, the number, size, or activity of the decision units varies from institution to institution, and it even may vary within each college or university from year to year (23, p. 20). Decision units in each institution of higher education are usually subunits of their cost centers "with two or more commonly aggregating to the cost center budget total" (23, p. 20). "Decision unit" is one of the basic elements of ZBB, and it is an element within which decision packages, which will be described later, can be developed.

Harvey mentioned some examples of decision units in higher education institutions, some of which are (1) each academic course, (2) faculty development, (3) departments, (4) special academic chairs, (5) development of new instructional technology, (6) summer sessions, (7) student records, (8) financial aid, (9) accounting, (10) purchasing, and (11) campus police, etc. (23, p. 20). It is totally up to the institutions of higher education what change in the number of decision units from year to year they wish to make. They can increase the number of decision units or they can reduce the number by combining the decision units. For example, if a college or university has one decision unit for the Admission Office and another for Student Records, these two decision units can be combined into one as Admission and Records (23, p. 21). Harvey recommended that,
if an institution reduces the number of its decision units each year, in order to benefit more from ZBB it is advisable that once every three or four years a larger decision unit be broken down into smaller units in order to produce a more detailed analysis of the organization's activities (23, p. 21).

2. Development of decision packages: Decision packages are the main body of ZBB. The Zero-Based Budgeting Manual of the State of Georgia, in 1973 defined a "decision package" as "an identification of a discrete function or operation in a definitive manner for management evaluation and comparison to other functions, including consequences of not performing that function, alternative course of action, and costs and benefits" (68, p. 2). Pyhrr defines the decision package as "a document that identifies and describes a specific activity in such a manner that management can (a) evaluate it and rank it against other activities competing for the same or similar limited resources, and (b) decide whether to approve or disapprove it" (39, p. 112).

Decision packages are usually developed within decision units of the organization in order to provide "a self-contained unit upon which a decision can be made" (10, p. 53). So the specification of each decision package should be prepared in such a way that it provides the management all the information which enable him to evaluate the units'
activities (27, p. 113). Each decision package, in order to provide such necessary information, can be designed in such a way as to include a statement of the goals of the activity, the program by which they are to be achieved, the benefits which are expected from the program, the alternatives to the program, the consequences of not approving the package, and the expenditures of funds and personnel which the activity requires (costs) (27, p. 113). Decision packages are usually formulated at the "ground level," and the process of preparing decision packages will promote a detailed identification of "activities and alternatives and generates interest and participation by the mangers who will be operationally responsible for the approved budget" (27, p. 114).

Pyhrr divided the decision packages into two basic types: (1) "mutually exclusive packages," and (2) "incremental packages." As described by him, the "mutually exclusive packages" are those packages which will "identify alternative means for performing the same function. The best alternative is chosen, and the other packages are discarded" (39, p. 113). The other type of package, "incremental package," is the kind of package which will "reflect different levels of effort that may be expended on a specific function. One package, the 'base package,' may establish a minimum level of activity and other identify higher activity or cost levels" (39, p. 113).
Harvey divided decision packages into three levels: (1) "minimal," (2) "maintenance," and (3) "desired." According to him, decision packages in the lowest level should connote a "bare-boned" base operation "below which the existence of the activity would be threatened." (Some institutions prefer to state that as a rule.) The other level is the "skeletal level," which should be a percentage of current year spending, for example, 75 percent or 80 percent of the institution's current year's budget. In this level, the administrators of an institution will be forced to develop at least one package that is of less than current expenditures (23, p. 22).

Austin and Cheek, in describing decision packages, noted that "the decision package is nothing more than the old problem-solving process rolled up in a piece of paper" (5, p. 5). They then identified five key elements of a decision package: (1) the objective or goal of the effort, (2) a brief description of the proposed approach, (3) alternative ways considered but rejected, (4) the cost and benefits of the proposed approach, as well as any appropriate quantitative performance measures, and (5) an assessment of what will happen if the package is disapproved or not funded (5, p. 5).

The number and the nature of decision packages as decision units will also vary from organization to
organization, and this diversity among the decision packages mostly depends on the activities of an organization (57, p. 77). Anderson says that "the package should be broken down into elements which should comprise no less than one full person and all associated costs" (3, p. 6). Poll notes that "normally each division package should represent one years effort for a man, or 10,000 of expenses" (38, p. 75).

According to Bruncingsen, 1976, Greece School District identified approximately 150 packages for the elementary, junior high, and senior high schools (9, p. 57). Minnier and Hermanson, in their study of the State of Georgia, identified approximately 111,000 packages for the State's 1972-1973 Fiscal year (35, p. 77).

As can be seen, the number of decision packages depends on the size of the organization, and it seems logical that any large organization can expect to have at least several hundred decision packages if it wants to install ZBB.

According to Suver and Brown, for the large organization, because of the number of decision packages, "use of a computer system would seem to be absolutely necessary" (57, p. 77).

Preparing decision packages in an organization is the function of a "line managers," and then the prepared packages eventually will be acted on by the top manager of the organization. So, according to O'Neil and Manceri, 1977,
because of this the organization's budget will develop from the roots, or the bottom, and not from the top down as in a planned-program budget (36, p. 57).

3. Ranking: Ranking is the third step in ZBB. Once the decision units have been identified and the decision packages have been completed, the manager of the organization is ready to start the review process, which means to determine how much to spend and where to spend it. In order to do that, the management needs first to rank all packages in order of decreasing benefits to the organization. Theoretically, in the ranking process, once the management of the organization has set the budget amount, the packages would be accepted down to the spending levels (57, p. 78).

The ranking process is one of the basic steps of effective ZBB, and as Kravitz, 1977 noted, this process is a general procedure for achieving it effectively (27, p. 119). In the process of ranking, the management of an organization will be provided with a technique to allocate limited financial resources more rationally and effectively by making the manager or administrator of the organization concentrate on the questions of "how much should we spend?" and "when should we spend it?" (27, p. 116). This technique of ranking simply is listing all the decision packages in order of decreasing benefits to the company (27, p. 116). In ZBB, according to Draper and Pitsvada (1976) the ranking
process will allow the decision maker of an organization to prioritize through "whatever means available--policy analysis, cost/effectiveness analysis, program evaluation, prior program success in goal achievement or even intuition" (16, p. 79). Kravitz argues that the process of ranking in an organization identifies the benefits to be gained at each level of expenditure and will enable the decision-makers to study the consequences of not approving additional decision packages which are ranked below that expenditure level (27, p. 116).

After the decision packages have been completed, then, the process of ranking starts. This process frequently involves the basic administrative structure as well as budget committees (23, p. 22). Stonich, in "Zero-Base Planning and Budgeting," mentioned that "if decision unit analysis is the foundation of ZBB end result, then ranking is the final structure" (54, p. 79). He believes that in ZBB "no amount of elegant ranking can substitute for thoughtfully-prepared analysis; on the other hand, a poorly-implemented ranking step can effectively wipe out much of the value of the zero-base project" (54, p. 79).

Ranking of the decision packages in an organization is the final structuring in ZBB. By the use of this process, in most organization the base package is always ranked higher than the incremental packages which are clustered
around it. The theory behind this process is that in the final decision-making the base packages can easily be retained even if the incremental packages are rejected (27, p. 116). Through the process of ranking, the management of an organization will limit itself, according to Austin and Cheek, to "the most productive array of alternatives, recognizing that while needs are seemingly infinite, resources are always limited" (5, p. 11). Ranking is one of the important aspects of ZBB, because in this system a poorly-established ranking "gives management of an organization the opportunity to concentrate its heaviest analysis of budget and planning on these functions that are either inefficient or showing poor result" (31, p. 33).

Although ZBB came after Revson's time, once it seemed that he had captured the essence of ranking. Revson, during a budget session with his senior staff, said,

> whatever it may be, you can't have it all. You can't have all the window displays and all the advertising you want . . . It's impossible. And so, therefore you must find out what are the most important things you need, and what are the winning numbers. What are those numbers that pay off the best? (5, p. 11).

Usually the initial ranking process occurs at the lowest organizational level where the packages are developed. Ranking may employ several techniques, ranging from management committees that vote on the packages to more complex
approaches which are involved "decision tables" and "paired comparisons" (5, p. 11). All these techniques will have the end result of ordering the decision packages by priority.

In higher education, the ranking process usually involves department chairmen, head custodians, and budgeting principles (36, p. 58). After the ranking has been done, the next step will be setting the funds and distributing the budget. According to O'Neil and Merrimack, in the area of higher education after the ranking process, the administrators at a higher level of management will review the ranking and compile groups of packages, each group with a different ranking, and then the top management takes the final step, selecting the packages to be funded (36, p. 58).

As Watkins, Jr., mentioned, by ranking, the management of an organization will determine "how much to spend and where to spend it." Further, "if the theory of zero-base budgeting process works according to theory, each activity of the organization has been scrutinized and evaluated, then continued, modified, or discarded. The result should be the most effective budget attainable" (63, p. 78).

Arguments For and Against
Zero-Based Budgeting

Zero-Based Budgeting, like any other budgeting and management technique, has some strengths and some weaknesses. There are authors who argue for it as well as there are
those who argue against it. A look at pro and con arguments of the experts suggests that no other budgeting system has been so much written or talked about. Some writers believe that ZBB is an inefficient system, and others believe it is a technique which gives a better chance to the organization's manager for more effective management and control. Among the latter, Harvey argues that the concept of ZBB is easy to understand but, like any other managerial tools and techniques, requires good attention and great care for its effective implementation (23, p. 2). He believes that "in the hands of weak or incompetent administrators in any organization the best system will fail . . . Conversely, the best administrators will have some success operating without a system" (23, p. 1). If ZBB is implemented in an organization under the best manager, it will be a successful technique of management. In the analysis of the effectiveness of ZBB, although Harvey believes that there are more reasons why Zero-Based Budgeting is likely to fail than there are factors working for its successful implementation (23, p. 27), still an increasing number of managers of different organizations and experts in this field seem to believe that this budgeting system "comes about as close to the ideal" budgeting system as anybody could hope for (13, p. 10).
In the following pages, some of the main advantages and disadvantages which have been argued most in the literature will be discussed, and the results of the experiments of some of those organizations which have implemented this system during its short history will be reviewed in order to form a better judgment about its costs and benefits.

**Arguments for Zero-Based Budgeting**

According to Draper and Pitsvada, ZBB in any organization will "improve" the management information of the organization upon which decision-makers can set policy (16, p. 104). Pyhrr, also, in his analysis of management role of this technique in "Zero-Base Budgeting: A Practical Management Tool," notes "the enhanced motivation brought about on the part of management and subordinates when all participate in setting objectives" (40, p. 180). The technique of ZBB, according to its definition, if be used properly, will throw out stated or implied budget arguments that because it was done this way last year, it should be continued this year and years after (23, p. 4).

Harvey argues that by applying ZBB in higher education the "campus politics are also reduced as a factor in determining budget allocation" (23, p. 12). He also noted that the process will "prevent history, tradition, or custom from becoming the justification for maintaining certain expenditures" (23, p. 12). This technique has an advantage which
allows that a new program and approaches also be added to an organization or institution of higher education. Thus, "it is easier to add new programs by reducing current costs, allocating new funds, or through minimum funding of the new programs" (23, p. 13).

American Enterprise Institute for Public Policy Research believes that it is an advantage of ZBB that, if implemented, it will force all levels of management to evaluate the cost effectiveness of old and new programs. Properly implementing it will help top officials "not be so easily misled by subordinates and not so likely to defend budget requests which do not merit defense in the context of the whole budget picture" (2, p. 21). Harvey also believes this system will save money because it will enable the decision makers of the organization to identify and eliminate easily the vestigial and out-dated methods and programs. It also allows for more effective identification of the low-cost alternative methods for providing services (23, p. 12). Cheek says that ZBB "focuses management process on analysis and decision-making rather than on quibbling about incremental request" (12, p. 7). Harvey further notes that ZBB gives top management a better view of the total organization from the standpoint of resource allocation, various alternatives possible, and their likely impact on institutional objectives. The process therefore allows top management greater ability as they see the
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Research further argues that in any organization ZBB will promote the integration of operational decision-making and budget planning in the most desirable way. The rationale for budget proposal also will "more truly reflect the real reasons for operational decisions, and operational decisions will be divorced from budget consequences" (2, p. 21).

McGinnis, in "Pluses and Minuses of Zero-Base Budgeting" (1976), believes that one of the most valuable benefits of ZBB is its forcing of managers of an organization to identify the "inefficient or obsolete function within their areas of responsibility" (31, p. 23), and that is because of the ranking process of ZBB, in which, theoretically, if there is budget cutting to be done, "the least important functions are thus identified and can be isolated and analyzed for budget cuts without jeopardizing essential or efficient operation" (31, p. 23). Furthermore, he argues, ZBB makes managers of an organization at all levels be more knowledgable about the role of their function and activity within the overall organization and "more cognizant of basic interrelationships within the structure" (31, p. 23). That has also been claimed to be an advantage of Zero-Based Budgeting by other writers as well as by Minmier in his analysis of Georgia's ZBB effort.
Pyhrr and Burchett, in "Is Zero-Base a Better Way to Plan and Budgeting?" believe that it "enables top management to review the alternatives and recommendations of middle management systematically with the planning goals always in sight" (42, p. 74). They agree that because all supervisors present their plans to their superiors ZBB will create an encouragement for participative planning at lower and middle management (42, p. 74). It also will improve communication and understanding between management levels (42, p. 80).

Harvey believes that ZBB will lead to the result that each staff member becomes "more cost conscious, cost benefit sensitive, and more involved in fiscal planning" (23, p. 12), and that because an institution can develop a higher "staff morale" (23, p. 12). Poll also believes that ZBB will provide management training and participation in decision making (38, p. 87). Nordling, Budget Report Manager of Tektronix, Inc., commenting on his experience with ZBB, once mentioned that ZBB improves the corporate planning process "by requiring a manager to describe the proposed activities in detail, ranking them as to their importance in achieving organizational objectives." He then added:

Following this up by reviews of the organization, resources can then be allocated to these activities which will best utilize the resources to meet the corporation's goals. ZBB also improves the line of communication between manager and subordinate. It either forces the manager to accept some or all of the packages submitted, or forces the communication of
projects, programs or activities which the manager feels are important to the subordinate prior to the preparation of the ZBB packages (13, p. 11).

As Harvey notes, because of the increasing of communication called for in ZBB the morale of the lower level managers increases, and this leads to a greater understanding "which in turn helps to develop a unified effort in achieving the institution's goals and objectives" (23, p. 113).

One of ZBB's most important aspects is that the manager of the organization should define his or her objectives and responsibilities during preparation of decision packages, showing how best the manager can meet them at various assigned or assumed levels of effectiveness (57, p. 78). According to Burroughs, in "Implementing Zero-Base Budgeting" (1978), most of what negatively is said about ZBB is "nonsense." In his opinion, it is a management tool that, when used properly and effectively, will have tremendous benefits for the organization (10, p. 53).

Schick and Keith, in "Zero-Base Budgeting in the United States" (1976), characterized ZBB as a very "neat, tidy" system which, as practiced currently, is systematic and formalized (49, p. 97). Being "neat" has been characterized by Havens, also, as an aspect of it. According to Havens, it is an implicit assumption that can create the fact of rationality in order to improve the techniques for strengthening management technique (24, p. 40). Kravitz, in a review of
ZBB, came to the conclusion that "ZBB, if implemented with skill and care, is a valuable member of the family of budgeting management techniques which focus on program planning rather than just financial accountability" (27, p. 39). Draper, in "Zero-Base Budgeting for Public Programs," believes that ZBB can be a complementary tool with the MBO approach to management: by using this technique of budgeting, not only does the program manager of an organization share responsibility for goal achievement, but also programmatic priority setting (16, p. 106). According to him, ZBB can thus be an "excellent basis for an MBO program" (16, p. 106). The information presented in ZBB decision packages will, according to Singleton, aid in measuring "performance against objectives . . . much more quantitatively" (52, p. 28).

According to Harvey, because ZBB fits into the system approach, in addition to MBO it can also effectively be used in combination with PPBS and MBO. He further noted that "ZBB complements and supplements these other systems and should be used with them, not instead of them" (23, p. 2). Cheek once noted that the ZBB combines planning, budgeting, business proposals, and operational decision-making into one process (12, p. 86).

According to the literature, another strength of Zero-Based Budgeting is that the flow of information in an
organization goes from the bottom up to the top. This occurs because at all levels in the organization managers are involved in decision-making, and the organization's top management finally gets all types of input about what the departments or agencies in that organization are really doing (10, p. 56). This flow from bottom up to the top also resulted from the nature of formulation decision packages, something which forces the middle- and lower-level management to do their "homework," while the top management of the organization must provide feedback about funding decisions (36, p. 63). Draper also mentioned the "top down, bottom up" and recommended that, in order to provide a meaning to the budget preparation, and to avoid some pitfalls to subordinates, top management of an organization "must be certain to ensure that there is an adequate feedback process between superiors and subordinates" (16, p. 108).

Another strength claimed for ZBB is that it is especially "adaptable to the discretionary costs areas where service and support are the primary outputs" (22, p. 24). Suver and Brown, in "Where Does Zero-Base Budgeting Work" (1977), agree that ZBB is also very useful in reevaluating the basic objectives of various functional activities and in identifying critical areas of weakness in the corporate planning process (57, p. 80). Zero-Based Budgeting, according to them, "does not have to be applied throughout the
organization, or even throughout the service and support areas." According to them, it has the advantage that it can be applied also in different parts of an organization, especially those areas with which management is most concerned. Likewise, this system also can be limited to the time and people available to install, monitor, and operate it (57, p. 82).

Another positive element claimed for ZBB is that its technique is useful in training and educating personnel and staff. Suver and Brown argue that "this budgeting technique has been acknowledged as beneficial in educating newer employees concerning their operation and methods of achieving organizational goals, even in those organization where ZBB has apparently accomplished little else" (57, p. 83). Harvey believes that "the whole ZBB process is a professional development activity which should increases the skills and the ability of the institution's managers and make them more effective" (23, p. 13). According to Harvey, the institution will be able to identify and remediate weak financial planning among the staff (23, p. 13).

Some additional advantages of ZBB have been spelled out. As Kravitz argues, in industry it improved profitability, better use of resources, lower overhead expenses and keener sense of priorities at all levels. It is also argued that, already in use in a number of profit and non-profit
organizations of different sizes and activities, and according to some estimates it provides a clear understanding of costs and forces the managers of these organizations to spell out how resources are being applied (13, p. 10). Other advantages of ZBB can be clearer relation of budget to the institutional objectives, a better basis for adjusting to changing circumstances, greater work satisfaction from observable results, and a much better budget justification (10, p. 13).

Arguments Against Zero-Based Budgeting

Historical development of this relatively new system during the past decade indicated that it had limited success. The Department of Agriculture, which first implemented it (under different name but with the same principle), discontinued its implementation after only one year because of a number of its disadvantages.

Even those who are opponents to this process of budgeting are in general agreement that it "theoretically" provides more flexibility in budget allocation. Nonetheless, according to most experiences of the state and local governments which implemented it, it has been found that no significant reallocation of financial resources occurred in these organizations as the result of implementing it (2, p. 24). According to Minmier, in his study of ZBB experience in Georgia during the years 1973, 1974, and 1975 there was
no hard evidence that resources had been shifted as a result of its implementation in that state (35). He says further that in his research he found "no instance during those budget years in which an activity received less funds than it received in the previous years" (35). This could be an indication that this technique of budgeting was ineffective in the Georgia experience.

Although the concept of ZBB is very simple and easy to understand, in order to implement it with an effective result it requires a number of forms, processes, and procedures which make it very difficult to implement. According to the literature, implementation requires a lot of time, money, and paperwork. Those who oppose it are in agreement that the work load involved was excessive, that too little learning was involved, and that nothing had changed as a result of the effort (6, p. 6). Suver and Brown say that in this system of budgeting, in order to develop a decision package, a great deal of time needs to be spent by each individual manager, and it is almost impossible for a group of top executives, especially in a relatively large organization to have the expertise and the time to rank thousands of decision packages and to establish a priority among them (57, p. 78). They further argue that the reviewing process is a "big problem" because thousands of decision packages in
a relatively large organization is a "monumental burden," and reviewing these packages each year" is boring, not too productive, and is a Herculean task" (57, p. 80).

Minmier argues that ZBB, especially the evaluating of the programs in governmental agencies, is very time consuming, and most budget officers of these organizations have a feeling that there is not enough available time for them to do an adequate job of evaluating programs (35, p. 35). One budget officer expressed the opinion that a "real examination" of his programs should take at least a year (35, p. 35).

McGinnis argues that ZBB "puts too heavy a burden on the budget-making process, adding substantially to the time and effort involved" (31, p. 23). Harvey adds that the increasing of the staff time is the main disadvantage of ZBB, particularly in the first year of its implementation. He further mentioned that in addition to the time consumption of the implementation of this budgetary system, which is usually more than that for other techniques, ZBB needs also more time in order to educate the staff of the organization to the concept and technique of this budgeting system in order to implement it the first time (23, p. 14).

The American Enterprise Institute for Public Policy Research came to the conclusion that in ZBB, an effective review process needs untold amount of calculation and
paperwork, and because management of every level of organization would be involved, "and with the time of top management already being stretched thin, ZBB would cost so much in management time, and expense, that the cost would outweigh any benefits which could be reasonably obtained" from the installing and implementing this system of budgeting (2, p. 23). According to Schick and Keith, preparation of decision packages in ZBB is one area associated with a high cost (48, p. 115).

Opponents of Zero-Based Budgeting also agree that the time factor is heavy and that when the management of the organization or a congressman at the federal level reviews the prepared decision packages, the cost of ZBB will exceed its benefits (2, p. 24).

One of the other disadvantages of Zero-Based Budgeting which the opponents emphasize is the amount of paperwork required. According to Harvey, in order to develop decision packages an increase in the amount of paperwork associated with that is inevitable (23, p. 14). Stonich is in agreement and argues that ZBB needs a superfluity of paperwork. He believes that the managers of the organizations which have implemented this system often complain that there are too many forms to prepare and that their superiors also complain that there are too many forms to review (54, p. 79).
Installation and implementation of each new management technique means additional cost to a company. Installation of ZBB involves an additional cost factor which may occur also, although in decreasing amounts, in the second and subsequent years. As Singleton, Smith, and Cleaveland concluded, using ZBB for only part of the Wilmington, Delaware's budget doubled the cost of the budget preparation in FY 1975 (57, p. 80).

Frank D. Draper argues that there are three areas of cost in ZBB: direct costs, opportunity costs, and psychological costs (16, p. 114). He mentions that no real analysis has been made of the direct costs of implementing ZBB. But the direct costs of ZBB are similar to any other direct cost: it is related directly to the implementation of this system, including the time factor and the amount of paperwork. The second cost factor is the "opportunity cost": the cost of management's time required in the budgeting process, but which could be used for something else (16, p. 114). In this regard, American Enterprise Institute for Public Policy Research also argues that since ZBB requires all the budget review to start from scratch, and each evaluation to go back to zero base, that will cause extra burden, and for an organization it is not very profitable, practical, or useful, because in most organizations the management will not have enough time to manage if his time is taken up with
"fanciful exercises and calculations" relating to programs whose benefits "cannot easily be measured" (2, p. 23). The third area of cost mentioned by Draper is the "psychological costs." He described psychological cost as a cost which is "associated with implementing another 'budgeting method' within the bureaucracy" (16, p. 114). He further mentioned that "agencies may balk mightily at what they feel is another 'gimmick' foisted upon them in the name of 'resource allocation efficiency'" (16, p. 114).

The human factor also brought a great challenge to ZBB among those who are in favor of it and those opposed to it. Harvey, an opponent, argues that there will be "little motivation for staff" of the organization and that lack of motivation causes the staff not to function effectively (23, p. 14). Minmier argues that, because in any organization most of the personnel are much more concerned with the level of their appropriations, using ZBB will cause fear concerning whether or not there is a need for them in the organization. As stated by one executive, "we had to start from the previous year, then determine what increases we wanted for 1964" (17, p. 154). Another executive said that "each staff officer reviewed his office. We all decided we needed what we had, then we decided whether to ask for increases" (17, p. 155).
Those who oppose ZBB argue that because of the human factor this technique of budgeting will not work effectively in practice. They argue that usually in an organization some decision-unit managers have attempted to subvert the Zero-Base system by placing low-priority activities in the minimum increment and key programs and projects in the later increment. These managers reasoned that the later increment (key programs) would not be approved until the minimum increment was funded, and that the later increments were of prime importance to top management. Consequently, the managers felt they could rig the system to give themselves a larger budget (54, p. 83).

The human factor also appears when ZBB first is introduced: the decision unit managers of the organization usually feel that their organization is different from the others. This feeling leads them to resist the technique and to argue that this budgeting system will not work for their company, even though they are convinced that it has already worked in other, similar organizations (54, p. 72). This humanistic problem, however, is encountered not only in ZBB; all other new techniques of management introduced in an organization will meet some kind of resistance from the staff, causing some disruption of the normal operations of the company's personnel until they become familiar with the new procedures. As Stonich mentioned, "any new management system provokes some negative response. There may be doubt whether the system is, in fact, 'new' or merely the same old system with modification and a different name" (54, p. 71).
Also commenting on the humanistic problems of Zero-Based Budgeting, Austin and Cheek once noted that "ZBB is nothing more than the old wolf in sheep's clothing--a threatening gimmick of those drones in the accounting department who have little better to do than to cut budgets down to ridiculous and irresponsible levels" (5, p. 2).

Zero-Based Budgeting can be implemented in the area of higher educational institutions, but according to O'Neil and Merrimack it should be done so with "caution" because in these institutions, according to them, the initial reaction of the managers of these institutions is negative. In the institutions of higher education, managers dislike scrutinizing of their operations, and they hold the view that ZBB is just another gimmick, or they fear that their "sacred" budget will be cut (36, p. 58). The humanistic problem in the institutions of higher education also causes most institutions' administrators to hesitate to use it except as a last resort. The reasons for this hesitation are: humanistic concerns, possible lawsuits, tenure policies, and union contracts. Those make the system one of the least desirable methods of reducing personnel. This is because the administrators of the institutions of higher education believe that Zero-Based Budgeting, if implemented in an institution, will reduce the personnel because the largest expenditures are related to the people and their salaries. According to
Harvey, in most colleges and universities 85 percent of the budget is allocated for the faculties, staff, and other personnel's salaries, so ZBB will impact greatest on personnel; otherwise the total effect of this budgeting system will be limited to the 15 to 20 percent of most colleges and universities' budget that are non-personnel related. If in the institution of higher education the process of this budgeting system does not effect the personnel, the value of the ZBB will be limited to the average of the institution's total budget (23, p. 30).

In higher educational institutions, if in installing the technique of ZBB it be decided to eliminate some programs or activities, the administrators of these institutions will face some difficult decision making. It will be very difficult for the administrators to simply fire the faculties or staff in order to eliminate a program or activity, and that is so because of tenure, court suits, and unionism, and also because, as mentioned before, an average of 85 percent of the expenditures relates to personnel directly and 15 to 20 percent relate to the non-personnel activities. If the process does have little effect on personnel, this question will come to mind about how, then, Zero-Based Budgeting can be of any value where large percentages of the budget include people and their salaries, fringe benefits, and so forth (23, p. 30).
In suggesting a solution to the above problem, Harvey recommended that if in an institution of higher education, because of this budgeting system or other management/budgeting system, the number of faculty, staff, or classified employees is to be reduced, that could be done under different situations. First of all, a person can be terminated or released outright. Second, he or she can be transferred to another area where there is an opening. Third, he or she can be encouraged to resign in order to accept a more attractive employment opportunity outside the institution. The fourth and the last way is to encourage or promote early retirement which may be in his or her best interest and that of the institution (23, p. 30).

As a final note in arguing against ZBB, the opponents argue about the lack of information for using it. According to them, it is obvious that preparation of decision packages requires a significant amount of information which should be available to the program managers, and if the available information system within an organization is not sufficient, or does not provide the right kind of information, the process will not be very effective in achieving the best results (16, p. 127).

Those who are in favor of ZBB argue that, although this budgeting system adds some more costs and efforts to the
organization and creates some "temporary disruption," it is in effect an investment in a better budgeting system in the long run (31, p. 23). Draper said that in any case, much more needs to be learned of the cost side of the ZBB effort. And when confronting this question we will still be left with the related one--how much is "good" budgeting worth? It may well be that. ZBB may just be one alternative--and perhaps a more costly one--in the road to better budgeting (16, p. 116).

Some Experiments in ZBB

As stated earlier in this chapter, during 1962, even before Texas Instruments experimented with ZBB, the United States Department of Agriculture was the first agency to try it on a large scale (21, pp. 50-56). Aaron Wildavsky, chairman of the Department of Political Science at the University of California in Berkeley, and Arthur Hammond, teaching fellow in psychology at the University of Michigan, studied in detail the application and the result of application of Zero-Based Budgeting in the U.S.D.A. Wildavsky and Hammond came to the conclusion that in the U.S.D.A., during application of ZBB all the managers in that department, had great difficulty in thinking about budgets or budgeting because of ties to legislative mandates or the department's past commitments. They also found that in the U.S.D.A. experiment time was a serious constraint for the managers, and no one was able to read through and evaluate all the submitted
materials. The workload measure for the managers was high, and it was difficult for them to relate cost and benefits in meaningful ways.

Wildavsky and Hammond then concluded that in USDA the process of Zero-Based Budgeting failed to achieve its objectives. They cited that "comprehensive budgeting vastly overestimates man's limited ability to calculate, and grossly underestimates the importance of political and technological constraints" (65, p. 10). They recommended following the incremental approach, with attention focused on activities that did not change from year to year. Certain programs, they advise, could be subjected to the technique every few years, thus avoiding the burdens of taking a comprehensive approach during every budget cycle (65, p. 6). Wildavsky and Hammond also noted that the ZBB experiment in the USDA also caused a surplus storage problem as a result of the information saturation. The opportunity costs were substantial, and program managers, budgeters, and higher management in that department could have been doing something other than devoting most of their time and effort in preparation of the department's budget through the process of Zero-Based Budgeting (16, p. 101).

Texas Instruments was the first private corporation to use ZBB. This corporation first started the system in 1969.
Reportedly, the result of this budgeting system was favorable, and according to Austin the benefits derived were:

1. Better participation of first line supervisors in forming their budget;
2. Increased efficiency in the evaluation of proposals and allocation of resources to the various divisions and departments;
3. Ranking of proposals so that changes in an allocation levels requires only an examination of marginal proposals and not establishments of a new budget;
4. A close matching of resources to potential profit contributions;
5. Reduction in the number of forms required for budgeting (the old method of budgeting required twelve different forms, whereas the zero-base budgeting technique required only two—a decision package form and a ranking form (6, p. 6).

In January 11, 1972, Governor Carter, of Georgia, introduced the technique of Zero-Based Budgeting in Georgia. Addressing the General Assembly of the state of Georgia five benefits expected from this technique of budgeting:

1. The system would identify 100 percent of each function performed by an agency;
2. It would show the costs and benefits associated with each proposed expenditure;
3. Expenditures would be evaluated on the merit alone;
4. Future changes in expenditures that had been given priority ranking and approved would not require recycling of budget inputs; and
5. The system would rationalize the budgeting process by (a) compelling agency managers to submit proposed expenditures only after accomplishments to date had been evaluated and (b) enabling the Governor's Office to more accurately and efficiently rank budget proposals, reduce the number of budget proposals coming to the Governor's Office, and adjust budgets more easily and realistically (6, p. 7).

Minmier, studies the ZBB as implemented in Georgia during the years 1973, to 1975, by conducting an intensive survey. He concluded that the process, in Georgia, had some advantages and disadvantages. He then concluded that the
implementation of this system of budgeting in that state resulted in the establishment of a financial planning phase prior to preparation of the state's year's budget. The ZBB experiment in Georgia, according to him, gave the state the guidelines it needed to satisfactorily meet its goals and objectives with its limited financial resources. ZBB in the State of Georgia improved the quality of management information, and also this process increased involvement of personnel in the State's budgeting process.

But the application of ZBB in the State of Georgia also had some disadvantages, such as the amount of time and effort spent during budget preparation. Minmier noted that 78 percent of departmental budget analysts felt that the "time and effort in budget preparation increased considerably" in the first year of ZBB implementation, and all analysts felt that the "time and effort" had increased at least some (35, p. 159). Minmier noted that in Georgia, after the implementation, "not a single instance was found" in the Georgia FY 1973, '74, and '75 budgets "where a function received less funds than it had in the previous fiscal year budget" (35, p. 173). Also, in his analysis of the first three years of Georgia's experiment with ZBB, Minmier came to the conclusion that the problems of implementing ZBB in the public sector are not the same as those confronting the private sector (35, p. 109). As Draper also states, in
the short term experience with Zero-Based Budgeting, it seems that this system of budgeting in the public sector does not pay for itself (16, p. 101). Minmier also added that the ineffectiveness of the ranking of the decision packages in the level of funding was another disadvantages in the Georgia effort. He found, finally, that in Georgia, this new budgeting system had not significantly improved the efficiency of the allocation of State's financial resources (35, p. 159). However, in the first three years of Georgia's implementation of ZBB, "78 percent of the department budget analysts recommended the continued use of ZBB in some form, and not one budget analyst of the Georgia central budget office, the office of planning, and budget recommended discontinuing the ZBB effort" (35, p. 135).

Singleton, in his analysis of the ZBB effort in Wilmington, Delaware, came to the conclusion that in this organization, because of the use of ZBB technique, the cost of preparing the budget had increased by 100 percent (53, p. 29).

In 1977, American Management Association (AMA) conducted a survey in order to find the answer to the question "What purpose does ZBB serve in your organization?" The result of this survey among the organizations under study was as follows:
<table>
<thead>
<tr>
<th>Purpose</th>
<th>Number</th>
<th>Percent</th>
</tr>
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<tbody>
<tr>
<td>to better allocate resources</td>
<td>17</td>
<td>30%</td>
</tr>
<tr>
<td>to improve decision making</td>
<td>14</td>
<td>25%</td>
</tr>
<tr>
<td>to facilitate planning</td>
<td>11</td>
<td>20%</td>
</tr>
<tr>
<td>to reduce cost or personnel</td>
<td>7</td>
<td>12%</td>
</tr>
<tr>
<td>miscellaneous</td>
<td>7</td>
<td>13%</td>
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AMA, in this survey, came to the conclusion that 94 percent of the respondents felt that the process achieved its purpose well, 25 percent judged that it performed extremely well, 43 percent "very well," and 26 percent "fairly well"; only 6 percent felt that it achieved its purpose "poorly" or "not at all" (56, p. 3).

In a survey conducted in 1976 by the National Association of State Budget Officers, only two out of eleven states (18 percent) with some form of ZBB in existence reported change in allocation as a result of ZBB (5).

According to Schich, the experience of Zero-Based Budgeting in Rhode Island was at least partially responsible for

(a) elimination of 1,300 positions from the State Roster; (b) maintaining the reduced employment level during the past eighteen months; and (c) allowing for the reallocation of funds from institutional to community programs (the shifting of priorities within the existing resources) (48, p. 19).

According to American Enterprise Institute for Public Policy Research, the experiences of ZBB in Georgia, New Jersey, Delaware, and other states have supported the idea that this system of budgeting will have a greater involvement of the lower level management personnel in processing
the budget. Also, according to AEIPPR, this process resulted an improvement in the management information, and in an integration of operational and budget decision-making (2, p. 21).

As the final note in this section, there is the recommendation of Congress for the implementation of Zero-Based Budgeting. The 95th of the Congress introduced numerous bills about the ZBB. Among these bills were the Blanchard and Regula bills (2, p. 7). These two bills, according to AEIPPR, Legislative Analysis No. 17, 95th Congress 1978, had the following purposes: (1) amend the Congressional Budget Act of 1974 to establish a zero-base program review of nearly all federal programs, (2) establish a comprehensive periodic review process; (3) require in each ZBB review and study conducted for a federal program inclusion of alternative ways of carrying out the activities involved and alternative funding levels such activities (2, p. 7).

The Blanchard Bill was a comprehensive Zero-Based Budgeting bill in the Congress, and it established a framework for review, and spelled out in great detail what should be in the study, the procedure, the responsibilities of the parties involved, and the timetable which requires (2, p. 9). The Regula bill did not spell out details for implementing the process of ZBB, and allowed that the House and Senate Budget Committees be more flexible in setting up the review standards and guidelines (2, p. 9).
CHAPTER BIBLIOGRAPHY


34. Minmier, George S., An Evaluation of the Zero-Base Budgeting System in Governmental Institutions, Research Monograph No. 68, Atlanta, Georgia State University, School of Business Administration, 1976.


CHAPTER III

SOME OTHER BUDGETING SYSTEMS

In the administration of the institutions of higher education there are several budgeting approaches which have been discussed most frequently, and their budgeting systems have been categorized in various ways. Robins, (1973) categorized the budgeting systems of American colleges and universities as follows: Line-Item, Program, Incremental, Formula-Based, and Zero-Based (35, p. 10). The SMU Institute of Technology in its 1973 Annual Report also identified approaches of budgeting systems used in colleges and universities and categorized them as follows: Formula, Planning, Programming and Budgeting, and Zero-Based (40, p. 35).

Caruthers and Orwig identified five budgeting approaches which have been used by most colleges and universities. According to him the approaches are Incremental, Formula, Planning, Programming and Budgeting, Zero-Based, and Performance (6, p. 35).

The above five approaches, according to most available literature, represent most American colleges' and universities' budgeting systems and also are the most frequently discussed and practiced methods of budgeting in these institutions of higher education. The purpose of this chapter is
to identify, define, and describe all the above budgeting systems other than zero-based budgeting. The latter was discussed in Chapter II, and the others are compared in this chapter with the system of zero-based budgeting.

**Incremental Budgeting**

Incremental budgeting is probably the most familiar and most frequently used budgeting technique applied both in profit and in non-profit organizations. In applying this system of budgeting, most organizations traditionally assumed that they could start with last year's budget and add a percentage to it.

Howard, in 1970, described incremental budgeting as the extension of the theory of incrementalism which "refers to making changes in small bits or increments." Attention is directed toward the changes or marginal differences that occur between existing appropriations and proposed expenditures (23, p. 18).

Temple and Riggs described incremental budgeting as a process of budgeting for which "the current budget base provides the starting point; the institution assumes that the current budget base is correct and that annual changes result from increasing or decreasing appropriate objects as occasion and resources dictate" (44, p. 354). This is the most traditional budgeting system in American colleges and
universities. These institutions of higher education, in order to estimate and evaluate their projected budget, traditionally break down the institution's functions into areas such as instruction, research, and library, with their detailed breakdown expenditures.

The validity of incremental budgeting during the years has been questioned by most managers of public and private organizations and by administrators of the institutions of higher education. According to them and other experts in the field of budgeting, this approach has a number of limitations and disadvantages, although it is very easy to operate. In 1924, Young said about this system of budgeting that

it must be a temptation to one drawing up an estimate to save himself trouble by taking last year's estimate for granted, adding something to any item for which an increased expenditure is foreseen. Nothing could be easier, or more wasteful and extravagant. It is in that way obsolete expenditure is enable to make its appearance year after year long after reason for it has ceased to be (6, p. 172).

According to Kravitz, 1977, although the technique of incremental budgeting is very simple and easy to install and implement, it rarely leads to analysis of the organization's existing programs in order to determine their effectiveness, and too often this budgeting approach pays only lip service to the organization's overhead costs (26, p. 3).
Tollefson, in "FY 1978-79 Zero-base Budget Review, the Colorado State University," argues that this system of budgeting only focuses on what the organization buys rather than what it does, concomitantly fails to note that the expenditures are incurred for the benefits to be derived therefrom (45, p. 30). Tollefson further argues that the incremental budgeting, because of its assumption that the organization's current budget should be the base of its estimated budget, results in a number of problems for organizations. Some of these problems are (1) the "difficulty of relating expenditures to objectives and outputs, (2) the lack of provisions for evaluating alternative courses of action, and (3) a substantial degree of inflexibility in budget execution, especially in addressing needs of an emergency nature" (45, p. 31).

Harvey notes that because of the use of this traditional budgeting system most organizations contain "a good deal of fat" because of failure to exorcise past programs which may have increased in dollars over the years while the need for them may have diminished or disappeared (20, p. 3). Thus this is the disadvantage of this budgeting system, i.e., programs are approved without a thorough review of the program than in relation to the goals and objectives of the institution.
The disadvantages of incremental budgeting are pointed out most often by those in favor of zero-based budgeting. They argue that by using the process of zero-based budgeting, all the programs will be reviewed thoroughly and that the organization's limited financial resources will be allocated only to those programs and activities which have the most benefit. As Minnier (1975) explained, zero-based budgeting, because it requires starting from a zero base and requires justification of each program's or activities' expenditure, any obsolete or inefficient program or activity in an organization will not be approved. The allocation of the organization's funds thus will be shifted only to those programs which are more efficient and more beneficial to the organization (29, p. 30). In this regard, the technique of zero-based budgeting has some more advantages over incremental budgeting. Minnier also argues that the technique of zero-based budgeting enables each program or activity (package) in an organization to be compared and analyzed against all other programs, and those programs will be selected which have the maximum benefit for the organization. In incremental budgeting there is no need for comparing and analyzing the programs in order to select them according to merit and benefit (29, p. 30).

Those who favor incremental budgeting argue that the "incremental budgeting defends its usefulness on the basis
of conservatism" (29, p. 28). Schlesinger argues that there is limited ability for the manager of an organization to foresee the full social consequences of a program change, so in order to move toward the objectives of the organization, one should proceed by small steps, because radical actions may cause "programs to be initiated that are beyond the realm of reasonable estimation." Progress must therefore be made by sequential steps, correcting and adjusting for unforeseen consequences along the way (36, p. 38). In this regard, according to Schultze, incremental budgeting has the advantage of avoiding serious mistakes. He concludes that in any organization past sequences of policy steps provide information about the probable consequences of further similar action (32, p. 50). There is no need to attempt by big jumps to achieve the organization's goals, because of the lack of the administrator's knowledge about the future. By using sequential steps towards the goals and objectives of the organization, the manager will be able to test his further prediction as he moves on to each further step. Because of these sequential steps, past errors also can be remedied fairly quickly (37, p. 50). Incremental budgeting provides the management of the organization this sequential steps towards the organization's goals and objectives. But, according to Dror, the method of incremental analysis is
only applicable when the result of the organizations current programs and activities are acceptable, and worthy to continue (9, p. 154).

It is also argued that, if an organization uses incremental budgeting system and if because of the limitation of this system the managers of the organization decide to change their current budgeting system, since any change of system is certainly costly and time consuming, the potential benefits from the new budgeting system should be so great so that they offset the cost of changing the old budgeting system (29, p. 28).

Line-Item Budgeting

Line-item budgeting, also known as the "object budget" (41, p. 110), traditionally has been a budgeting system for most American colleges and universities. Also this budgeting system was used traditionally by most municipal and state governments. According to Althaus, this budgeting system "concentrates on the amount to be spent during the budget period for the various inputs such as salaries, utilities, and capital items" (1, p. 23). The nature of this technique of budgeting is "top-down," with short-term horizons (1, p. 23).

Line-item budgeting basically is an expenditure budget, does not include depreciation, and may be partly or
completely operated on the cash basis. In this system, according to Althaus, "usually no attempt is made to relate cost to accomplishment or to a volume indicator" (1, p. 23). Daniel E. Stone, in "The Evaluation of Municipal Budgeting In the City of San Diego, California," defined and described line-item budgeting as "a financial plan of estimated expenditures expressed in terms of the kind and quantities of objects to be purchased and the estimated revenues needed to finance them during a specified period, usually one year. This budget generally includes the number of personnel employed by type of position" (41, p. 110).

The process of Line-item budgeting primarily focuses on expenditure control, and according to Tollefson, this budgeting system "displays the functional components of an organization and the objects of expenditure in each" (45, p. 30). Knezevich believes that this budgeting system will safeguard funds for their assigned uses and provide protection of fiscal resources (25, p. 136). As pointed out by Grossbard in 1971, this system forces the management and administrators to regularly review activities and policies, because this process of budgeting is repeated every year (17, p. 6). Fischer and Stauffer said that the process of this budgeting system operated on "an incremental basis." So when it is used, each department or subunit of an organization assumes that budgetary amounts they had received in the past
would serve as "jumping-off points" for the future budget request. Any increases could be justified in terms of projection for the next year. Little, if any, justification would be required for continuation of the base budget (12, p. 20). When this system of budgeting is implemented in an organization, each year the departments or organization's subunits are required to submit requests for the forthcoming year on budget forms that provided tabulation of request for additional resources. Then the decision-making process will take place at the organization's top management, or the administrative, or board of trustee level in the institutions of higher education (12, p. 20).

Stone described several key features of this technique of budgeting. According to him, if the technique of Line-Item Budgeting is implemented in an organization, the budgetary divisions are listed by organization units (departments, or agencies) and the types of expenditures are listed by category. The primary functions of this budgeting system are expenditure control, the safeguarding of funds for their assigned uses, and the protection of the organization's fiscal resources (41, p. 8).

According to Babunakis, the disadvantages of the line-item budgeting appear to outnumber its advantages. He believes that by using this budgeting system the competition among departments for acquiring available funds will be
increased: each department requests as large an amount of appropriations as possible for their department regardless of its relative importance to the organization's objectives. Each department is responsible for preparing its own budget request, and the result is that the organization's comprehensive planning is made difficult. Also, because of internal competition between departments, there will be little enthusiasm for interdepartmental collaboration on the programs whose objectives are similar (2, p. 157). The above difficulty inherent in line-item budgeting system will be alleviated if the organization implements zero-based budgeting or program budgeting, because by using one of these two budgeting and managerial systems, each department within the institution states its goals and describes its programs designed to actualize those objectives.

The other disadvantages of Line-Item Budgeting described by Michael Babunakis are that this technique of budgeting raises the question "How shall we increase or decrease what we are doing?" rather than "What should we be doing?" (23, pp. 102-107), and that it is a year-to-year process, a characteristic also cited by Althaus: this traditional system is "short-term in its view into the future" (17, p. 24). Thus, this process tends to postpone a necessary action. Third, by using this technique of budgeting, practically speaking it is impossible to relate the budget
to the organization's objectives and to relate its expenditures to the organization's accomplishments or outputs (17, p. 24).

Finally, line-item budgeting makes no provision for examining alternative methods of accomplishing objectives (17). According to Howard, also, this traditional system, like incremental budgeting, provides justification for decisions that have been made historically and does not yield systems data which can be used to evaluate alternative courses of action (23). Another disadvantage of line-item budgeting is that if implemented in an organization, duplication of effort remains undetected (2, p. 8). Babunakis mentions many more disadvantages of this budgeting system and concludes that all of the above problems of line-item budgeting system will be solved if the organization switches to program budgeting (2, p. 9).

Fischer and Stauffer believe that line-item budgeting system does not provide the type of program analysis necessary for the administrators of the colleges and universities to make difficult but wise economic decisions. They argue that although this traditional budgeting system proved its success during the growth period following World War II, the reason for this success was the relatively plentiful financial resources available during this period. They argue that for colleges and universities today there is a
need for a new budgetary system which can provide more information about the extent to which current resources are being used in relation to program output. According to them, both zero-based budgeting and program budgeting, although not extensively utilized in the area of higher educational institutions, seem to offer the best approach for managing their organizations (12, p. 20).

Performance Budgeting

Shortly after World War II, performance budgeting was recommended by the Hoover Commission as a replacement for the line-item budgeting. In 1949, the commission recommended that "the whole budgetary concept of the federal government should be refashioned by the adoption of a budget based upon functions, activities, and objects: This we designate a 'Performance budget'" (2, p. 5). This recommendation became law through the National Security Act Amendments of 1949 and the Budgeting and Accounting Procedures Act of 1950 (38, p. 6).

According to Tollefson, performance budgeting is primarily concerned with improving the efficiency of operations (45, p. 31). As Stephen Grossbard notes, this budgeting system is an expression, in financial terms, of the major activities or functions of a unit. Program descriptions in a performance budget are used on the activities being performed rather than on the expenditures required. This
change in emphasis marked a budgetary revolution in which management gained control from fiscal officials in development of the budget (17, p. 7).

According to Tollefson, performance budgeting attempted to relate the thing purchased by an organization and the activity performed (45, p. 31).

Although the performance budgeting system brought some advantages, overall success was small because this technique of budgeting had a number of disadvantages which caused the organizations to encounter some difficulties. Babunakis cited that, because it is purely mechanical innovation, it is neither more understandable, nor more useful in planning and planning decision-making (2, p. 5). According to Tollefson, because of perceived loss of control performance budgeting was not generally favored by central budget staffs. He further mentioned that this system needs a great deal of statistical analysis, and that makes it difficult to operate because of its large computational requirements (45, p. 31). According to him, another disadvantage was that the question of adequacy of present service levels was not addressed (45, p. 31).

The first state governments which implemented performance budgeting were Maryland, New York, and Ohio respectively. Maryland adopted performance budgeting in fiscal year 1954, New York state experimented this budgeting system between 1955 and 1960, and Ohio used it during the early
1960s and then discontinued its implementation in 1965. The reason for implementation of this budgeting system were some advantages which, according to Tollefson, are (1) the provision of uniformity and ease of budget preparation and presentation and (2) the provisions for objective costs (45, p. 31).

Performance budgeting dealt with how efficiently an activity was being accomplished, but it ignored altogether the question of need for an activity (23, p. 3). Using ZBB, in addition to requiring knowledge of the efficiency of an activity, requires that also the need of an activity be reviewed.

Formula Budgeting

Miller defined and described formula budgeting as "an objective procedure for estimating the future budgeting requirements of a college or university through the manipulation of objective (quantitative) data about future programs, and relationships between programs and costs, in such a way as to derive an estimate of future costs" (28, p. 6). A formula is typically applied uniformly to either (a) groups of comparable institutions such as "state colleges," or (b) comparable activities within a group of dissimilar institutions, such as "lower division liberal arts instruction," or "custodial services for classroom
buildings" (28, p. 6). Caruthers and Orwig described formula budgeting as an attempt "to relate the allocation of resources to standard consistent measures of an activity" (6, p. 17).

The appearance of this budgeting system in institutions of higher education came shortly after World War II. Because of the admission of veterans to the colleges and universities, the institutions encountered a sudden increase in enrollment. Institutions of higher education, in order to adjust to the increase, needed to expand their facilities, and, in order to justify the increased expenditure, the administrators required marked increases in the use of objective data, both in the presentation and in the analysis of the budget request. For example, the number of new students, the instructional cost per student, the unit cost of building maintenance, and the cost of meeting such accrediting measures as per-student library expenditures were increasingly seen in the budget "justification" submitted by the institutions or in the analysis prepared by the state budget office for the governor or legislators (28, p. 1). Administrators of the institutions, or the state budget officers, in order to provide such justifications, designed a formula, and from that time this device was also used for developing, presenting, or analyzing institutions' budget.
The formula approach to budgeting, and other systematic procedures formula-like, were developed first during the years 1948-1954 in six states: Indiana, California, Oklahoma, Texas, New Mexico, and Kentucky (28, p. 13). Some of these states used the name "formula" for their budgeting procedures, and others which were using "formula-like" procedure used different names. Gradually, other states joined the above six states and used formulas, or formula-like, funding process (28, p. 13). According to Gross, in 1973 twenty-five states used some type of statewide funding formula as a part of the higher education budget process (16, p. 86).

The formula procedure for funding higher education, according to Temple and Riggs, typically consists of eight broad categories of expenditures: (1) instruction and academic support; (2) institutional support; (3) student services; (4) maintenance and operation; (5) research; (6) public services; (7) staff benefits; (8) student aid (44, p. 353). When the formula funding is implemented, each of the above categories, with the exception of student aid, totally or partially is funded by "a formula process." By this process, according to Temple and Riggs, funds generated within the functional categories of expenditure were based on standard unit costs and were developed for instructional cost per student credit hour by discipline and by level of
instruction. Other unit costs which typically were used in the process of funding formula, included physical plant maintenance cost per assignable square foot of space, cost per continuing education unit (CEU), cost per library volume added, and so forth. Then the institution's total budget will be the aggregation of these various functional sub-formulas (44, p. 353).

According to Miller, in higher education, because of diversity of programs and activities, separate formulas are used for, say, instruction, libraries, and building maintenance. In some states, a separate "formula" was developed for each of colleges and universities' programs or activities independently, and the aggregation of these separate formulas referred to as a series of "formulas." In other states, where devices covering several activities were developed simultaneously, the total package often was referred to as a "formula" consisting of a series of "activity breakdowns," or "factors," or "subformulas" (28, p. 37).

The formula approach has also some advantages. According to Miller, by using this technique an accurate comparison of the institutions, and of programs and activities within the institutions, will be greatly facilitated. This process of funding brings an acceptable degree of equity among the institutions (28, p. 152). Miller further cites
that the administrators of most colleges and universities and also the state officials are in agreement that this process of funding brings a more adequate level of support for all the institutions using formulas. This approach in higher education highlights the important policy questions which should be considered by those whose job is to make educational and financial policy, and because this procedure is systematic and orderly, it helps to provide greater assurances that institutions will operate more economically and efficiently. This technique also is useful in making or keeping the process of state budget preparation more manageable (28, pp. 151-155). According to Halstread, 1974, "Formulas have achieved acceptability among users who appreciate equitable treatment based on sound rationale" (19, p. 663).

In the formula approach, as mentioned earlier, excluding the maintenance and operation research, student enrollment is directly or indirectly most responsible for appropriation of state funds (44, p. 353). This creates one of the most important problem for implementing this approach: enrollment in the institutions of higher education are not always increasing trends. If the trend of the enrollment is increasing, that means more funds for the institution; conversely, for those institution whose enrollment is decreasing, the appropriation also is decreasing.
If the enrollment in an institution is fluctuated, this fluctuation not only affects the planning process, but also jeopardizes programs until definite student population trends are established (44, p. 354).

Temple and Riggs also state some limitations of this budgeting. They argue that, by using formula funding, because rates are absolutely tied to the historical expenditures an institution which has a unique mission, or participates in a minor way, such as offering some courses within the same discipline, but not offering a degree, the formula likely will generate fewer dollars per credit hour than in a degree offering institution. This fact will result in lower average cost than in the primary institution, and according to Temple and Riggs, such a phenomenon will likely open the doors to undesirable political activity which may generate additional inequities in an "already tenuous formula structure" (44, p. 354). The other negative aspect of formula funding is that this approach of budgeting guarantees the continuation of lower per-student allocation of funds by basing the rate of future expenditures on the historical averages. According to Temple and Riggs, it is obvious that some institutions can deliver some services at a lower cost than can others. If allocated monies are tied to the historical averages of all institutions in a state, then those programs which are necessarily more expensive at some
institutions will suffer loss of resources, and this loss of resources will lower the average, thus producing further reduction in useable funds, and continued detrimental changes in the programs (44, p. 354). Thus historical averages which are used in the formula budgeting create numbers of problems. These problems also became more rigid because formula traditionally has not been fully funded due to the institutional limited budget. Lack of fully funding, when combined with the use of historical averages, will further lower mean cost and mediocrity is sure to prevail over high quality and diversity (44, p. 354). According to Miller, this approach cannot make policy; it only can facilitate the analysis which should precede policy making and then facilitate the translation of a policy decision into specific dollars and cents budget terms (28, p. 155). Formula also involves the projection, rather than the prediction, of budgetary requirements. This technique must only be used with clear understanding that it is for budget preparation purposes only, and the institution will not be required to adhere to it in detail when they prepare and execute their actual operating budgets (28, pp. 155-159).

None of the above limitations of formula budgeting are inherent zero-based budgeting, and can be solved if this new approach is used, because in the technique of zero-based budgeting all the programs and activities should be justified
from zero base; there will be no problem of historical averages. Formula approach to budgeting, to its proponents, attempts to achieve equality of funding for institutions of higher education, encourages standardization, and discourage diversities (6, p. 18). But diversity in the postsecondary education, because of different objectives among the institutions of higher education, is valued, and this diversity requires different budget procedures and process. Formula budgeting may create budgeting incentives that cause institutions of higher education to act counter to their mission (30, p. 18).

Planning, Programming, Budgeting System (PPBS)

The impact of World War II was also the primary reason for the development of the planning, programming, and budgeting system (PPBS) (2, p. 6). After World War II, the activities of the business and industry and governmental agencies increased, and the managers of these organizations sought some means and new techniques for optimizing the utilization of their limited financial resources. Because of this during the years 1947-1949, the Hoover Commission advocated "establishing budget on a program basis instead of the traditional object-of-expenditure classifications" (6, p. 6). During 1953 and 1955 the Hoover Commission added the recommendation that the budget be made in terms of long-term
"full costs" rather than simply in terms of new single-year appropriations alone (5, pp. 15-16). The above two Hoover Commission recommendations were the most influential elements of the adoption of the concept of planning, program- ming budgeting system for managements, and budgeting by Federal government (2, p. 21). These two recommendations placed the administrators of the organizations on notice that they needed improved budgeting practices for their organizations (2, p. 21).

In the private sector, the concept of PPBS was first developed by Hitch, of the Rand Corporation (in 1948), (2, p. 21). Hitch, in 1961, became the assistant Secretary of Defense under Robert McNamara and stayed in that post for four years. During those years he installed the concept of program budgeting in the Defense Department (2, p. 21). The technique reached its high visibility during the Presidency of Lyndon Johnson, and in 1965 President Johnson announced the implementation of this technique throughout the vast Federal Government and along the lines which followed by the Defense Department (16, p. 114). Since it became a management tool in varying applications, it has been simultaneously praised for its successes by its defenders and condemned in areas by its opponents, throughout the literature.
Planning, programming, and budgeting, often referred to in the literature simply as program budgeting (32, p. 36), has been defined and described by Snyder as

a system of management which incorporates the technique of program budgeting and system analysis. It is aimed at measuring organizational "outputs" and defining the interrelationships among the elements of the organization. Its primary aim is to improve management through the refinement of the planning and control processes (39, p. 8).

Babunakis defined PPBS as "a systematic method of linking long-range planning with yearly budgeting and evaluation" (2, p. 11). Charles M. Temple and Robert O. Riggs defined program budgeting as "a planning device that ultimately leads to a conventional, departmental budget for operations and control" (44, p. 355).

Howard relates the process of planning, programming and budgeting system to three factors: (1) a desired outcome (planning), (2) the structuring of methods of achieving the outcome (programming), (3) and the funds available to accomplish the end result (budgeting) (23, p. 5). Schultze, former Director of the United States Bureau of the Budget, in 1968 announced six goals of program budgeting in the governmental agencies: (1) identification and examination of goals and objectives in each governmental activity; (2) analyzing the output of a given program in terms of its objectives, (3) determining and measuring the total program cost for several years; (4) formation of objectives and
programs extending beyond the single year of the annual budget to long-term objectives; (5) analyzing the most efficient alternatives with least cost for reaching the programs, and (6) establishment of analytic procedures to serve as a systematic part of the budget review process (37, p. 20).

According to Temple and Riggs, PPBS is designed for long-range planning and budgeting, its approach covers not only one year of the organization's operation but also multi-year periods, and it establishes and clarifies the resource requirements of these program decisions in terms of anticipated benefits (44, p. 355). As Babunakis cites, this technique increases the system information available for making decisions (2, p. 11).

Application of PPBS in the area of institutions of higher education, according to Perlman, focuses on the outcomes or product and the related costs. So in the colleges and universities, this technique is used to determine the per-degree cost of each program or "major" in which a degree is awarded (32, p. 37). In order to determine the direct program cost, the direct program costs are arrived at simply by determining the cost of credit hours produced by the various instructional department for each degree program (32, p. 37). PPBS, in this area, focuses on the ingredients and associated costs of instructional programs which leads to
the questions about the quality or "output" of the programs in relation to their costs, and such questions constitute the cost-benefit analysis or "output accounting" (32, p. 36).

Temple and Riggs believe that the technique of program budgeting cuts across conventional department lines and measures the performance of a program in terms of its output. In this manner, program elements that are possible substitutes for others may receive full consideration. Thus, program budgeting introduces a degree of competition designed to achieve greater effectiveness. This is the cost-benefit/cost-effectiveness as employed in program budgeting (44, p. 355).

Green, Nayyar, and Ruch in "Strategic Planning and Budgeting for Higher Education," 1979, believe that PPBS also aims at improving resource allocation in the situation in which an organization confronts competing objectives and has only limited resources (14, p. 25).

In the relation of PPBS and zero-based budgeting, according to Suver and Brown, the technique of zero-based budgeting has many similarities to planning, programming and budgeting system, because both systems are based on analyzing the input and output for specific programs (43, p. 81). Schultze, also states that, "PPBS is, in theory, zero-base oriented" (37, p. 79). According to him, this technique of budgeting, unlike to incremental budgeting, does not accept the prior year's budget as the starting point. This system
evaluate, the organization's programs or activities, and also searches for more effective program alternatives (37, p. 79). Schultze further notices that the process of program budgeting does not imply that every aspect of every programs should be reviewed from ground up each year as in the process of zero-based budgeting. Rather, in the technique of program budgeting, a basic program analysis, once completed, does not have to be repeated every budget cycle (37, p. 80).

In comparison of zero-based budgeting and PPBS, according to Minmier, the time factor is found to be the primary difference between these two systems. As Green, Nayyar, and Ruch mentioned, the "multi-year dimension" of PPBS is one of the important features of the system of program budgeting (14, p. 25). Under this system of budgeting, costs and benefits are extended several years into the future, thereby pointing at the long-range implications of any program (14, p. 25). According to Howard, ZBB, unlike PPBS, basically is a short-run budgeting technique. This budgeting system is a tool to assist in budget formation, and it is independent from the formation of the budgetary plan. But once a plan is adopted, it can be employed in the implementation phase of the budget cycle (23, p. 31).

Minmier also believes that PPBS is a system of long-range budgetary management which is predicated on the
"dominance of the planning function" (29, p. 31). So according to him, this system of budgeting does not specify a particular technique or process to be employed within the system. Rather, this system creates an environment wherein different techniques can be used (29, p. 3).

Poll, in *Zero-Base Budgeting: Its Implications For Education*, argues that this technique of budgeting is not a close relative of PPBS and also is not simply a derivative of PPBS (33, p. 86). But Pyhrr argues that zero-based budgeting and planning, programming and budgeting are compatible (34, p. 95). He believes that there are some weaknesses in the technique of PPBS which are not in zero-based budgeting. Pyhrr further argues that the process of zero-based budgeting reinforces PPB (34, p. 149). According to him, in the process of program budgeting, the focus is on what will be done, but not on how to do it. In PPBS, budgeting is a cost calculation which is based on the decision made in the planning and programming steps, whereas there are in reality many policy decisions and alternatives to be evaluated during the actual budget preparation. PPBS, unlike ZBB, also does not provide a mechanism "to evaluate the impact of various funding levels on each program and program element, or establish priorities among the programs and varying levels of program effort" (34, p. 149). Finally, according to Pyhrr, the other differences between PPB and
ZZB are that, "PPBS focuses primarily on new programs or major increases in ongoing program activities and operation (34, p. 149). The above, according to Pyhrr, are the five limitations of PPBS not inherent in zero-based budgeting, and because of that ZBB has distinct advantage.

Another difference between PPBS and zero-based budgeting is the process of preparing the budget. In zero-based budgeting, because of the component of decision packages which it is the function of the "line-manager" to prepare and then these packages eventually acted upon the organization's top management for the final decision-making, so its technique requires that the organization's budget be developed from the "roots," but, in the process of PPBS, the formation of the budget unlike the ZBB, starts from the top down (8, p. 107). In this manner it is argued that, because of this nature of ZBB, if implemented in an organization, the staff requirement are not overloaded at the top and the bulk of the work is done "down in the pits" (8, p. 107), and the system of zero-based budgeting "shies away from the very special staff of experts" (8, p. 107). According to Pyhrr himself, the ZBB requires only a small number of personnel for its administration (34, p. 187).

The opponents of PPBS believe that PPBS had difficulty over the years. As Suver and Brown argued, one area of the difficulty is that the output measurements in terms of
achievements were either lacking, too subjective, or too argumentative. They then concluded that ZBB, also because of the above reasons, will have the same difficulty as PPBS has (43, p. 80).

As Harvey argues, in the area of higher education PPB has not been very successful. In the case of federal agencies, it also was not successful. Its being unsuccessful resulted from the fact that the agencies and situations to which it was applied differed widely (20, p. 2). Colleges and universities have diversity of purpose and components (2, p. 8) so in them even with the very fine efforts of the National Center for Higher Education Management Systems (NCHEMS) for developing a system of PPB most suited for to them, because of such great diversity among them the technique of PPBS has not proved to be successful (20, p. 2). O'Neil, Merrimack and Manceri argue that ZBB, unlike the PPBS, will be more successful in such institutions because this system of budgeting proved its success in the budgeting for the so-called soft areas of service and support activities, and because institutions of higher education are primarily service organizations, so ZBB will be more successful in this area although they do have diversities in their nature and purposes (31).

As a final note on PPBS and ZBB, it should be mentioned that according to Peter Pyhrr, "a marriage of the two
systems strengthens both, and PPB and ZBB can be merged into a coordinated process by changing the concept of budgeting in PPB into zero-based budgeting" (34, p. 152).
CHAPTER BIBLIOGRAPHY


29. Minmier, George S., An Evaluation of Zero-Base Budgeting System in Governmental Institutions, Research monograph no. 68, Atlanta: Georgia State University School of Business Administration, 1976.


40. Southern Methodist University Institute of Technology, SMU Institute of Technology 1973 Annual Report, Dallas, Texas, Southern Methodist University, 1970.


CHAPTER IV

PROCEDURES FOR COLLECTION AND TREATMENT OF DATA

It is the purpose of this chapter to describe the procedures followed in this study. This chapter is divided into three sections: population and sample of the study; development of survey instrument; presentation of the data.

Population and Sample

Because of the proposal of this study which was to examine the status of zero-based budgeting in the institutions of higher education in the United States, the total population of this study was all American institutions of higher education in the forty-eight contiguous states and legally authorized to offer and offering at least a one-year program of college-level studies toward a degree.

The total population of this study, according to 1978-79 Education Directory, College & Universities published by National Center for Education Statistics, was 3,152 institutions, of which 1,450 were publicly controlled and 1,689 privately controlled. The directory above divided all the public institutions of higher education, according to their affiliation, into five different categories: Federal,
State, Local, State and Local, and State related. All private institutions were also divided according to their affiliation: independent non-profit, profitmaking, and religious groups such as Protestant, Roman Catholic, Jewish.

For this study, two major groups of institutions of higher education in the United States were: Public institutions and Private institutions, as in accordance with the above directory. A computer tape of the above directory, which was processed by National Center for Educational Statistics, 400 Maryland Avenue, SW, Washington, D.C., was obtained by the North Texas State University, and a printout from that tape which divided the total population into public and private institutions was provided by North Texas State University Computer Center. In the printout all institutions of higher education in each major group were listed separately, with respect to their 1978-79 number of student enrollment, from the lowest to the highest. From the printout 3,089 institutions of higher education (1,426 public and 1,663 private) were selected as the total population of this study.

From the group of public institutions, 140 institutions were selected systematically. Then from the group of private institutions 166 institutions were selected systematically. The public institutions were further reduced in number by discarding forty institutions at random. The
private institutions were reduced in number by discarding sixty-six institutions at random. This procedure resulted in providing one hundred institutions in each group. Therefore 100 (7 percent) of the public institutions and 100 (6 percent) of the private institutions were selected as sample from the total population.

It was intended that chief financial officers in selected institutions would be main respondents to the questionnaire. The title of chief financial officers varied from institution to institution. Some were vice-presidents for financial affairs, some vice-presidents for fiscal affairs, business managers, and so on. Regardless of title, the persons responsible in the financial affairs of these colleges and universities were the respondents to the questionnaire and will hereafter be called "financial officers."

Each selected financial officer was mailed a survey instrument, with cover letter and a self-addressed and stamped envelope, in mid-November 1980. By December 1980, a total of seventy-two responses were returned. Mailing the questionnaire at that time had some disadvantages because of the Thanksgiving Holiday and because it was close to the end of fall semester of most institutions. A follow-up letter, with a copy of questionnaire and a self-stamped and addressed envelope, was then mailed on December 11, 1980 to
all financial officers who had not responded to the first survey instrument. By February 15, 1981, eighty-three more responses were returned. The total number and the percentages of the responses in each group were eighty-one (81 percent) for public institutions and seventy-four (74 percent) for private institutions.

Out of total responses, nineteen (four in public institutions and fifteen in private institutions) were not usable for the study. The total useable responses for public institutions were seventy-seven, and for private institutions were fifty-nine, which for each group were more than 50 percent acceptable for this study.

Development of Survey Instrument

A careful review of the available literature about zero-based budgeting in the area of higher education was made to provide information for developing a questionnaire. The questionnaire was then constructed on the basis of the information which was necessary to study the status of zero-based budgeting and the arguments for and against this system in business and industry, governmental agencies, and the institutions of higher education.

The questionnaire was divided into three different sections. The first section is "general information" about the institution: affiliation, size (student enrollment), amount of their budget, kind or kinds of budgeting system in the
past and present and budgeting systems to be used in the future if they were to change their current budgeting system or systems in the near future. This section of the questionnaire was designed to secure information about the institutions under study, institutions' financial officers, about the institutions' budgeting systems, and officers' knowledge about both the concept and technique of ZBB. This section of the questionnaire contains nineteen items.

The second section of the questionnaire contains thirty items designed to secure information about the institutions' financial officers' perceptions of ZBB in general. The responses were to statements to which the respondents would indicate degree of agreement, their uncertainty, or their disagreement on a scale from one to five:

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<th>Scale</th>
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<td>Strongly agree</td>
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<td>Agree</td>
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<tr>
<td>Uncertain</td>
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<td>Disagree</td>
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<td>Strongly disagree</td>
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The third section of the questionnaire was also designed to secure information about the perception of the institutions' financial officers about zero-based budgeting in comparison to the institutions' then current budgeting systems, and the overall evaluation of the effect of the implementation of ZBB in the institutions. This section of the questionnaire, which is also the last part, contains six items.
The next step was to develop the final format of the survey instrument. The preliminary questionnaire was submitted to a panel of authorities, with expertise in the area of higher educational institution budgeting, for a professional analysis and evaluation. The panel consisted of five judges selected from among administrators and professors at North Texas State University. Two of the members were graduate professors in the Accounting, and the other three consisted of the Director of the Division of Administration and Administrative Studies, Director of the Division of Educational and Social Foundations, and Director for Center for Higher Education.

A copy of the questionnaire provided space for validation and comments and an instructional letter submitted to each member of the panel, and each was asked to examine the content of the questionnaire and to prioritize items in terms of appropriateness to the study's purposes. A rating scale of one (highly related) to five (uncertain) was provided for each item of the questionnaire:

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<td>Highly related</td>
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<td>Related</td>
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<td>Not very related</td>
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<td>Uncertain</td>
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As a result of responses, a few changes, mostly editorial, were made. It was decided to accept those items bearing an average rating of 1, 2, or 3. Only one item of the
questionnaire was omitted from the final format of the questionnaire. According to the panel's comments and recommendation, the final format of the questionnaire was established (appendix A).

Presentation of the Data

Each returned questionnaire was carefully reviewed and manually was recorded on the data-collection sheets for computer processing. Questionnaires were divided into three categories: (a) according to institution type (public or private), (b) size of the institution according to FTE student enrollment as small or large, and (c) the amount of their budget as low-budget group, lower-middle budget group, upper-middle budget group, and high budget group.

As mentioned earlier, institutions were divided into two major groups or types as public and private institutions. Public institutions were those institutions which, according to the 1978-79 Education Directory, Colleges & Universities published by National Center for Educational Statistics, were those that are Federal, State, Local, State and Local, and State-related institutions. Private institutions were, also according to the above directory, those institutions which are independent non-profit, profitmaking, or of religious groups such as Protestant, Roman Catholic, and Jewish.
Participating institutions in each group were also subgrouped arbitrarily according to their size by their 1979 FTE student enrollment as "small" and "large" institutions. Small institutions were those institutions which at the time of study had less than 7,000 FTE student enrollment. Large institutions were those which at the time of study had more than 7,000 FTE student enrollment. The number of institutions according to their type and size are shown in table I.

**TABLE I**

NUMBER OF PARTICIPATING INSTITUTIONS ALL BY TYPE AND SIZE

<table>
<thead>
<tr>
<th>Type/Size</th>
<th>Small</th>
<th></th>
<th>Large</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Public</td>
<td>50</td>
<td>37%</td>
<td>27</td>
<td>20%</td>
<td>77</td>
<td>57%</td>
</tr>
<tr>
<td>Private</td>
<td>46</td>
<td>34%</td>
<td>13</td>
<td>9%</td>
<td>59</td>
<td>43%</td>
</tr>
<tr>
<td>Total</td>
<td>96</td>
<td>71%</td>
<td>40</td>
<td>29%</td>
<td>136</td>
<td>100%</td>
</tr>
</tbody>
</table>

As can be seen in table I, out of 136 respondents 50 (37 percent) were small public, 27 (20 percent) were large public, 46 (34 percent) were small private, and 13 (10 percent) were large private institutions.
Each group of institutions also was sub-grouped arbitrarily according to their 1979-80 amount budget. Institutions budgets were grouped into four budget groups. Those institutions which received less than $5 million budget are called "low-budget" group, those which received more than $5 million but less than $15 million budget are called "lower-middle budget" group, those which received more than $15 million but less than $60 million budget are called "upper-middle budget" group, and those which received more than $60 million budget are called "high budget" group institutions. The number and the percentage of the institutions in each major group, according to their amount of their budget, are as follows:

TABLE II

NUMBER OF PARTICIPATING INSTITUTIONS
ALL BY TYPE AND BUDGET

<table>
<thead>
<tr>
<th>Type/budget</th>
<th>lower</th>
<th>upper</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>no.</td>
<td>%</td>
<td>no.</td>
</tr>
<tr>
<td>Public</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>12%</td>
<td>21</td>
</tr>
<tr>
<td>Private</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>14%</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>26%</td>
<td>31</td>
</tr>
</tbody>
</table>
As can be seen in table above, of 136 responses, 16 (12 percent) were public institutions in low-budget group, 21 (15 percent) were in lower-middle budget group, 20 (15 percent) were in upper-middle budget group, and 20 (15 percent) were in high budget group. Also of the total responses, 19 (14 percent) were private institutions in low budget group, 10 (7 percent) were in low-middle budget group, 20 (15 percent) were in upper-middle budget group, and 10 (7 percent) were in high budget group.

In general, 35 (26 percent) of all institutions were in low budget group, 31 (22 percent) were in lower-middle budget group, 40 (30 percent) were in upper-middle budget group, and 30 (22 percent) were in high budget group institutions.

Procedures for Analyzing Data

The data collected from returned questionnaires, by the use of computer were reported in descriptive forms, along with related tables and figures. For those questions which were on a scale of one-to-five, the responses were analyzed, and a mean for each item was calculated in order to find the degree of their overall agreement/disagreement about each item.
CHAPTER V

PRESENTATION AND ANALYSIS OF FINDINGS

It is the purpose of this chapter to present and analyze data received from the respondents who returned the questionnaires used in this study. Throughout this dissertation, wherever data secured came from self reporting by respondents, the expression "were knowledgeable," "were more knowledgeable," or similar expressions can only properly be understood to mean "believed themselves to be knowledgeable," and so forth.

Also, in order to avoid use of the word "tendency" and thus to avoid unnecessary summary statement, the .5 point between any two categories is used as the break point for categorization. Any mean with a decimal of less than .5 will be expressed in terms of the next lower categorization. Example: 1.4, 1.3, 1.2 would be taken as 1.0 for summary purposes. Any mean with a decimal of .5 or greater will be expressed in terms of the next higher categorization. Example: 1.5, 1.6, 1.7 would be taken as 2.0 for summary purposes. All means have been rounded off to the nearest tenth.

"Upper two levels" means categories 1 and 2 on the scales.
This chapter is divided into three parts: (1) knowledge of ZBB, (2) ZBB and other systems, and (3) perception of ZBB.

Knowledge of Zero-Based Budgeting

The data presented and analyzed here are for research question #1.

Research question 1: To what extent are the chief financial administrators of the selected institutions familiar with the general concept and technique of zero-based budgeting?

This research question intended to examine the degree of knowledgeable ability of the financial officers about the concept and technique of ZBB according to their own best judgment. This research question is divided into two sections: (1) the general concept of ZBB (Item #18); (2) the technique of ZBB (Item #19). The possible responses were

1. VK (very knowledgeable)
2. MK (moderately knowledgeable)
3. K (knowledgeable)
4. NVK (not very knowledgeable)
5. NK (not knowledgeable at all)
General Concept (Tables III-V)

Public Institutions, N=77.—Of the 76 respondents, 19 (25 percent) were VK, 29 (38 percent) were MK, 23 (30 percent) were K. Thus 71 (93 percent) were knowledgeable to some degree with 48 (63 percent) in the upper two levels. Only 5 (7 percent) were not knowledgeable. Statistical mean for this group is 2.2 (MK).

Private Institutions, N=59.—Of 59 respondents, 12 (20 percent) were VK, 18 (30 percent) were MK, 11 (19 percent) were K. Thus 41 (69 percent) were knowledgeable to some degree with 30 (51 percent) in upper two levels. Thus also, 18 (31 percent) were not knowledgeable. Statistical mean for this group is 2.7 (K).

All Institutions, N=136.—Of 135 respondents, 31 (23 percent) were VK, 47 (35 percent) were MK, 34 (25 percent) were K. Thus 112 (83 percent) were knowledgeable to some degree with 78 (58 percent) in upper two levels. Thus also, 23 (17 percent) were not knowledgeable. Statistical mean for all institutions is 2.4 (MK).

Comparison, Public versus Private Institutions.—Public institution officers were more knowledgeable about the concept of ZBB than were private institution officers. The figures are 71 (93 percent) knowledgeable to some degree
### TABLE III

GENERAL CONCEPT OF ZBB
ALL INSTITUTIONS BY TYPE

<table>
<thead>
<tr>
<th>Institutions' Type</th>
<th>VK</th>
<th>MK</th>
<th>K</th>
<th>NVK</th>
<th>NKA*</th>
<th>Total</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Public</td>
<td>19</td>
<td>25%</td>
<td>29</td>
<td>38%</td>
<td>23</td>
<td>30%</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3%</td>
<td>2</td>
<td>3%</td>
<td>76</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>12</td>
<td>20%</td>
<td>18</td>
<td>30%</td>
<td>11</td>
<td>19%</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>14%</td>
<td>59</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>All</td>
<td>31</td>
<td>23%</td>
<td>47</td>
<td>35%</td>
<td>35</td>
<td>25%</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>7%</td>
<td>135</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*"VK"--very knowledgeable, "MK"--moderately knowledgeable, "K"--knowledgeable, "NVK"--not very knowledgeable, "NKA"--not knowledgeable at all.*
with 2.2 statistical mean for public institutions and 41 (69 percent) knowledgeable to some degree with 2.7 statistical mean for private institutions' officer. For the upper two levels, the figures are 48 (63 percent) and 30 (51 percent) for public and private institutions respectively.

Small Public Institutions, (0-6,99 SE), N=50).—Of 49 respondents, 11 (22 percent) were VK, 19 (39 percent) were MK, 14 (29 percent) were K. Thus 44 (90 percent) were knowledgeable to some degree, with 30 (61 percent) in the upper two levels. Only 5 (10 percent) were not knowledgeable. Statistical mean for this group is 2.3 (MK).

Large Public Institutions, (7,000-Over SE), N=27.--Of 27 respondents, 8 (30 percent) were VK, 10 (37 percent) were MK, 9 (33 percent) were K. Thus, 27 (100 percent) were knowledgeable to some degree with 18 (67 percent) in upper two levels. Statistical mean for this group is 2.0 (MK).

Comparison, Small versus Large Public Institutions.—All 27 (100 percent) officers of large public institutions were knowledgeable about the general concept of ZBB, and 44 (90 percent) of the officers of small public institutions were knowledgeable. Statistical mean for small public is 2.3 (MK) while for large public it is 2.0 (MK). For the
### TABLE IV

**GENERAL CONCEPT OF ZBB**

**ALL INSTITUTIONS BY TYPE AND SIZE**

<table>
<thead>
<tr>
<th>Size/Type</th>
<th>VK</th>
<th>MK</th>
<th>K</th>
<th>NVK</th>
<th>NKA*</th>
<th>Total</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Public:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>11</td>
<td>22%</td>
<td>19</td>
<td>39%</td>
<td>14</td>
<td>29%</td>
<td>3</td>
</tr>
<tr>
<td>Large**</td>
<td>8</td>
<td>30%</td>
<td>30</td>
<td>71%</td>
<td>9</td>
<td>18%</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>25%</td>
<td>29</td>
<td>38%</td>
<td>33</td>
<td>37%</td>
<td>3</td>
</tr>
<tr>
<td>Private:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>7</td>
<td>15%</td>
<td>15</td>
<td>33%</td>
<td>6</td>
<td>13%</td>
<td>10</td>
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<tr>
<td>Large</td>
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<td>39%</td>
<td>23</td>
<td>63%</td>
<td>5</td>
<td>38%</td>
<td>0</td>
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<td>Total</td>
<td>12</td>
<td>20%</td>
<td>38</td>
<td>60%</td>
<td>11</td>
<td>19%</td>
<td>10</td>
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<tr>
<td>All Institutions:</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>18</td>
<td>19%</td>
<td>34</td>
<td>36%</td>
<td>20</td>
<td>21%</td>
<td>13</td>
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<td>Large</td>
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<td>33%</td>
<td>32</td>
<td>31%</td>
<td>14</td>
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<tr>
<td>Total</td>
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<td>23%</td>
<td>47</td>
<td>35%</td>
<td>34</td>
<td>25%</td>
<td>13</td>
</tr>
</tbody>
</table>

Statistical mean: (1-5). The smaller in the mean more knowledgeable.

**"VK"—very knowledgeable, "MK"—moderately knowledgeable, "K"—knowledgeable, "NVK"—not very knowledgeable, "NKA"—not knowledgeable at all.**

**Student enrollment categories are: Small = 0-6,999 FTE student enrollment, Large = 7,000-over FTE student enrollment.**
upper two levels the figures for small and large public institutions are 30 (61 percent) and 18 (67 percent) respectively.

**Small Private Institutions, (0–6,999 SE), N=46.**—Of 46 respondents, 7 (15 percent) were VK, 15 (33 percent) were MK, 6 (13 percent) were K. Thus 28 (61 percent) were knowledgeable to some degree with 22 (48 percent) in upper two levels. Thus also, 18 (39 percent) were not knowledgeable. Statistical mean for this group is 2.9 (K).

**Large Private Institutions, (7,000–Over SE), N=13.**—Of 13 respondents, 5 (39 percent) were VK, 3 (23 percent) MK, 5 (38 percent) K. Thus, all 13 (100 percent) were knowledgeable to some degree with 8 (62 percent) in upper two levels. Statistical mean for this group is 2.0 (MK).

**Comparison, Small versus Large Private Institutions.**—All 13 (100 percent) officers of large private institutions and 28 (61 percent) of small private institutions were knowledgeable to some degree about the concept of ZBB. Statistical mean for small private is 2.9 (K) and for large private is 2.0 (MK). For the upper two levels, the figures for small and large private institutions are 22 (48 percent) and 8 (62 percent) respectively.
All Small Institutions, (0-6,999 SE), N=96.--Of 95 respondents, 18 (19 percent) were VK, 34 (36 percent) were MK, 20 (21 percent) were K. Thus, 72 (76 percent) were knowledgeable to some degree with 52 (55 percent) in the upper two levels. Thus, also, 23 (24 percent) were not knowledgeable. Statistical mean for this group is 2.6 (K).

All Large Institutions, (7,000-Over SE), N=40.--Of 40 respondents, 13 (33 percent) were VK, 13 (32 percent) were MK, 14 (35 percent) were K. Thus, all 40 (100 percent) were knowledgeable to some degree with 26 (65 percent) in the upper two levels. Statistical mean for this group is 2.0 (MK).

Comparison, Small versus Large Institutions.--All 40 (100 percent) of the large institutions' officers and 72 (76 percent) of small institutions officers were knowledgeable to some degree about the concept of ZBB. Officers of large institutions, with statistical mean of 2.0 (MK), were more knowledgeable about the concept of ZBB than were officers of small institutions with 2.6 (K) statistical mean. If only the upper two levels are considered, the figures for small institutions are 52 (55 percent), and for large institutions 26 (65 percent).

Comparison, Small Public versus Small Private Institutions.--Officers of small public institutions were more
knowledgeable about the concept of ZBB than were officers of small private institutions. Forty-four (90 percent) of the officers of small public institutions (2.3 mean) were moderately knowledgeable about the concept of ZBB, while 28 (61 percent) officers of small private institutions (2.9 statistical mean) were knowledgeable. For the upper two levels, the figures for small public are 30 (61 percent), and for small private 22 (48 percent).

Comparison, Large Public versus Large Private Institutions.—Both officers of large public 27 (100 percent) and of large private 13 (100 percent) were knowledgeable about the concept of ZBB. Statistical mean for officers of large public is 2.0 (MK) and for large private institutions 2.0 (MK). For the upper two levels the figures for large public are 18 (67 percent), and for large private 8 (62 percent).

Public Institutions, Low Budget Group (0-$5m), N=16.—Of 15 respondents, 2 (13 percent) were VK, 5 (33 percent) were MK, 6 (40 percent) were K. Thus, 13 (87 percent) were knowledgeable to some degree with 7 (47 percent) in upper two levels. Only 2 (13 percent) were not knowledgeable. Statistical mean for this group is 2.6 (K).

Public Institutions, Lower-Middle Budget Group, ($5-$15m), N=21.—Of 21 respondents, 6 (28 percent) were
<table>
<thead>
<tr>
<th>Type &amp; Budget</th>
<th>VR</th>
<th>MK</th>
<th>K</th>
<th>NVK</th>
<th>HKA</th>
<th>Total</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low budget</td>
<td>2</td>
<td>13</td>
<td>5</td>
<td>33</td>
<td>6</td>
<td>40</td>
<td>1</td>
</tr>
<tr>
<td>Lower-middle</td>
<td>6</td>
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<td>7</td>
<td>35</td>
<td>8</td>
<td>40</td>
<td>5</td>
<td>23</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>25</td>
<td>29</td>
<td>38</td>
<td>23</td>
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<td>3</td>
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<td>Private</td>
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<tr>
<td>Low budget</td>
<td>3</td>
<td>15</td>
<td>4</td>
<td>21</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Lower-middle</td>
<td>2</td>
<td>20</td>
<td>1</td>
<td>10</td>
<td>4</td>
<td>40</td>
<td>2</td>
</tr>
<tr>
<td>Upper-middle</td>
<td>2</td>
<td>10</td>
<td>11</td>
<td>55</td>
<td>4</td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>High budget</td>
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<td>2</td>
<td>20</td>
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<td>10</td>
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<tr>
<td>Low budget</td>
<td>5</td>
<td>15</td>
<td>9</td>
<td>26</td>
<td>6</td>
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<td>3</td>
</tr>
<tr>
<td>Upper-middle</td>
<td>6</td>
<td>15</td>
<td>19</td>
<td>48</td>
<td>11</td>
<td>27</td>
<td>3</td>
</tr>
<tr>
<td>High budget</td>
<td>12</td>
<td>40</td>
<td>10</td>
<td>33</td>
<td>8</td>
<td>27</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>31</td>
<td>43</td>
<td>47</td>
<td>75</td>
<td>34</td>
<td>54</td>
<td>13</td>
</tr>
</tbody>
</table>

Statistical mean: (1-5). The smaller the mean = more knowledgeable.

**VR**—very knowledgeable; **MK**—moderately knowledgeable; **K**—knowledgeable; **NVK**—not very knowledgeable; **HKA**—not knowledgeable at all.

**Institutions**' budget categories are: Low budget=(0-$5 million budget), Lower-middle=($5-$15 million budget), Upper-middle=($15-$60 million budget), High budget=($60 million and over budget).
VK, 8 (38 percent) were MK, 5 (24 percent) were K. Thus, 19 (90 percent) were knowledgeable to some degree, with 14 (67 percent) in upper two levels. Only 2 (10 percent) were not knowledgeable. Statistical mean for this group is 2.2 (MK).

**Public Institutions, Upper-Middle Budget Group, ($15-$60m), N=20.**—Of 20 respondents in this group, 4 (20 percent) were VK, 8 (40 percent) were MK, 7 (35 percent) were K. Thus, 19 (95 percent) were knowledgeable to some degree with 12 (60 percent) in upper two levels. Only 1 (15 percent) was not knowledgeable. Statistical mean for this group is 2.3 (MK).

**Public Institutions, High Budget Group, ($60m and over), N=20.**—Of 20 respondents, 7 (35 percent) were VK, 8 (40 percent) were MK, 5 (25 percent) were K. Thus, 20 (100 percent) were knowledgeable to some degree with 15 (75 percent) in upper two levels. Statistical mean for this group is 1.9 (MK).

**Comparison, Public Institutions by Budget.**—Thus, 13 (87 percent) of low-budget group, 19 (90 percent) of lower-middle budget group, 19 (95 percent) of upper-middle budget group, and 20 (100 percent) of high budget group were knowledgeable to some degree about concept of ZBB. For the upper two levels and statistical mean the figures are: 7 (47 percent) and 2.6 (K) for low-budget group, 14 (67 percent) and
2.1 (MK) for lower-middle budget group, 12 (60 percent) and 2.2 (MK) for upper-middle budget group, and 15 (75 percent) and 1.9 (K) for high-budget group. Except for the upper-middle budget group, officers of those public institutions which have a larger budget were more knowledgeable about the concept of ZBB than were officers of the institutions which have smaller budget believe themselves to be.

Private Institutions, Low Budget Group, (0-$5m), N=19. — Of 19 respondents in this group, 3 (15 percent) were VK, 4 (21 percent) were MK. None indicated K. Thus, 7 (37 percent) were knowledgeable to some degree at the upper two levels. Also, 12 (63 percent) were not knowledgeable. Statistical mean for this group is 3.4 (K).

Private Institutions, Lower-Middle Budget Group, ($5-$15m), N=10. — Of 10 respondents in this group, 2 (20 percent) were VK, 1 (10 percent) were MK, 4 (40 percent) were K. Thus, 7 (70 percent) were knowledgeable to some degree with 3 (30 percent) in upper two levels. Also, 3 (30 percent) were not knowledgeable. Statistical mean for this group is 2.9 (K).

Private Institutions, Upper-Middle Budget Group, ($15-$60m), N=20. — Of 20 respondents in this group, 2 (10 percent) were VK, 11 (55 percent) were MK, 4 (20 percent)
were K. Thus, 17 (85 percent) were knowledgeable to some degree with 13 (65 percent) in upper two levels. Also, 3 (15 percent) were not knowledgeable. Statistical mean for this group is 2.6 (K).

Private Institutions, High Budget Group, ($60m and over), N=10.--Of 10 respondents in this group, 5 (50 percent) were VK, 2 (20 percent) were MK, 3 (30 percent) were K. Thus, 10 (100 percent) were knowledgeable to some degree with 7 (70 percent) in upper two levels. Statistical mean for this group is 1.8 (MK).

Comparison, Private Institutions by Budget.--Thus, 7 (37 percent) of low-budget group, 7 (70 percent) of lower-middle budget group, 17 (85 percent) of upper-middle budget group, and 10 (100 percent) of high-budget group were knowledgeable to some degree about the concept of ZBB. For the upper two levels the figures are 7 (37 percent) and 3.4 (K) for low-budget group, 3 (30 percent) and 2.9 (K) for lower-middle budget group, 13 (65 percent) and 2.6 (K) for upper-middle budget group, and 7 (70 percent) and 1.8 (MK) for high budget group. Officers of those private institutions which receive more budget were more knowledgeable about the concept of ZBB than were officers of those private institutions which receive less budget.
Comparison, Public versus Private Institutions by Budget.—Public institution officers in different budget groups were more knowledgeable than were private institutions' officers. Statistical means for the groups for public institutions are: 2.6 (K), 2.2 (MK), 2.3 (MK), and 1.9 (MK) respectively, and for private institutions are 3.4 (K), 2.9 (K), 2.5 (K) and 1.8 (MK) respectively. The upper-budget group in private institutions were more knowledgeable than were officers in public institutions in that group: 1.8 (MK) to 2.6 (K).

All Institutions, Low Budget Group, (0-$5m), N=35.—Of 34 respondents in this group, 5 (15 percent) were VK, 9 (26 percent) were MK, 6 (17 percent) were K. Thus, 20 (59 percent) were knowledgeable to some degree, with 14 (41 percent) in upper two levels. Also, 14 (41 percent) were not knowledgeable. Statistical mean for this group is 3.0 (K).

All Institutions, Lower-Middle Budget Group, ($5m-$15m), N=31.—Of 31 respondents in this group, 8 (26 percent) were VK, 9 (29 percent) were MK, 9 (29 percent) were K. Thus, 26 (84 percent) were budgeting, with 17 (55 percent) in upper two levels. Thus also, 5 (16 percent) were not knowledgeable. Statistical mean for this group is 2.4 (MK).
All Institutions, Upper-Middle Budget Group, ($15-$60m), N=40.—Of 40 respondents, 6 (15 percent) were VK, 19 (48 percent) were MK, and 11 (27 percent) were K. Thus, 36 (90 percent) were knowledgeable to some degree, with 25 (63 percent) in upper two levels. Also, 4 (10 percent) were not knowledgeable. Statistical mean for this group is 2.4 (K).

All Institutions, High Budget Group, ($60m and over), N=30.—Of 30 respondents, 12 (40 percent) were VK, 10 (33 percent) were MK, 8 (27 percent) were K. Thus, 30 (100 percent) were knowledgeable to some degree, with 22 (73 percent) in upper two levels. Statistical mean for this group is 1.9 (MK).

Comparison, All Institutions by Budget.—Thus, 20 (59 percent) officers of low budget group, 26 (84 percent) of lower-middle budget group, 36 (90 percent) of upper-middle budget group, and 30 (100 percent) of high budget group were knowledgeable to some degree about the concept of ZBB. For the upper two levels the figures are 14 (41 percent) for low budget group, 17 (55 percent) for lower-middle budget group, 25 (63 percent) for upper-middle budget group, and 22 (73 percent) for high budget group. Statistical means for the groups are 3.1, 2.4, 2.4, and 1.9 respectively. Officers of
the institutions with the larger budget were more knowledgeable about the concept of ZBB than were officers of those institutions which have lesser budget.

Technique of ZBB (Tables VI-VIII)

Public Institutions, N=77.--Of 76 respondents in this group, 14 (18 percent) were VK, 26 (34 percent) were MK, 25 (33 percent) were K. Thus, 65 (86 percent) were knowledgeable to some degree, with 40 (53 percent) in upper two levels. Also, 11 (14 percent) were not knowledgeable. Statistical mean for this group is 2.5 (K).

Private Institutions, N=59.--Of 59 respondents in this group, 7 (12 percent) were VK, 16 (27 percent) were MK, 13 (22 percent) were K. Thus, 36 (61 percent) were knowledgeable to some degree, with 23 (39 percent) in upper two levels. Thus also, 23 (39 percent) were not knowledgeable. Statistical mean for this group is 3.2 (K).

All Institutions, N=136.--Of 135 respondents, 21 (16 percent) were VK, 42 (31 percent) were MK, 38 (28 percent) were K. Thus, 101 (75 percent) were knowledgeable to some degree, with 63 (47 percent) in upper two levels. Also, 34 (25 percent) were not knowledgeable. Statistical mean for this group is 2.8 (K).
TABLE VI

TECHNIQUE OF ZBB
ALL INSTITUTIONS BY TYPE

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Statistical mean: (1-5). The smaller in the mean more knowledgeable.

"VK"--very knowledgeable, "MK"--moderately knowledgeable, "K"--knowledgeable,
"NVK"--not very knowledgeable, "NKA"--not knowledgeable at all.
Comparison, Public versus Private Institutions.—

Public institutions' officers were more knowledgeable about the technique of ZBB than were private institutions' officers. The figures are 65 (86 percent) knowledgeable to some degree with 2.5 (K) statistical mean for public institutions and 36 (61 percent) knowledgeable to some degree with 3.2 (K) statistical mean for private institutions' officers. For the upper two levels, the figures are 40 (53 percent) and 23 (39 percent) for public and private institutions respectively. Mean for all institutions is 2.8 (K).

Small Public Institutions, (0-6,999 SE), N=50.—Of 49 respondents in this group, 7 (14 percent) were VK, 19 (39 percent) were MK, and 14 (29 percent) were K. Thus, 40 (82 percent) were knowledgeable to some degree, with 26 (53 percent) in upper two levels. Thus, also, 9 (18 percent) were not knowledgeable. Statistical mean for this group is 2.6 (K).

Large Public Institutions, (7,000-Over SE), N=27.—Of 27 respondents, 7 (26 percent) were VK, 7 (26 percent) were MK, and 11 (40 percent) were K. Thus, 25 (93 percent) were knowledgeable to some degree, with 14 (52 percent) in upper two levels. Also, 2 (7 percent) were not knowledgeable. Statistical mean for this group is 2.3 (MK).
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<th>MK No.</th>
<th>MK %</th>
<th>K No.</th>
<th>K %</th>
<th>NVK No.</th>
<th>NVK %</th>
<th>NKA* No.</th>
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Statistical mean: (1-5). The smaller in the mean more knowledgeable.

**"VK"--very knowledgeable, "MK"--moderately knowledgeable, "K"--knowledgeable, "NVK"--not very knowledgeable, "NKA"--not knowledgeable at all.**

**Student enrollment categories are: Small = 0-6,999 FTE student enrollment, Large = 7,000-over FTE student enrollment.**
Comparison, Small versus Large Public Institutions.--
All officers of large public institutions were only slightly more knowledgeable about the technique of ZBB than were officers of small public institutions. The figures are 40 (82 percent), knowledgeable to some degree, with 2.6 (K) statistical mean for small public, and 25 (93 percent), knowledgeable to some degree, with 2.3 (MK) statistical mean for large public institutions.

Small Private Institutions, (0-6,999 SE), N=46.--Of 46 respondents, 4 (9 percent) were VK, 12 (26 percent) were MK, and 9 (19 percent) were K. Thus, 25 (54 percent) were knowledgeable to some degree, with 16 (35 percent) in upper two levels. Also, 21 (46 percent) were not knowledgeable. Statistical mean for this group is 3.4 (K).

Large Private Institutions, (7,000-over SE), N=13.--Of 13 respondents in this group, 3 (23 percent) were VK, 4 (30 percent) were MK, 4 (31 percent) were K. This, 11 (85 percent) were knowledgeable to some degree, with 7 (54 percent) in upper two levels. Only 2 (15 percent) were not knowledgeable. Statistical mean for this group is 2.5 (MK).

Comparison, Small versus Large Private Institutions.--Officers of large private institutions were more knowledgeable about the technique of ZBB than were officers
of small private institutions. The figures are 25 (54 percent), knowledgeable to some degree, with 3.4 (K) statistical mean for small private and 11 (85 percent), knowledgeable to some degree, with 2.5 (MK) statistical mean, for large private institutions. For the upper two levels the figures are 16 (35 percent) and 7 (54 percent) for small and large private institutions respectively.

All Small Institutions, (0-6,999 SE), N=96.—Of 95 respondents, 11 (12 percent) were VK, 31 (33 percent) were MK, and 23 (24 percent) were K. Thus, 65 (68 percent) were knowledgeable to some degree, with 42 (44 percent) in upper two levels. Also, 30 (32 percent) were not knowledgeable. Statistical mean for this group is 3.0 (K).

All Large Institutions, (7,000-over SE), N=40.—Of 40 respondents, 10 (25 percent) were VK, 11 (28 percent) were MK, and 15 (37 percent) were K. Thus, 36 (90 percent) were knowledgeable to some degree, with 21 (53 percent) in upper two levels. Only 4 (10 percent) were not knowledgeable. Statistical mean for this group is 2.4 (K).

Comparison, Small versus Large Institutions.—Officers of large institutions were more knowledgeable about the technique of ZBB than were officers of small institutions. The figures are 65 (68 percent), knowledgeable to some
degree, with 3.0 (K) statistical mean for all small institutions, and 36 (90 percent), knowledgeable to some degree, with 2.4 (MK) statistical mean, for all large institutions. For the upper two levels the figures are 42 (44 percent) and 21 (53 percent) for all small and large institutions respectively.

Comparison, Small Public versus Small Private Institutions.—Officers of small public institutions were slightly more knowledgeable about the technique of ZBB than were officers of small private institutions. The figures are 40 (82 percent), knowledgeable to some degree, with 3.0 (K) statistical mean for small public and 25 (54 percent), knowledgeable to some degree, with 3.4 (K) statistical mean, for small private institutions. For the upper two levels the figures are 26 (53 percent) and 16 (35 percent) for small public and small private institutions respectively.

Comparison, Large Public versus Large Private Institutions.—Officers of large public institutions were slightly more knowledgeable about the technique of ZBB than were officers of large private institutions. The figures are 25 (93 percent), knowledgeable to some degree, with 2.3 (MK) statistical mean, for large public institutions and 11 (85 percent), knowledgeable to some degree, with 2.5 (K) statistical mean, for large private institutions. For the
upper two levels the figures are 14 (52 percent) and 7 (54 percent) for large public and large private institutions respectively.

Public Institutions, Low Budget Group, (0-$5m), N=16.—Of 15 respondents in this group, 2 (13 percent) were VK, 5 (34 percent) were MK, and 5 (33 percent) were K. Thus, 12 (80 percent) were knowledgeable to some degree with 7 (47 percent) in upper two levels. Also, 3 (20 percent) were not knowledgeable. Statistical mean for this group is 2.7 (K).

Public Institutions, Lower-Middle Budget Group, ($5m-$15m), N=21.—Of 21 respondents, 3 (14 percent) were VK, 8 (38 percent) were MK, and 6 (29 percent) were K. Thus, 17 (81 percent) were knowledgeable to some degree with 11 (52 percent) in upper two levels. Also, 4 (19 percent) were not knowledgeable. Statistical mean for this group is 2.6 (K).

Public Institutions, Upper-Middle Budget Group, ($15-$60m), N=20.—Of 20 respondents, 3 (15 percent) were VK, 8 (40 percent) were MK, and 8 (40 percent) were K. Thus, 19 (95 percent) were knowledgeable to some degree, with 11 (55 percent) in upper two levels. Only 1 (5 percent) was not knowledgeable. Statistical mean for this group is 2.4 (MK).
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Statistical mean: (1-5). The smaller the mean more knowledgeable.

**VK**—very knowledgeable, **MK**—moderately knowledgeable, **K**—knowledgeable, **NVR**—not very knowledgeable, **NKA**—not knowledgeable at all.

**Institutions' budget categories are: Low budget=(0-5 million budget), Lower-middle=(5-15 million budget), Upper-middle=(15-50 million budget), High budget=(50 million and over budget).
Public Institutions, High Budget Group, ($60m-over), N=20.—Of 20 respondents, 6 (30 percent) were VK, 5 (25 percent) were MK, and 6 (30 percent) were K. Thus, 17 (85 percent) were knowledgeable to some degree, with 11 (55 percent) in upper two levels. Also, 3 (15 percent) were not knowledgeable. Statistical mean for this group is 2.4 (MK).

Comparison, Public Institutions by Budget.—Officers of those public institutions which receive more budget believe themselves to be more knowledgeable about the technique of ZBB than officers of those public institutions which receive less budget believe themselves to be. The figures for "knowledgeable to some degree" and the statistical means for low budget group are 12 (80 percent) and 2.7 (K), for lower-middle budget group 17 (81 percent) and 2.6 (K), for upper-middle budget group 19 (95 percent) and 2.4 (MK), and for high budget group 17 (85 percent) and 2.4 (MK). For the upper two levels, the figures are 7 (47 percent) for low budget group, 11 (52 percent) for lower-middle budget group, 11 (55 percent) for upper-middle budget group, and 11 (55 percent) for high budget group. Public institutions' officers in upper-middle and high budget groups were slightly more knowledgeable about the technique of ZBB than were others.
Private Institutions, Low Budget Group, (0-$5m), N=19.—Of 19 respondents, 1 (5 percent) was VK, 4 (21 percent) were MK, 2 (10 percent) were K. Thus, 7 (37 percent) were knowledgeable to some degree, with 5 (26 percent) in upper two levels. Statistical mean for this group is 3.8 (NVK).

Private Institutions, Lower-Middle Budget Group, ($5-$15m), N=10.—Of 10 respondents, 2 (20 percent) were VK, 1 (10 percent) was MK, 3 (30 percent) were K. Thus, 6 (60 percent) were knowledgeable to some degree, with 3 (30 percent) in upper two levels. Also, 4 (40 percent) were not knowledgeable. Statistical mean for this group is 3.1 (K).

Private Institutions, Upper-Middle Budget Group, ($15-60m), N=20.—Of 20 respondents, 1 (5 percent) were VK, 8 (40 percent) were MK, 6 (30 percent) were K. Thus, 15 (75 percent) were knowledgeable with 9 (45 percent) in upper two levels. Also, 5 (25 percent) were not knowledgeable. Statistical mean for this group is 3.0 (K).

Private Institutions, High Budget Group, ($60m-over), N=10.—Of 10 respondents in this group, 3 (30 percent) were VK, 3 (30 percent) were MK, and 2 (20 percent) were K. Thus, 8 (80 percent) were knowledgeable to some degree, with
6 (60 percent) in upper two levels. Also, 2 (20 percent) were not knowledgeable. Statistical mean for this group is 2.4 (K).

Comparison, Private Institutions by Budget.—Officers of those private institutions which receive more budget were more knowledgeable about the technique of ZBB than were officers of those private institutions which receive less budget. The figures for "knowledgeable to some degree" and statistical mean for low budget group are 7 (37 percent) and 3.8 (NVK), for lower-middle budget group 6 (60 percent) and 3.1 (K), for upper-middle budget group 15 (75 percent) and 3.0 (K), and for high budget group 8 (80 percent) and 2.4 (MK). For only the upper two levels the figures are 5 (26 percent) for low budget group, 3 (30 percent) for lower-middle budget group, 9 (45 percent) for upper-middle budget group, and 6 (60 percent) for high budget group.

Officers of private institutions with less than $5 million budget were not very knowledgeable about the technique of ZBB, but officers of private institutions with more than $60 million budget were knowledgeable to some degree.

All Institutions, Low Budget Group, (0-$5m), N=35.—Of 34 respondents in this group, 3 (9 percent) were VK, 9 (26 percent) were MK, 7 (21 percent) were K. Thus, 19 (56
percent) were knowledgeable to some degree, with 12 (35 percent) in upper two levels. Also, 15 (44 percent) were not knowledgeable. Statistical mean for this group is 3.3 (K).

All Institutions, Lower-Middle Budget Group, ($5-$15m), N=31.—Of 31 respondents, 5 (16 percent) were VK, 9 (29 percent) were MK, 9 (29 percent) were K. Thus, 23 (74 percent) were knowledgeable to some degree with 14 (45 percent) in budgeting. Also, 8 (26 percent) were not knowledgeable. Statistical mean for this group is 2.7 (K).

All Institutions, Upper-Middle Budget Group, ($15-$60m), N=40.—Of 40 respondents, 4 (10 percent) were VK, 16 (40 percent) were MK, 14 (35 percent) were K. Thus, 34 (85 percent) were knowledgeable to some degree, with 20 (50 percent) in upper two levels. Also, 6 (15 percent) were not knowledgeable. Statistical mean for this group is 2.7 (K).

All Institutions, High Budget Group, ($60m-over), N=30.—Of 30 respondents, 9 (30 percent) were VK, 8 (27 percent) were MK, 8 (27 percent) were K. Thus, 25 (83 percent) were knowledgeable to some degree, with 17 (57 percent) in upper two levels. Also, 5 (17 percent) were not knowledgeable. Statistical mean for this group is 2.4 (MK).
Comparison, All Institutions by Budget.—Officers of the institutions which have the larger budget believe themselves to be more knowledgeable about the technique of ZBB than officers of the institutions which have the smaller budget believe themselves to be. The figures for "knowledgeable to some degree" and statistical mean for low budget group are 19 (56 percent) and 3.3 (K), for lower-middle budget group 23 (74 percent) and 2.7 (K), for upper-middle budget group 34 (85 percent) and 2.7 (K), and for high budget group 25 (83 percent) and 2.4 (MK). For the upper two levels the figures are 12 (35 percent) for low-budget group, 14 (45 percent) for lower-middle budget group, 20 (50 percent) for upper middle budget group, and 17 (57 percent) for high budget group.

Comparison, Public versus Private Institutions, Low Budget Group.—In this group of institutions, officers of public institutions were more knowledgeable about the technique of ZBB than were officers of private institutions. The figures for knowledgeable to some degree and statistical mean for public institutions in this group are 12 (80 percent) and 2.7 (K) and for private institutions are 7 (37 percent) and 3.8 (NVK). For the upper two levels the figures are 7 (47 percent) for public and 5 (26 percent) for private institutions.
In general, officers of public institutions were knowledgeable and officers of private institutions believed themselves not very knowledgeable.

Comparison, Public versus Private Institutions, Lower-Middle Budget Group.--Officers of public institutions were slightly more knowledgeable about the technique of ZBB than were officers of private institutions. The figures for "knowledgeable to some degree" and statistical mean for public institutions are 17 (81 percent) and 2.6 (K) and for private institutions 6 (60 percent) and 3.1 (K). For the upper two levels the figures are 11 (52 percent) for public and 3 (30 percent) for private institutions.

Comparison, Public versus Private Institutions, Upper-Middle Budget Group.--Officers of public institutions in this group were more knowledgeable about the technique of ZBB than were officers of private institutions. The figures for "knowledgeable to some degree" and statistical means for public institutions are 19 (95 percent) and 2.4 (MK) and for private institutions 15 (75 percent) and 3.0 (K). If upper two levels are considered, the figures are 11 (55 percent) for public and 9 (45 percent) for private institutions.

Comparison, Public versus Private Institutions, High Budget Group.--Officers of public institutions in this
group were no more knowledgeable about the technique of ZBB than were officers of private institutions. The figures for "knowledgeable to some degree" and statistical means for public institutions are 17 (85 percent) and 2.4 (MK), and for private institutions 8 (80 percent) and 2.4 (MK). For the upper two levels the figures are 11 (55 percent) for public institutions and 6 (60 percent) for private institutions.

ZBB and Other Systems (Tables IX-XIV)

The data presented and analyzed here are for research questions #2 and #3.

Research question #2 (tables IX-XI): How many of the institutions of higher education (1) have fully or partially used ZBB, (2) are now using ZBB, (3) plan to use ZBB within the next three years? "The next three years" means the three years after the year 1980. Institutions were grouped according to type (public or private), size as small (0-6,999 FTE students) or large (7,000 or more FTE students), and by amount of budget as low (0-$5 million), lower-middle ($5-$15 million), upper-middle ($15-$60 million), and high budget ($60 million and over).

Public Institutions, N=77.—Of the respondents in this group, 2 (3 percent) had used ZBB in the past, 8 (10 percent) were using it, and 16 (21 percent) planned to use it fully or partially.
Private Institutions, N=59.—Of the respondents in this group, 2 (3 percent) had used ZBB in the past, 4 (7 percent) were using it, 7 (12 percent) planned to use it.

All Institutions, N=136.—Of the respondents in this group, 4 (3 percent) had used ZBB in the past, 12 (9 percent) were using it, and 23 (17 percent) planned to use it fully or partially.

Comparison, Public versus Private Institutions.—Although the same number of public, 2 (3 percent), and private, 2 (3 percent), institutions had used ZBB, public ones were more interested in using ZBB than were private ones. The figures indicate that 8 (10 percent) of public institutions, and 4 (7 percent) of private ones were using ZBB, and 6 (21 percent) of public institutions and 7 (12 percent) of private institutions planned to use ZBB.

Small Public Institutions, (0-6,999 FTE SE), N=50.—No institutions had used ZBB, 5 (10 percent) were using it, and 14 (28 percent) planned to use it fully or partially.

Large Public Institutions, (7,000-over FTE SE), N=27.—Of the respondents in this group, 2 (7 percent) had used ZBB, 3 (11 percent) were using it, and 2 (7 percent) planned to use it fully or partially.
<table>
<thead>
<tr>
<th>Institutions' type</th>
<th>Had Used</th>
<th>Were Using</th>
<th>Planned to use</th>
<th>Total Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Public</td>
<td>2</td>
<td>3</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Private</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>3</td>
<td>12</td>
<td>9</td>
</tr>
</tbody>
</table>
Comparison, Small Public versus Large Public Institutions.—Of small public 5 (10 percent) and of large public 3 (11 percent) were using ZBB. No small public institutions had used this system in the past, but 2 (7 percent) of large public institutions had used it. Fourteen (28 percent) of small public and 2 (7 percent) of large public institutions planned to use it. Small public institutions were more interested to use ZBB than were large public institutions.

Small Private Institutions, (0-6,999 FTE SE), N=46.—Of the respondents in this group, 1 (2 percent) had used ZBB, 2 (4 percent) were using it, and 4 (9 percent) planned to use it.

Large Private Institutions, (7,000-over FTE SE), N=13.—Of the respondents in this group, 1 (8 percent) had used ZBB, 2 (15 percent) were using it, and 3 (23 percent) planned to use it fully or partially.

Comparison, Small versus Large Private Institutions.—Percentagewise, more large private institutions had used ZBB. One (8 percent) was using it, 2 (15 percent), and planned to use it 3 (23 percent) than small private institutions which had used it 1 (2 percent), were using it
### TABLE X

HAD USED, WERE USING, PLANNED TO USE ZERO-BASED BUDGETING FULLY OR PARTIALLY ALL INSTITUTIONS BY TYPE AND SIZE

<table>
<thead>
<tr>
<th>Institutions' type &amp; budget</th>
<th>Had Used</th>
<th>Were Using</th>
<th>Planned to use</th>
<th>Total Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Public:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>0</td>
<td>0%</td>
<td>5</td>
<td>10%</td>
</tr>
<tr>
<td>Large*</td>
<td>2</td>
<td>7%</td>
<td>3</td>
<td>11%</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>3%</td>
<td>8</td>
<td>10%</td>
</tr>
<tr>
<td>Private:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>1</td>
<td>2%</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>Large</td>
<td>1</td>
<td>8%</td>
<td>2</td>
<td>15%</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>3%</td>
<td>4</td>
<td>7%</td>
</tr>
<tr>
<td>All Institutions:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>1</td>
<td>1%</td>
<td>7</td>
<td>7%</td>
</tr>
<tr>
<td>Large</td>
<td>3</td>
<td>8%</td>
<td>5</td>
<td>13%</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>3%</td>
<td>12</td>
<td>9%</td>
</tr>
</tbody>
</table>

*Small institutions=0-6,999 FTE student enrollment, Large institutions=7,000 and over FTE student enrollment.*
2 (4 percent), and planned to use it 4 (9 percent). Small private institutions had the same interest in using ZBB as did large private institutions.

**Comparison, Small Public versus Small Private Institutions.**—No small public and 1 (2 percent) small private had used ZBB, 5 (10 percent) small public and 2 (4 percent) small private were using it, and 14 (28 percent) small public and 4 (9 percent) small private planned to use ZBB. Small public institutions were more interested to use ZBB than were small private institutions.

**Comparison, Large Public versus Large Private Institutions.**—Two (7 percent) large public and 1 (8 percent) large private had used ZBB, 3 (11 percent) large public, 2 (15 percent) large private were using it, and 2 (7 percent) large public and 3 (23 percent) large private institutions planned to use it. Percentagewise, large private institutions were more interested to use ZBB than were large public institutions.

**All Small Institutions, (0-6,999 FTE SE), N=96.**—Of the respondents in this group, 1 (1 percent) had used ZBB, 7 (7 percent) were using it, and 18 (19 percent) planned to use it fully or partially.
All Large Institutions, (7,000-over FTE SE), N=40.---Of the respondents in this group, 3 (8 percent) had used ZBB, 5 (13 percent) were using it, and 5 (13 percent) planned to use it fully or partially.

Comparison, All Small versus All Large Institutions.---Although more large institutions had fully or partially used and were using ZBB than were small institutions, more small institutions planned to use it fully or partially in the future. The figures for institutions which had used ZBB are 1 (1 percent) for small, 3 (8 percent) for large. For those institutions which were using it, the figures are 7 (7 percent) for small, and 5 (13 percent) for large. For those institutions which were using it, the figures are 7 (7 percent) for small, and 5 (13 percent) for large. For those institutions which planned to use ZBB the figures are 18 (19 percent) for small and 5 (13 percent) for large ones.

Public Institutions, Low Budget Group, (0-$5m), N=16.---Of the respondents in this group, none had used ZBB, 1 (6 percent) was using it, and 3 (19 percent) planned to use it fully or partially.
Public Institutions, Lower-Middle Budget Group, ($5-$15m), N=21. Of the respondents in this group, none had used ZBB, 2 (10 percent) were using it, and 7 (33 percent) planned to use it fully or partially.

Public Institutions, Upper-Middle Budget Group, ($15-$60m), N=20. Of the respondents in this group, 1 (5 percent) had used ZBB, 3 (15 percent) were using it, and 4 (20 percent) planned to use it fully or partially.

Public Institutions, High Budget Group, ($60m-over), N=20. Of the respondents in this group, 1 (5 percent) had used ZBB, 2 (10 percent) were using it, and 2 (10 percent) planned to use it fully or partially.

Comparison, Public Institutions by Budget. No public institutions with less than $15 million budget (low, and lower-middle budget group) had used ZBB, 2 (5 percent) with more than $15 million budget (upper-middle budget and high budget group) had used it fully or partially. The number of institutions using ZBB was 1 (6 percent) in low budget group, 2 (10 percent) in lower-middle budget group, 3 (15 percent) in upper middle budget group, and 2 (10 percent) in high budget group. The number of institutions which planned to use ZBB was 3 (19 percent) in low budget group, 7 (33 percent) in lower-middle, 4 (20 percent) in upper middle, and 2 (10 percent) in high budget group. It can be seen that
## TABLE XI

**HAD USED, WERE USING, PLANNED TO USE ZERO-BASED BUDGETING FULLY OR PARTIALLY. ALL INSTITUTIONS BY TYPE**

<table>
<thead>
<tr>
<th>Institutions' type &amp; budget</th>
<th>Had Used</th>
<th>Were Using</th>
<th>Planned to use</th>
<th>Total Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td><strong>Public institutions:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low budget group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower-middle budget</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Upper-middle budget</td>
<td>1</td>
<td>5</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>High budget group*</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2</td>
<td>3</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td><strong>Private institutions:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low budget group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower-middle budget</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Upper-middle budget</td>
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<tr>
<td>High budget group</td>
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<td>0</td>
<td>2</td>
<td>20</td>
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<tr>
<td><strong>Total</strong></td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td><strong>All institutions:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low budget group</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Lower-middle budget</td>
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<td>3</td>
<td>3</td>
<td>10</td>
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<tr>
<td>Upper-middle budget</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>High budget group</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>4</td>
<td>3</td>
<td>12</td>
<td>9</td>
</tr>
</tbody>
</table>

*Low budget group=0-$5 million budget, Lower-middle budget=$5-$15 million budget, Upper-middle budget=$15-$60 million budget, High budget group=$60 million and over budget.*
public institutions which receive less budget were more interested in the use of ZBB in the future than were those institutions which receive more budget.

Private Institutions, Low Budget Group, (0-$5m), N=19.--Of the respondents in this group, none had used ZBB, 1 (5 percent) was using it, and none planned to use it fully or partially.

Private Institutions, Lower-Middle Budget Group, ($5-$15m), N=10.--Of the 10 respondents in this group, 1 (10 percent) had used ZBB, 1 (10 percent) was using it, and 3 (30 percent) planned to use it fully or partially.

Private Institutions, Upper-Middle Budget Group, ($15-$60m), N=20.--Of the respondents, 1 (5 percent) had used ZBB, none were using it, and 1 (5 percent) planned to use it fully or partially.

Private Institutions, High Budget Group, ($60m-over), N=10.--Of the respondents in this group, none had used ZBB, 2 (20 percent) were using it, and 3 (30 percent) planned to use it fully or partially.

Comparison, Private Institutions by Budget.--No private institutions in a low budget or high budget group had used ZBB. One (10 percent) in lower-middle budget, and 1 (5 percent) in upper-middle budget group had used it fully or partially.
partially. The number of private institutions which were using ZBB is 1 (5 percent) in low budget, 1 (10 percent) in lower-middle budget, 0 in upper-middle budget, and 2 (20 percent) in high budget group. The number of private institutions which planned to use ZBB is 0 in low budget, 3 (30 percent) in lower-middle budget, 1 (5 percent) in upper-middle budget, and 3 (30 percent) in high budget group.

Thus, private institutions in low budget group were not as interested in ZBB as were those in the high budget group.

**Comparison, Public versus Private Institutions by Budget.**—In the low budget group, no public and no private institutions had used ZBB in the past, 1 (6 percent) of public and 1 (5 percent) private institutions were using it, and 3 (19 percent) of public and no private institutions planned to use it fully or partially. Public institutions were more interested in ZBB than private institutions.

In the lower-middle budget group, no public and 1 (10 percent) private institution had used ZBB in the past, 2 (10 percent) public and 1 (10 percent) private institutions were using it, and 7 (33 percent) public and 3 (30 percent) of private institutions planned to use it fully or partially. Public and private institutions have similar interest in ZBB.
In the upper-middle budget group, 1 (5 percent) of public and 1 (5 percent) of private institutions had used ZBB in the past, 3 (15 percent) of public and no private institutions were using it, and 4 (20 percent) of public and 1 (5 percent) of private institutions planned to use it fully or partially. Public institutions in this group were more interested in the use of ZBB than were private institutions.

In the high budget group, 1 (5 percent) of public and no private institutions had used ZBB, 2 (10 percent) of public and 2 (20 percent) of private institutions were using it, and 2 (10 percent) public, and 3 (30 percent) of private institutions planned to use it fully or partially. Thus, in this group, private institutions were more interested in the use of ZBB than were public institutions.

All Institutions, Low Budget Group, (0–$5m), N=35.—Of the respondents, none had used ZBB, 2 (6 percent) were using it, and 3 (9 percent) planned to use it fully or partially.

All Institutions, Lower-Middle Budget Group, ($5–$15m), N=31.—Of the respondents, 1 (3 percent) had used ZBB, 3 (10 percent) were using it, and 10 (32 percent) planned to use it fully or partially.
All Institutions, Upper-Middle Budget Group, ($15-$60m), N=40. --Of the respondents, 2 (5 percent) had used ZBB, 3 (8 percent) were using it, and 5 (13 percent) planned to use it fully or partially.

All Institutions, High Budget Group, ($60m-over), N=30. --Of the respondents, 1 (3 percent) had used ZBB, 4 (13 percent) were using it, and 5 (17 percent) planned to use it fully or partially.

Comparison, All Institutions by Budget.--No institutions in low budget group had used ZBB, 1 (3 percent) in lower-middle budget group, 2 (5 percent) in upper-middle budget, and 1 (3 percent) in high budget group had used it fully or partially.

Institutions which were using ZBB were 2 (6 percent) in low budget, 3 (10 percent) in lower-middle budget, 3 (8 percent) in upper-middle budget, and 4 (13 percent) in high budget group.

Institutions which planned to use ZBB were 3 (9 percent) in low budget group, 10 (32 percent) in lower-middle budget group, and 5 (13 percent) in upper-middle budget group, and 5 (17 percent) in high budget group.

Research question #3 (tables XII-XIV): How many of the institutions are using one of the following systems and which one(s) are they using: Incremental budgeting;
Planning Programming and Budgeting system; Line-Item Budgeting; Formula Budgeting? For this research question, institutions under study were analyzed in terms of their types as public or private, their size (student enrollment) as small or large, and their amount of budget as low, lower-middle, upper-middle, and high budget groups.

Public Institutions, N=77.---Of the respondents in this group, 26 (34 percent) were using Incremental, 18 (23 percent) were using PPBS, 32 (42 percent) were using Line-Item, 20 (26 percent) were using Formula, and 10 (13 percent) were using others, but not ZBB. Line-item was the most common 32 (42 percent). The next two most common were Incremental 26 (34 percent) and Formula 20 (26 percent).

Private Institutions, N=59.---Of all respondents in this group, 18 (31 percent) were using Incremental, 14 (24 percent) were using PPBS, 26 (44 percent) were using Line-Item, 1 (2 percent) was using Formula, and 9 (15 percent) were using some other, but not ZBB. Line-item was the most common 26 (44 percent). The next two most common were incremental, 18 (31 percent), and PPBS 14 (24 percent).

All Institutions, N=136. Of all respondents, 44 (32 percent) were using Incremental, 32 (24 percent) were using PPBS, 58 (43 percent) were using Line-Item, 21 (15 percent)
### TABLE XII

INSTITUTIONS' CURRENT BUDGETING SYSTEMS OTHER THAN ZBB
ALL INSTITUTIONS BY TYPE AND SIZE

<table>
<thead>
<tr>
<th>Institutions' Type</th>
<th>Incremental</th>
<th>PPBS</th>
<th>Line-item</th>
<th>Formula</th>
<th>Others</th>
<th>All respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Public</td>
<td>26</td>
<td>34</td>
<td>18</td>
<td>23</td>
<td>32</td>
<td>42</td>
</tr>
<tr>
<td>Private</td>
<td>18</td>
<td>31</td>
<td>14</td>
<td>24</td>
<td>26</td>
<td>44</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>32</td>
<td>32</td>
<td>24</td>
<td>58</td>
<td>43</td>
</tr>
</tbody>
</table>
were using Formula, and 19 (14 percent) were using some other, but not ZBB. Line-Item was the most common 58 (43 percent). The next two most common were Incremental 44 (32 percent), and PPBS 32 (24 percent).

**Comparison, Public versus Private Institutions.**

Line-Item budgeting system, for both public 32 (42 percent) and private 26 (44 percent) was the budgeting system which most institutions were using. Incremental was the second most used budgeting system. Twenty (26 percent) public institutions were using Formula, while only 1 (2 percent) of private institutions were using it. Eighteen (23 percent) public institutions were using PPBS, and 14 (24 percent) of private institutions were using it.

**Small Public Institutions, (0-6,999 FTE SE), N=50.**

Of the respondents in this group, 13 (26 percent) were using Incremental, 14 (28 percent) were using PPBS, 23 (46 percent) were using Line-Item, 12 (24 percent) were using formula, and 5 (10 percent) were using some other, but not ZBB. Line-Item was the most common 23 (46 percent). The next two most common were PPBS, 14 (28 percent) and Incremental 13 (26 percent).

**Large Public Institutions, (7,000-over FTE SE), N=27.**

Of the respondents in this group, 13 (48 percent)
TABLE XIII

INSTITUTIONS' CURRENT BUDGETING SYSTEMS OTHER THAN ZBB
ALL INSTITUTIONS BY TYPE AND SIZE

<table>
<thead>
<tr>
<th>Institutions' Type</th>
<th>Incremental</th>
<th>PPBS</th>
<th>Line-item</th>
<th>Formula</th>
<th>Others</th>
<th>All respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Public institutions:</td>
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</tr>
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<td>Small</td>
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<tr>
<td>Large*</td>
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<td>33</td>
</tr>
<tr>
<td>Total public</td>
<td>26</td>
<td>34</td>
<td>18</td>
<td>23</td>
<td>32</td>
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<td>Private institutions:</td>
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<td></td>
</tr>
<tr>
<td>Small</td>
<td>12</td>
<td>26</td>
<td>12</td>
<td>26</td>
<td>21</td>
<td>46</td>
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*Small institutions=0-6,999 FTE student enrollment, Large institutions=7,000-
over FTE student enrollment.
were using Incremental, 4 (15 percent) were using PPBS, 9 (33 percent) were using Line-Item, 8 (30 percent) were using Formula, and 5 (19 percent) were using some other, but not ZBB. Incremental was the most common 13 (48 percent). The next two most common were Line-Item, 9 (33 percent) and Formula, 8 (30 percent).

Comparison, Large Public versus Large Private Institutions.—For small public institutions Line-Item, 23 (46 percent) was the most common budgeting system, and for large public institutions Incremental, 13 (48 percent), was the most common budgeting system. The next two most common budgeting systems for small public were PPBS 14 (28 percent) and Incremental 13 (26 percent), and for large public institutions were line-item, 9 (33 percent) and formula, 8 (30 percent).

Small Private Institutions, (0-6,999 FTE SE), N=46.—Of the respondents in this group, 12 (26 percent) were using Incremental, 12 (26 percent) were using PPBS, 21 (46 percent) were using line-item, 1 (2 percent) was using formula, and 8 (17 percent) were using some other, but not ZBB. Line-Item was the most common 21 (46 percent). The next two most common were Incremental 12 (26 percent) and PPBS 12 (26 percent).
Large Private Institutions, (7,000-over FTE SE), N=13.—Of the respondents in this group, 6 (46 percent) were using Incremental, 2 (15 percent) were using PPBS, 5 (38 percent) were using Line-Item, none were using Formula, and 1 (8 percent) was using some other, but not ZBB. Incremental was the most common, 6 (46 percent). The next two most common were Line-Item 5 (38 percent) and PPBS 2 (15 percent).

Comparison, Small versus Large Private Institutions.—Line-Item 21 (46 percent), for small private institutions, was the most commonly used budgeting system. For large private institutions incremental was the most common used budgeting system. The next two most common budgeting system for small public were Incremental 12 (26 percent) and PPBS 12 (26 percent) and for large private institutions Line-Item 5 (38 percent) and PPBS 2 (15 percent).

All Small Institutions, (0-6,999 FTE SE), N=40.—Of the respondents in this group, 25 (26 percent) were using incremental, 26 (27 percent) were using PPBS, 44 (46 percent) were using Line-Item, 13 (14 percent) were using formula, and 13 (14 percent) were using some other, but not ZBB. Line-Item was the most common 44 (46 percent). The next two most common were PPBS 26 (27 percent) and Incremental 25 (26 percent).
All Large Institutions, (7,000-over), N=40. --Of the respondents in this group, 19 (48 percent) were using Incremental, 6 (15 percent) were using PPBS, 14 (35 percent) were using Line-Item, 8 (20 percent) were using formula, and 6 (15 percent) were using some other, but not ZBB. Incremental was the most common 19 (48 percent). The next two most common were Line-Item 14 (35 percent) and Formula 8 (20 percent).

Comparison, All Small versus All Large Institutions. --For small institutions, Line-Item was the most common used budgeting system. For large institutions, Incremental was the most commonly used budgeting system. The next two most common budgeting systems for small institutions were PPBS 26 (27 percent) and Incremental 25 (26 percent) and for large institutions Line-Item 14 (35 percent) and formula 8 (20 percent).

Comparison, Small Public versus Small Private Institutions. --Relatively, the same number of small public and small private institutions were using Incremental, 13 (26 percent) for small public and 12 (26 percent) for small private, PPBS was 14 (28 percent) for small public and 12 (26 percent) for small private, line-item as 23 (46 percent) for small public and 21 (46 percent) for small private. In this group of institutions, the use of formula was an exception
as 12 (24 percent) of small public were using formula whereas 1 (2 percent) of small private institutions were using it.

**Comparison, Large Public versus Large Private Institutions.**—Relatively the same percentage of large public and large private institutions were using Incremental: 13 (48 percent) for large public and 6 (46 percent) for large private, PPBS 4 (15 percent) for large public and 2 (15 percent) for large private. Percentagewise, more large private institutions were using line-item, 5 (38 percent), than were large public institutions 9 (33 percent). No large private institutions were using formula, but 8 (30 percent) large public ones were using this budgeting system.

**Public Institutions, Low-Budget Group, (0-$5m), N=16.**—Of the respondents in this group, 4 (25 percent) were using incremental, 5 (31 percent) were using PPBS, 8 (50 percent) were using line-item, 5 (31 percent) were using formula, and 1 (6 percent) was using some other, but not ZBB. Line-item was the most common 8 (50 percent). The next two most common were PPBS 5 (31 percent) and formula 5 (31 percent).

**Public Institutions, Lower-Middle Budget Group, ($5-$15m), N=21.**—Of the respondents in this group, 4 (19
### Table XIV

Institutions' current budgeting systems other than ZBB

All institutions by type and budget

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*Low budget group=0-$5 million budget, Lower-middle budget=$5 million-$15 million budget, Upper-middle budget=$15 million-$60 million budget, High budget group=$60 million-over budget.
percent) were using incremental, 7 (33 percent) were using PPBS, 7 (33 percent) were using line-item, 6 (29 percent) were using formula, and 2 (10 percent) were using some other, but not ZBB. Both PPBS 7 (33 percent) and line-item 7 (33 percent) were the most common budgeting systems in this group. The next most common was formula 6 (29 percent).

**Public Institutions, Upper-Middle Budget Group, ($15-$60m), N=20.**—Of the respondents in this group, 6 (30 percent) were using incremental, 4 (20 percent) were using PPBS, 11 (55 percent) were using line-item, 2 (10 percent) were using formula, and 2 (10 percent) were using some other, but not ZBB. Line-Item was the most common: 11 (55 percent). The next two most common were incremental 6 (30 percent) and PPBS 4 (20 percent).

**Public Institutions, High Budget Group, ($60m-Over), N=20.**—Of the respondents in this group, 12 (60 percent) were using incremental, 2 (10 percent) were using PPBS, 6 (30 percent) were using line-item, 7 (35 percent) were using formula, and 5 (25 percent) were using some other, but not ZBB. Incremental was the most common 12 (60 percent). The next two most common were formula 7 (35 percent) and line-item 6 (30 percent).
Comparison, Public Institutions by Budget.—For the public institutions with up to $60 million budget, the most common budgeting system was line-item, for low-budget 8 (50 percent), lower-middle 7 (33 percent), upper-middle 11 (55 percent), and for public institutions with more than $60 million (high budget group), it was Incremental 12 (60 percent). For institutions with less than $15 million, the next two most common budgeting systems were PPBS 5 (31 percent) for low budget, 7 (33 percent) for lower-middle budget group, and formula 5 (31 percent) for low budget and line-item 6 (29 percent) for lower middle.

The next two most common for upper-middle budget were incremental 6 (30 percent) and PPBS 4 (20 percent), and for high budget group were formula 7 (35 percent) and line-item 6 (30 percent). Thus, smaller public institutions, in terms of their budget, were more interested in line-item, while larger institutions, in terms of their budget, were more interested in incremental budgeting system.

Private Institutions, Low Budget Group, (0-$5m), \( N=19 \).--Of the respondents in this group, 3 (16 percent) were using Incremental, 6 (32 percent) were using PPBS, 10 (53 percent) were using Line-Item, none were using Formula, and 1 (5 percent) was using some other but not ZBB.
Line-item was the most common 10 (53 percent). The next two most common were PPBS 6 (32 percent) and Incremental 3 (16 percent).

**Private Institutions, Lower-Middle Budget Group, ($5-$15m), N=10.**—Of the respondents in this group, 2 (20 percent) were using Incremental, 3 (30 percent) were using PPBS, 6 (60 percent) were using Line-Item, none were using formula, and 2 (20 percent) were using some other, but not ZBB. Line-item was the most common 6 (60 percent). The next two most common were PPBS 3 (30 percent) and Incremental 2 (20 percent).

**Private Institutions, Upper-Middle Budget Group, ($15-$60m), N=20.**—Of the respondents in this group, 18 (40 percent) were using incremental, 3 (15 percent) were using PPBS, 9 (45 percent) were using line-item, 1 (5 percent) were using formula, and 5 (25 percent) were using some other, but not ZBB. Line-item was the most common 9 (45 percent). The next two most common were incremental 8 (40 percent) and PPBS 3 (15 percent).

**Private Institutions, High Budget Group, ($60m-over), N=10.**—Of the respondents in this group, 5 (50 percent) were using incremental, 2 (20 percent) were using PPBS, 1 (10 percent) were using Line-Item, none were using formula,
and 1 (10 percent) were using some other, but not ZBB. Incremental 5 (50 percent) was the most common. The next two most common were PPBS 2 (20 percent) and line-item 1 (10 percent).

Comparison, Private Institutions by Budget.--For private institutions in this group (up to $60 million budget), the most common budgeting system was line-item with low budget 10 (53 percent), lower-middle budget 6 (60 percent), upper-middle budget 9 (45 percent) next. For private institutions with more than $60 million budget (high budget group), the most common budgeting system was incremental 5 (50 percent). The next two most common budgeting systems for private institutions with less than $15 million budget were PPBS low-budget 6 (32 percent), lower-middle budget 2 (20 percent). For upper-middle budget the next two most common budgeting systems were incremental 8 (40 percent) and PPBS 3 (15 percent).

The most common budgeting system for high budget private institutions was incremental 5 (50 percent), and the next two most common were PPBS 2 (20 percent) and line-item 1 (10 percent). Thus, smaller private institutions, in terms of budget, were more interested in line-item, while large private institutions, in terms of budget, were interested in incremental.
All Institutions, Low Budget Group, (0–$5m), N=35.-- Of the respondents in this group, 7 (20 percent) were using incremental, 11 (31 percent) were using PPBS, 18 (51 percent) were using line-item, 5 (14 percent) were using formula, and 2 (6 percent) were using some other, but not ZBB. Line-item was most common 18 (51 percent). The next two most common were PPBS 11 (31 percent) and incremental 7 (20 percent).

All Institutions, Lower-Middle Budget Group, ($5–$15m), N=31.-- Of the respondents in this group, 6 (19 percent) were using incremental, 10 (32 percent) were using PPBS, 13 (42 percent) were using line-item, 6 (19 percent) were using formula, and 4 (13 percent) were using some other, but not ZBB. Line-item was the most common. The next three most common were PPBS 10 (32 percent) incremental 6 (19 percent), and formula 6 (19 percent).

All Institutions, Upper-Middle Budget Group, ($15–$60m), N=40.-- Of the respondents in this group, 14 (35 percent) were using incremental, 7 (18 percent) were using PPBS, 20 (50 percent) were using line-item, 3 (8 percent) were using formula, and 7 (18 percent) were using some other, but not ZBB. Line-item was the most common 20 (50 percent). The next two most common were incremental 14 (35 percent) and PPBS 7 (18 percent).
All Institutions, High Budget Group, ($60m-over), N=30.—Of the respondents in this group, 17 (57 percent) were using incremental, 4 (13 percent) were using PPBS, 7 (23 percent) were using line-item, 7 (23 percent) were using formula, and 6 (20 percent) were using some other, but not ZBB. Incremental was the most common 17 (57 percent). The next two most common were line-item 7 (23 percent) and formula 7 (23 percent).

Comparison, All Institutions by Budget.—For institutions up to $60 million budget the most common budgeting system was line-item low budget 18 (51 percent), lower-middle budget 13 (42 percent), upper-middle budget 20 (50 percent). For institutions with more than $60 million budget (high budget group), the most common budgeting system was incremental 17 (57 percent). The next two most common budgeting systems for the institutions with less than $15 million budget were PPBS low budget 11 (31 percent) and lower-middle budget 10 (32 percent) and incremental low budget 7 (20 percent) and lower-middle budget 6 (19 percent). In lower-middle budget group, formula 6 (19 percent) was also the third most common budgeting system. For upper-middle budget group, the next two most common were incremental 14 (35 percent) and PPBS 7 (18 percent).
The most common budgeting system for high budget group was Incremental 17 (57 percent), and the next two most common were line-item 7 (23 percent) and formula 7 (23 percent). Thus, smaller institutions in terms of their budget were more interested in line-item, while larger institutions were interested in incremental.

Line-item, for low budget group, was the most common budgeting system for both public 8 (50 percent) and private 10 (53 percent) institutions. The next two most common in this group for public were PPBS 5 (31 percent) and formula 5 (31 percent), while for private institutions were PPBS 6 (32 percent) and incremental 3 (16 percent).

For lower-middle budget group, line-item 7 (33 percent) and PPBS 7 (33 percent) were the most common budgeting system for public institutions, while for private ones in this group, line-item 6 (60 percent) was the most common budgeting system. The next most common for public were formula 6 (29 percent). The next two most common for private institutions were PPBs 3 (30 percent) and incremental 2 (20 percent).

In upper-middle budget group, line-item was the most common in both public 11 (55 percent) and public 9 (45 percent), and the next two most common in this group for public were incremental 6 (30 percent) and PPBS 4 (20 percent), and for private institutions were incremental 8 (40 percent) and PPBS 3 (15 percent).
In high budget group, incremental was the most common budgeting system for both public 12 (60 percent) and private 5 (50 percent). The next two most common budgeting systems in this group for public were formula 7 (35 percent) and line-item 6 (30 percent) and for private institutions were PPBS 2 (20 percent) and line-item 1 (10 percent).

Perceptions of ZBB (Tables XV-XIX)

Research question #4: What are the chief financial officers' perceptions of zero-based budgeting as a management tool and budgeting system?

The perceptions of chief financial officers who are to some degree knowledgeable about the process and the technique of ZBB were examined. The degree of knowledgeability was shown earlier (research question #1). Chief financial officers not knowledgeable were excluded from this portion of study. An average of 118 (lowest N=117, highest N=119) chief financial officers who were somewhat knowledgeable about the concept and technique of ZBB responded to this section of the questionnaire.

A number of statements about the system of ZBB in general and related to the respondents' institutions was provided. Section II of the questionnaire deals with the general perception of the system (see appendix C). This section included thirty items about positive and negative
aspects of ZBB in general. Section III of the questionnaire was designed to determine perception of ZBB related to the officers' own institutions and in comparison with other budgeting system(s) in use in their institutions at the time of this study (Fall 1980).

The perceptions of the chief financial officers were determined by asking the officers to indicate degree of agreement/disagreement with certain statements, responding on a scale one to five:

| Strongly agree | 1 |
| Agree          | 2 |
| Uncertain      | 3 |
| Disagree       | 4 |
| Strongly disagree | 5 |

A mean for each item was calculated and the degree of their overall agreement about each item was calculated.

In the summaries for items, 3.00 (uncertainty) is the reference point. Therefore, scores (means) below 3.00 indicate Agreement, and score above 3.00 indicate Disagreement. Possible means range is from 1.00 (strongly agree) to 5.00 (strongly disagree).

In the following, where the mean for all subgroups is given, the mean is used for statement of consensus and as (1) rounded off the nearest tenth and (2) interpreted using the .5 breakpoint.
## TABLE XV

**CHIEF FINANCIAL OFFICERS' PERCEPTION OF ZBB**

**ALL INSTITUTIONS BY TYPE AND SIZE**

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*Small=institutions with less than 7,000 FTE student enrollment, Large=institutions with more than 7,000 FTE student enrollment.
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## TABLE XVI

**CHIEF FINANCIAL OFFICERS' PERCEPTION OF ZBB**

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TABLE XVIII

CHIEF FINANCIAL OFFICERS' PERCEPTION OF ZBB PRIVATE INSTITUTIONS BY BUDGET

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*Low budget group=0-$5 million budget, Lower-middle budget group=$5-$15 million budget, Upper-middle budget group=$15-$60 million budget, High budget group=$60 million and over budget.
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### TABLE XIX

**CHIEF FINANCIAL OFFICERS' PERCEPTION OF ZBB**

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Item #20

ZBB is presently the best budgeting system for institutions of higher education.

All by Type and Size (Table XV).—Large public institutions disagreed most (4.9), small public next (3.5). Small private (3.4), and large private (3.0) were uncertain. Mean for all small institutions is (3.5) and for all large 3.8. Consensus: Disagree.

All by Budget (Table XVI).—Institutions in high budget group disagreed most (3.8), those in upper-middle group next (3.7). Institutions in low budget group (3.4), and in lower-middle budget group (3.3) were uncertain. Mean for all groups is 3.6. Consensus: Disagree.

Public Institutions by Budget (Table XVII).—Public institutions in high budget group disagreed most (4.2), those in upper-middle group next (3.8), those in lower-middle (3.5) disagreed least. Public institutions in low budget group (3.4) were uncertain. Mean for all groups is 3.7. Consensus: Disagree.

Private Institutions by Budget (Table XVIII).—Private institutions in upper-middle budget group disagreed (3.7). Those in low budget group (3.4), in high budget
group next (3.1), and in lower-middle budget least (2.8) were uncertain. Mean for all groups is 3.3. Consensus: Uncertain.

Comparison, Public versus Private Institutions (Table XIX).—Public institutions (3.7) disagreed and private institutions (3.3) were uncertain. Mean for all groups is 3.6. Consensus: Disagree.

Examination of the above shows that public institutions disagree most (Table XIX), that among them are those that are large (Table XV) and those that are in high budget group (Table XVIII). Among private institutions, those that are small (Table XV) and those that are in upper-middle budget group disagree most. Large private institutions were uncertain (3.0).

Highest score (4.9) belongs to large public, and lowest score (2.8) belongs to private institutions in lower-middle budget group. Large private institutions were uncertain (3.0).

Item #21

Zero-based budgeting will give effective control over the institutions' faculty and staff expenses.
All by Type and Size (Table XV).—Large public (3.3), small private (2.9), large private (2.9), and small private (2.9) were uncertain. Mean for all small is 2.9, and for large public is 3.1. Consensus: Uncertain.

All Institutions by Budget (Table XVI).—Institutions in high budget group, (3.3) in low budget group (3.1), and in upper-middle budget group (2.9) were uncertain. Mean for all groups is 3.0. Consensus: Uncertain.

Public Institutions by Budget (Table XVII).—Public institutions in high budget group disagreed (3.6). Those in lower-middle budget group (3.2), in upper-middle budget (2.9), and in low budget group (2.5) were uncertain. Mean for all groups is 3.1. Consensus: Uncertain.

Private Institutions by Budget (Table XVIII).—Private institutions in lower-middle budget group (3.1), in upper-middle budget group (3.0), in high budget group (2.8), and in low budget group (2.5) were uncertain. Mean for all groups is 2.9. Consensus: Uncertain.

Comparison, Public versus Private Institutions (Table XIX).—Public institutions (3.1), and private institutions (2.9) were uncertain. Mean for all is 3.0. Consensus: Uncertain.
Highest score (3.6) belongs to public high budget group (Table XVII), and lowest score (2.5) belongs to private low budget group institutions (Table XVIII).

**Item #22**

Zero-based budgeting focuses on management process, analysis, and decision making rather than on incremental requests.

**All by Type and Size (Table XV).**—Large private institutions agreed most (1.7), small private next (2.1), small public next (2.2), and large public (2.3) agreed least. Mean for all small is 2.2, and for all large 2.1. Consensus: Agree.

**All Institutions by Budget (Table XVI).**—Institutions in high budget group (2.1), in upper-middle budget group (2.1), in lower-middle budget group (2.14), and those in low budget group (2.2) agreed. Mean for all groups is 2.1. Consensus: Agree.

**Public Institutions by Budget (Table XVII).**—Public institutions in low budget group agreed most (2.1), those in upper-middle budget group next (2.2), those in lower-middle budget group next (2.3), and those in high budget group (2.4) agreed least. Mean for all groups is 2.2. Consensus: Agree.
Private Institutions by Budget (Table XVIII).—Private institutions in high budget group (1.6) agreed most (1.6), those in lower-middle budget group (1.9) next, those in upper-middle group (2.1) next, and those in low budget group (2.3) agreed least. Mean for all groups is 2.0. Consensus: Agree.

Comparison, Public versus Private Institutions (Table XIX).—Both private (2.0) and public (2.2) institutions agreed. Mean for all groups is 2.1. Consensus: Agree.

Examination of the above shows that private institutions agreed most (Table XIX), that among them were those that were large (Table XV) and those that were in high budget group (Table XVIII). Among public institutions, those that were small (Table XV), and those that were in low budget group (Table XVII) agreed most.

Highest score (2.4) belongs to high budget group public institutions (Table XVII), and lowest score (1.7) belongs to large private institutions (Table XV).

**Item #23**

Zero-based budgeting would be very threatening to the organization's staff members.

All by Type and Size (Table XV).—Large public institutions agreed most (2.2). Small private (2.5), large
private next (2.8), and small public (3.0) were uncertain. Mean for all small is 2.8 and for all large institutions 2.7. Consensus: Uncertain.

All Institutions by Budget (Table XVI).—Institutions in upper-middle budget group (2.5), in lower-middle budget group (2.8), in high budget group (2.8), and in low budget group (3.0) were uncertain. Mean for all is 2.7. Consensus: Uncertain.

Public Institutions by Budget (Table XVII).—Public institutions upper-middle budget group (2.6), in high budget group (2.8), in lower-middle budget group next (2.9), and those in low budget group (3.3) were uncertain. Mean for all groups is 2.8. Consensus: Uncertain.

Private Institutions by Budget (Table XVIII).—Private in upper-middle budget group (2.3) agreed. Those in low budget group (2.6), in lower-middle budget group (2.7), and in high budget group (2.8) were uncertain. Mean for all groups is 2.6. Consensus: Uncertain.

Comparison, Public versus Private Institutions (Table XIX).—Both private (2.6) and public (2.9) institutions were uncertain. Mean for all institutions is 2.7. Consensus: Uncertain.
Highest score 3.3 belongs to low budget group public institutions (Table XVII), and lowest score 2.2 belongs to large public institutions (Table XV).

**Item #24**

Zero-based budgeting puts more attention on the budgeting priorities and leads to better output measures in higher educational institutions.

**All by Type and Size (Table XV).**--Large private agreed most (2.2). Small private (2.5), small public (2.6), and large private (2.9) were uncertain. Mean for all small institutions is 2.5 and for all large institutions 2.6. Consensus: Uncertain.

**All Institutions by Budget (Table XVI).**--Institutions in lower-middle budget group (2.5), in high budget group (2.5), in upper-middle budget group (2.6), and in low budget group (2.6) were uncertain. Mean for all groups is 2.6. Consensus: Uncertain.

**Public Institutions by Budget (Table XVII).**--Public institutions in lower-middle budget group (2.5), in upper-middle budget (2.7), in high budget group (2.8), and in low budget group (2.9) were uncertain. Mean for all groups is 2.7. Consensus: Uncertain.
Private Institutions by Budget (Table XVIII).—Private institutions in high budget group agreed most (2.0), those in low budget (2.4), and in lower-middle budget group (2.4) agreed least. Private institutions in upper-middle budget (2.6) were uncertain. Mean for all groups is 2.4. Consensus: Agree.

Public and Private Compared (Table XIX).—Private institutions (2.4) agreed and public institutions (2.7) were uncertain. Mean for all institutions is 2.6. Consensus: Uncertain.

Highest score (2.9) belongs to public institutions in low budget group (Table XVII), and lowest score (2.0) belongs to high budget group private institutions (Table XVIII).

Item #25

Zero-based budgeting heightens the role of planning and policy analysis for priorities and increases the need for general analysis in programmed decision.

All by Type and Size (Table XV).—Large private agreed most (2.0), small public next (2.2), small private (2.3) agreed least. Large public (2.7) were uncertain. Mean for all small is 2.2 (agree) and for all large institutions 2.5 (uncertain).
All Institutions by Budget (Table XVI).—Institutions in lower-middle budget group (2.2), in low budget group (2.2), and in upper-middle budget group (2.4) agreed most. Institutions in high budget group (2.5) were uncertain. Mean for all groups is 2.3. Consensus: Agree.

Public Institutions by Budget (Table XVII).—Public institutions in low budget group (2.1), in lower-middle budget group (2.2) agreed most. Public institutions in upper-middle budget group (2.5), and in high budget group (2.8) were uncertain. Mean for all levels is 2.4. Consensus: Agree.

Private Institutions by Budget (Table XVIII).—Private institutions in high budget group agreed most (1.8), those in lower (2.2) and upper (2.2) middle budget groups, and in low budget group (2.4) agreed least. Mean for all groups is 2.2. Consensus: Agree.

Public and Private Compared (Table XIX).—Private institutions (2.2) and public institutions (2.4) agreed. Mean for all is 2.3. Consensus: Agree.

Examination of the above shows that private institutions agreed most (Table XIX), that among them were those that were large (Table XV), and those that were in high
Among public institutions, those that were small (Table XV), and those that were in low budget group (Table XVII) agreed most.

Highest score (2.8) belongs to public institutions in high budget group (Table XVII) and lowest score (1.8) belongs to private institutions in high budget group (Table XVIII).

**Item #26**

Zero-based budgeting would require more time and money to implement than it would be worth.

**All by Type and Size (Table XV).**—Large public (2.0) agreed, small private (2.5), small public (2.6), and large private (2.8) were uncertain. Mean for all small institutions is 2.6 (uncertain), and for all large institutions 2.3 (agree).

**All Institutions by Budget (Table XVI).**—Institutions in upper-middle budget group agreed most (2.2), those in high budget group (2.3) next. Institutions in lower-middle budget group (2.7), and in low budget group (2.7) were uncertain. Mean for all groups is 2.5. Consensus: Uncertain.

**Public Institutions by Budget (Table XVII).**—Public ZBBs in upper-middle budget group agreed most (2.2), those in high budget group (2.3) next. Public institutions in
lower-middle budget group (2.5), and in low budget group (2.9) were uncertain. Mean for all groups is 2.4. Consensus: Agree.

Private Institutions by Budget (Table XVIII). Private institutions in upper-middle budget group (2.3) agreed most, those in high budget group (2.4) next. Private institutions in low budget group (2.6), and in lower-middle budget group (3.2) were uncertain. Mean for all groups is 2.6. Consensus: Uncertain.

Public and Private Compared (Table XIX). Public institutions (2.4) agreed, private ones (2.4) were uncertain. Mean for all institutions is 2.5. Consensus: Uncertain.

Examination of the above shows that public institutions agreed most (Table XIX), among them those that were large (Table XV) and those in upper-middle budget group (Table XVII). Among private institutions, those that were small (Table XV), and those that were in upper-middle budget group (Table XVIII) agreed most.

Highest score (3.2) belongs to private institutions in lower-middle budget group (Table XVIII), and lowest score (2.0) belongs to large public institutions (Table XV).
Item #27

Zero-based budgeting puts decision making on a more rational basis than do other budgeting systems.

All by Type and Size (Table XV).—Large private institutions (2.4) agreed. Small private (2.8), and small public institutions (3.0) were uncertain. Large public institutions (3.5) disagreed. Mean for all small institutions is 2.9 (uncertain) and for all large institutions is 3.2 (uncertain).

All Institutions by Budget (Table XVI).—All institutions in lower-middle budget group (2.7), in low budget group (2.8), in high budget group (3.0), and in upper-middle budget 3.2 were uncertain. Mean for all groups is 3.0. Consensus: Uncertain.

Public Institutions by Budget (Table XVII).—Public institutions in low budget group (2.8), in lower-middle budget group (2.8), in high budget group (3.4) were uncertain. Those in the upper-middle budget group (3.5) disagreed. Mean for all groups is 3.2. Consensus: Uncertain.

Private Institutions by Budget (Table XVIII).—Private institutions in lower-middle budget group (2.3) and in high budget group (2.3) agreed. Those in upper-middle
budget group (2.9), and in low budget group (2.9) were uncertain. Mean for all groups is 2.7. Consensus: Uncertain.

Public and Private Compared (Table XIX).—Private (2.7) and public institutions (3.2) were uncertain. Mean for all is 3.0. Consensus: Uncertain.

Highest score (3.5) belongs to large public institutions (Table XV) and public institutions in upper-middle budget group (Table XVII), and the lowest score (2.3) belongs to private institutions in lower-middle budget and high budget group (Table XVIII).

Item #28

Zero-based budgeting makes possible allocation of financial resources on a more rational basis.

All by Type and Size (Table XV).—Large private (2.3) agreed. Small private (2.6), small public (2.7), and large public institutions (3.0) were uncertain. Mean for all small institutions is 2.7 (uncertain), and for all large institutions is 2.8 (uncertain). Consensus: Uncertain.

All Institutions by Budget (Table XVI).—Institutions in lower-middle budget group (2.5), in high budget group (2.7), in low budget group (2.8), and in upper-middle budget group (2.8) were uncertain. Mean for all groups is 2.7. Consensus: Uncertain.
Public Institutions by Budget (Table XVII).--Public institutions in low budget group (2.6), in lower-middle budget group (2.7), in high budget group (2.9), and in upper-middle budget group (3.0) were uncertain. Mean for all levels is 2.8. Consensus: Uncertain.

Private Institutions by Budget (Table XVIII).--Private institutions in lower-middle budget group (2.0) agreed most, those in high budget group (2.4) next. Private institutions in upper-middle budget group (2.6), and those in low budget group (2.9) were uncertain. Mean for all groups is 2.5. Consensus: Uncertain.

Public and Private Compared (Table XIX).--Public (2.8) and private (2.6) institutions are uncertain. Mean for all institutions is 2.7. Consensus: Uncertain.

Among private institutions those that were large (Table XV), and in lower-middle budget group (Table XVIII) agreed most. Among public institutions, those that were small (Table XV) and those that were in low budget group (Table XVII) agreed most.

Highest score (3.00), uncertain, belongs to public institutions in upper-middle budget group (Table XVII) and large public institutions (Table XV), and lowest score (2.0) agree, belongs to private institutions in lower-middle budget group (Table XVIII).
Item #29

Zero-based budgeting would cause a kind of resistance among the managers in the institutions because of their fear of the possible elimination of jobs.

All by Type and Size (Table XV).—Large private institutions (2.2) agreed. Small private (2.7), large public (3.0), and small private (3.0) were uncertain. Mean for all small institutions is 2.9 (uncertain) and for all large institutions 2.7 (uncertain). Consensus: Uncertain.

All Institutions by Budget (Table XVI).—Institutions in upper-middle budget group (2.7), in lower-middle budget group (2.8), in high budget group (2.9) and those in low budget group (3.1) were uncertain. Mean for all groups is 2.8. Consensus: Uncertain.

Public Institutions by Budget (Table XVII).—Public institutions in lower-middle budget group (2.7), in upper-middle budget group (2.9) and those in high budget group (3.2) were uncertain. Public institutions in low budget group (3.5) disagreed. Mean for all groups is 3.0. Consensus: Uncertain.

Private Institutions by Budget (Table XVIII).—Private institutions in high budget group (2.2) agreed. Those
in upper-middle budget group (2.5), in low budget group (2.6), and in lower-middle budget group (3.0) were uncertain. Mean for all groups is 2.6. Consensus: Uncertain.

Public and Private Compared (Table XIX).—Both public (3.0) and private (2.6) were uncertain. Mean for all institutions is 2.8. Consensus: Uncertain.

Highest score (3.5) belongs to low budget public (Table XVII), and lowest score (2.2) belongs to large private (Table XV) institutions.

**Item #30**

Zero-based budgeting will serve better than any other budgeting system to explain to the taxpayers and/or to other funders of the institutions of higher education the need for and the allocation of funds.

All by Type and Size (Table XV).—Small private institutions (2.9), large private (3.0), small public (3.3) were uncertain. Large public institutions (3.9) disagreed. Mean for all small institutions is 3.1 (uncertain) and for all large institutions 3.6 (disagree).

All Institutions by Budget (Table XVI).—Institutions in high budget group disagree (3.6). Those in low budget
group (3.2), in upper-middle budget group (3.2), and in lower-middle budget group (3.0) were uncertain. Mean for all groups is 3.3. Consensus: Uncertain.

Public Institutions by Budget (Table XVII).--Public institutions in high budget group disagreed most (3.8), those in upper-middle budget level next (3.6). Public institutions in low budget group (3.4), and in lower-middle budget group (3.2) were uncertain. Mean for all groups is 3.5. Consensus: Disagree.

Private Institutions by Budget (Table XVIII).--Private institutions in high budget group (3.1), in low budget group (3.1), in upper-middle budget group (2.7), and those in the lower-middle budget group (2.9) were uncertain. Mean for all groups is 2.9. Consensus: Uncertain.

Public and Private Compared (Table XIX).--Public institutions (3.5) disagreed, while private institutions (2.9) were uncertain.

Examination of the above shows that public institutions disagreed (Table XIX), among them those that were large (Table XV) and those in high budget group (Table XVII). Private institutions were uncertain (Table XIX). Highest score (3.9) belongs to large public institutions (Table XV), and lowest score (2.7) belongs to upper-middle budget private institutions (Table XVIII).
Item #31

Zero-based budgeting would be more costly to install than any other budgeting system.

All by Type and Size (Table XV).—Large public institutions agreed most (2.3), small private next (2.3). Small public (2.7), and large private (3.1) were uncertain. Mean for all small institutions is 2.5 and for all large institutions 2.6. Consensus: Uncertain.

All Institutions by Budget (Table XVII).—Institutions in upper-middle budget group agreed (2.2). Those in lower-middle budget group (2.6), in low budget group (2.6), and in high budget group (2.7) were uncertain. Mean for all groups is 2.5. Consensus: Uncertain.

Public Institutions by Budget (Table XVII).—Public institutions in upper-middle budget group (2.2) agreed. Those in lower-middle budget group (2.5), in high budget group (2.6), and in low budget group (2.9) were uncertain. Mean for all groups is 2.5. Consensus: Uncertain.

Private Institutions by Budget (Table XVIII).—Private institutions in low budget group (2.3) agreed most, those in upper-middle budget level next (2.3). Private
institutions in lower-middle budget group (2.9) and high budget group (2.9) were uncertain. Mean for all groups is 2.5. Consensus: Uncertain.

Public and Private Compared (Table XIX).—Both public (2.5) and private institutions (2.5) were uncertain. Mean for all institutions is 2.5. Consensus: Uncertain.

Highest score (3.1) belongs to large private institutions (Table XV) and lowest score (2.2) belongs to upper-middle budget public institutions (Table XVII).

Item #32

Zero-based budgeting would give top management a better system for receiving detailed information concerning the organization's financial operation.

All by Type and Size (Table XV).—Small private (2.8), large private (2.9), small public (3.0), and large public institutions (3.3) were uncertain. Mean for all small institutions is 2.9 (uncertain) and for all large institutions 3.2. Consensus: Uncertain.

All Institutions by Budget (Table XVI).—Institutions in upper-middle budget group (2.9), in lower-middle budget group (2.9), in low budget level next (2.9), and in high budget group (3.3) were uncertain. Mean for all groups is 3.0. Consensus: Uncertain.
Public Institutions by Budget (Table XVII).—Public institutions in low budget group (3.0), lower-middle budget group (3.0), upper-middle budget group (3.0) and in high budget group (3.3) were uncertain. Mean for all groups is 3.1. Consensus: Uncertain.

Private Institutions by Budget (Table XVIII).—Private institutions in lower-middle budget group (2.7), in upper-middle budget group (2.7), in low budget group (2.8), and in high budget group (3.1) were uncertain. Mean for all groups is 2.8. Consensus: Uncertain.

Public and Private Compared (Table XIX).—Public institutions (3.1) private institutions (2.8) were uncertain. Mean for all institutions is 3.0. Consensus: Uncertain.

Examination of the above shows that public institutions and private institutions (Table XIX) were uncertain.

The highest score (3.3) belongs to high budget group public institutions (Table XVII), and the lowest score (2.7) belongs to private institutions in lower-middle budget group (Table XVIII).

Item #33

Zero-based budgeting would promote more efficient allocation of financial resources than any other budgeting system.
All by Type and Size (Table XV).—Large public institutions (3.6) disagreed most. Small public (3.1), large private (2.8), and small private (3.0) were uncertain. Mean for all small institutions is 3.1 (uncertain) and for all large institutions 3.4. Consensus: Uncertain.

All Institutions by Budget (Table XVI).—Institutions in high budget group (3.4), in low budget group (3.3), in upper-middle budget group (3.1), and those in lower-middle budget group (2.9) were uncertain. Mean for all groups is 3.2. Consensus: Uncertain.

Public Institutions by Budget (Table XVII).—Public institutions in high budget group (3.6) disagreed. Those in upper-middle budget group (3.4), in low budget group next (3.2), and in lower-middle budget group (3.0) were uncertain. Mean for all groups is 3.3. Consensus: Uncertain.

Private Institutions by Budget (Table XVIII).—Private institutions in lower-middle budget group (2.6), in upper-middle budget group (2.8), in high budget group (3.0), and in low budget group (3.4) were uncertain. Mean for all groups is 2.9. Consensus: Uncertain.

Public and Private Compared (Table XIX).—Public institutions (3.3), private institutions (2.9) were uncertain. Mean for all is 3.2. Consensus: Uncertain.
Examination of the above shows that both public and private institutions were uncertain (Table XIX). Among public institutions, those that were large (Table XV) and those that were in high budget group (Table XVII) disagreed most.

Highest score (3.7) belongs to large public institutions (Table XV), and the lowest score (2.6) belongs to private institutions in low-middle budget group (Table XVIII).

**Item #34**

Zero-based budgeting would prevent history, tradition, or custom from becoming the justification for maintaining certain expenditures.

**All by Type and Size (Table XV).--**Large private institutions agreed most (1.8), small public next (2.2). Small private institutions (2.6), and large public (2.6) were uncertain. Mean for all small institutions is 2.4 (agree) and for all large institutions 2.4. Consensus: Agreed.

**All Institutions by Budget (Table XVI).--**Institutions in lower-middle budget group agreed most (2.2), those in low budget group next (2.3), those in upper-middle budget group (2.3) agreed least. Institutions in high budget group (2.7) were uncertain. Mean for all groups is 2.4. Consensus: Agree.
Public Institutions by Budget (Table XVII).—Public institutions in lower-middle budget group agreed most (1.9), those in low budget group next (2.1), those in upper-middle (2.4) group agreed least. Public institutions in high budget group (3.1) were uncertain. Mean for all groups is 2.4. Consensus: Agree.

Private Institutions by Budget (Table XVIII).—Private institutions in high budget group agreed most (1.9), those in upper-middle budget group (2.3) agreed least. Private institutions in low budget group (2.5), and in lower-middle budget group (2.9) were uncertain. Mean for all levels is 2.4. Consensus: Agree.

Public and Private Compared (Table XIX).—Both public (2.4) and private (2.4) agreed. Mean for all is 2.4. Consensus: Agree.

Examination of the above shows that both public and private institutions agreed, with small differences (Table XIX). Among public institutions, those that were small (Table XV) and those in lower-middle budget group (Table XVII) agreed most. Among private institutions, those that were large (Table XV) and those in high budget group (Table XVIII) agreed most.
It is evident that opposite opinions exist. Highest score (3.1) belongs to public institutions in high budget group (Table XVII) and lowest score (1.8) belongs to large private institutions (Table XV).

Item #35

Zero-based budgeting would fail in higher educational institutions because of the problem of faculty tenure.

All by Type and Size (Table XV).—Large private institutions (3.4), small public (3.4), small private (3.3), and large public (3.0) were uncertain. Mean for all small is 3.3 (uncertain) and for all large institutions 3.2. Consensus: Uncertain.

All Institutions by Budget (Table XVI).—Institutions in low budget group (3.5), in high budget group (3.3) disagreed. Those in lower-middle budget group (3.3), and in upper-middle budget group (3.1) were uncertain. Mean for all groups is 3.3. Consensus: Uncertain.

Public Institutions by Budget (Table XVII).—Public institutions in low budget group disagree most (3.9), those in high budget group next (3.5). Those in lower-middle budget group (3.04), and those in upper-middle budget group (2.7) are uncertain. Mean for all groups is 3.2. Consensus: Uncertain.
Private Institutions by Budget (Table XVIII).—Private institutions in lower-middle budget group (3.8) disagreed. Those in high budget group (3.3), in upper-middle budget group (3.2), and in low budget group (3.0) were uncertain. Mean for all groups is 3.3. Consensus: Uncertain.

Public and Private Compared (Table XIX).—Both public (3.2) and private (3.3) were uncertain. Mean for all is 3.3 (uncertain).

Examination of the above shows that both public and private institutions were uncertain.

Highest score (3.9) belongs to public institutions in low budget group (Table XVII) and lowest score (2.7) belongs to public institutions in upper-middle budget level (Table XVII).

Item #36

Zero-based budgeting would identify and eliminate vestigial and outdated methods and programs.

All by Type and Size (Table XV).—Large private institutions (2.3) agreed. Small public institutions (2.8), small private (2.8) were uncertain. Large public institutions (3.6) disagreed. Mean for all small institutions is 2.8 and for all large institutions 2.7. Consensus: Uncertain.
All Institutions by Budget (Table XVI).—Institutions in low budget group (2.6), in high budget group (2.7), in upper-middle budget group (2.8), and in lower-middle budget group (2.8) were uncertain. Mean for all groups is 2.7. Consensus: Uncertain.

Public Institutions by Budget (Table XVII).—Public institutions in low budget group (2.7), in lower-middle budget group (2.7), in upper-middle budget group (2.8), and in high budget group (2.9) were uncertain. Mean for all groups is 2.8. Consensus: Uncertain.

Private Institutions by Budget (Table XVIII).—Private institutions in high budget group (2.4) agreed. Those in low budget group (2.6), in upper-middle budget group (2.8), and in lower-middle budget group (3.0) were uncertain. Mean for all groups is 2.7. Consensus: Uncertain.

Public and Private Compared (Table XIX).—Both public (2.8) and private (2.7) were uncertain. Mean for all is 2.7. Consensus: Uncertain.

Highest score (3.6) (disagreed) belongs to large public (Table XV) and lowest score (2.3) (agree) belongs to large private institutions (Table XV).
Item #37

Zero-based budgeting would fail because of problems of faculty unions in higher educational institutions.

All by Type and Size (Table XV).—Large private institutions (3.8) disagreed. Small public institutions (3.3), small private (3.2), and large public (3.2) were uncertain. Mean for all small is 3.3 (uncertain) and for all large 3.4. Consensus: Uncertain.

All Institutions by Budget (Table XVI).—Institutions in both low budget group (3.6) and in high budget group (3.6) disagreed. Institutions in lower-middle budget group (3.2), and in upper-middle budget group (3.1) were uncertain. Mean for all groups is 3.3. Consensus: Uncertain.

Public Institutions by Budget (Table XVII).—Public institutions in low budget group (3.9) disagreed. Those in high budget group (3.4), in lower-middle budget group (3.1), and in upper-middle budget group (2.9) were uncertain. Mean for all groups is 3.3. Consensus: Uncertain.

Private Institutions by Budget (Table XVII).—Private institutions in high budget group (3.8) disagreed. Those in lower-middle budget group (3.4), in upper-middle budget group (3.3), and in low budget group (3.1) were uncertain. Mean for all groups is 3.4. Consensus: Uncertain.
Public and Private Compared (Table XIX).—Private institutions (3.8) disagreed, public institutions (3.3) were uncertain. Mean for all institutions is 3.3. Consensus: Uncertain.

Examination of the above shows that private institutions disagreed (Table XIX), among them those that were large (Table XV) and those that were in high budget group (Table XVIII) disagreed most.

Highest score (3.9) belongs to public institutions in low budget group (Table XVII), and the lowest score (2.9) belongs to public institutions in upper-middle budget group (Table XVIII).

**Item #38**

Zero-based budgeting would allow for more effective identification of the low-cost alternative methods for providing educational services.

All by Type and Size (Table XV).—Large private institutions (2.3) agreed. Small private institutions (2.7), small public (2.9), and large public (3.1) were uncertain. Mean for all small is 2.8 (uncertain) and for all large 2.8. Consensus: Uncertain.

All Institutions by Budget (Table XVI).—Institutions in upper-middle budget group (2.7), in lower-middle budget
group (2.8), in low budget group (2.8), and in high budget group (3.0) were uncertain. Mean for all groups is 2.8. Consensus: Uncertain.

**Public Institutions by Budget (Table XVII).**—Public institutions in upper-middle budget group (2.8), in lower-middle budget group (2.8), in low budget group (2.9), and in high budget group (3.3) were uncertain. Mean for all groups is 2.9. Consensus: Uncertain.

**Private Institutions by Budget (Table XVIII).**—Private institutions in high budget group (2.6), in lower-middle budget group (2.6), in low budget group (2.6), and in upper-middle budget group (2.7) were uncertain. Mean for all groups is 2.6. Consensus: Uncertain.

**Public and Private Compared (Table XIX).**—Private institutions (2.6) and public institutions (2.9) were uncertain. Mean for all institutions is 2.8. Consensus: Uncertain.

Highest score (3.3) belongs to public institutions in high budget group (Table XVII) and the lowest score (2.3) belongs to large private institutions (Table XV).
Item #39
Zero-based budgeting would cause each staff member to become more cost conscious, cost-benefit sensitive, and involved in fiscal planning.

All by Type and Size (Table XV).—Large private institutions (2.4) agreed. Small private institutions (2.5), small public (2.6), and large public (3.2) were uncertain. Mean for all small is 2.5 (uncertain) and for all large 3.0. Consensus: Uncertain.

All Institutions by Budget (Table XVI).—Institutions in low budget group (2.4) agreed. Those in lower-middle budget group (2.5), in upper-middle budget group (2.6), and in high budget group (3.2) were uncertain. Mean for all groups is 2.7. Consensus: Uncertain.

Public Institutions by Budget (Table XVII).—Public institutions in low budget group (2.4) agreed. Those in lower-middle budget group (2.5), in upper-middle budget group (2.8) were uncertain. Public institutions in high budget group (3.5) disagreed. Mean for all groups is 2.8. Consensus: Uncertain.

Private Institutions by Budget (Table XVIII).—Private institutions in low budget group agreed most (2.4), and those in both lower-middle budget group (2.4) and in high
budget group (2.4) agreed. Private institutions in upper-middle budget group (2.5) were uncertain. Mean for all groups is 2.5. Consensus: Uncertain.

Public and Private Compared (Table XIX).—Both public (2.8) and private (2.5) institutions were uncertain. Mean for all institutions is 2.7. Consensus: Uncertain.

Among private institutions those that were large (Table XV) and those in low budget group (Table XVIII) agreed most. High budget public institutions disagreed (Table XVII).

Highest score (3.5) belongs to high budget public institutions (Table XVII), and lowest score (2.4) belongs to low budget private institutions (Table XVIII).

Item #40

Zero-based budgeting would develop higher morale among staff because an open system of budgeting is using with expenditures and programs openly and rationally justified.

All by Type and Size (Table XV).—Large public institutions (3.6) disagreed. Small public institutions (3.4), large private (3.2), and small private (3.0) were uncertain. Mean for all small is 3.3 (uncertain) and for all large institutions 3.5. Consensus: Disagree.
All Institutions by Budget (Table XVI).—Institutions in high budget group (3.5) disagreed. Those in upper-middle budget group (3.4), in lower-middle budget group (3.2), and in low budget group (3.2) were uncertain. Mean for all groups is 3.3. Consensus: Uncertain.

Public Institutions by Budget (Table XVII).—Public institutions in high budget group (3.6) disagreed most. Those in upper-middle budget group (3.6) next, those in lower-middle budget group (3.5) disagreed least. Public institutions in low budget group (3.3) were uncertain. Mean for all is 3.5. Consensus: Disagree.

Private Institutions by Budget (Table XVIII).—Private institutions in upper-middle budget group (3.2), in high budget group (3.2), in low budget group (3.0), and in lower-middle budget group (2.7) were uncertain. Mean for groups is 3.1. Consensus: Uncertain.

Public and Private Compared (Table XIX).—Public institutions (3.5) disagree, private institutions (3.1) were uncertain. Mean for all institutions is 3.3. Consensus: Uncertain.

Examination of the above shows that public institutions disagreed (Table XIX), among them those that are large (Table XV) and those in high budget group (Table XVII).
disagreed most. It is evident that opposite opinions exist. Highest score (3.6) disagree, belongs to public institutions in high budget group (Table XVII) and lowest score (2.7) (uncertain), belongs to private institutions in lower-middle budget group (Table XVIII).

**Item #41**

Zero-based budgeting would not work because formalized policy and planning are often nonexistent, inadequate, or not communicated properly to lower level managers.

**All by Type and Size (Table XV).**—Large private institutions (3.7) are disagreed. Small public (3.2), small private (3.1), and large private (3.0) were uncertain. Mean for all small is 3.1 and for all large 3.2. Consensus: Uncertain.

**All Institutions by Budget (Table XVI).**—Institutions in high budget group (3.3), in lower-middle budget group (3.2), in low budget group (3.2), and in upper-middle budget group (3.0) were uncertain. Mean for all groups is 3.1. Consensus: Uncertain.

**Public Institutions by Budget (Table XVII).**—Public institutions in low budget group (3.5) disagreed. Those in
lower-middle budget group (3.1), in high budget group (3.1), and in upper-middle budget group (2.9) were uncertain. Mean for all groups is 3.1. Consensus: Uncertain.

Private Institutions by Budget (Table XVIII).—Private institutions in high budget group (3.7) disagreed. Those in lower-middle budget group (3.4), in upper-middle budget group (3.1), and in low budget group (2.8) were uncertain. Mean for all groups is 3.2. Consensus: Uncertain.

Public and Private Compared (Table XIX).—Both public (3.1) and private (3.2) institutions were uncertain. Mean for all institutions is 3.1. Consensus: Uncertain.

Highest score (3.7) belongs both to large private (Table XV) and to private institutions in high budget group (Table XVIII), and the lowest score (2.9) belongs to public institutions in upper-middle budget group (Table XVIII).

Item #42

Zero-based budgeting would provide concrete feedback from the planning and budgeting process and provide the administrators a clear indication of how she or he is doing.

All by Type and Size (Table XV).—Large private institutions (2.5), small private (2.7), large public (2.7), and
small public (2.8) were uncertain. Mean for all small is 2.8 and for all large institutions 2.7. Consensus: Uncertain.

All Institutions by Budget (Table XVI).—Institutions in upper-middle budget group (2.7), in low budget group (2.7), in lower-middle budget group (2.7), and in high budget group (2.9) were uncertain. Mean for all groups is 2.7. Consensus: Uncertain.

Public Institutions by Budget (Table XVII).—Public institutions in low budget group (2.6), in upper-middle budget group (2.7), in lower-middle budget group (2.8), and in high budget group (3.0) were uncertain. Mean for all groups is 2.8. Consensus: Uncertain.

Private Institutions by Budget (Table XVIII).—Private institutions in lower-middle budget group (2.6), in upper-middle budget group (2.6), in low budget group (2.7), and in high budget group (2.8) were uncertain. Mean for all groups is 2.7. Consensus: Uncertain.

Public and Private Compared (Table XIX).—Both public (2.8) and private (2.7) were uncertain. Mean for all is 2.8. Consensus: Uncertain.
Highest score (3.0) belongs to high budget group public institutions (Table XVII), and the lowest score (2.6) belongs to lower budget, lower-middle, and upper-middle budget group private institutions (Table XVIII).

**Item #43**

Zero-based budgeting would give top management a better view of the total organization from the standpoint of resource allocation, the various alternatives possible, and probable impact on institutional objectives, thus allowing greater flexibility.

**All by type and Size (Table XV).**—Large private institutions agreed most (2.2), both small public (2.4) and small private (2.4) were agreed least. Large public (2.8) were uncertain. Mean for all small is 2.4 (agree) and for all large 2.6. Consensus: Uncertain.

**All Institutions by Budget (Table XVI).**—Institutions in lower-middle budget group (2.4) agreed most, those in high budget group (2.4) next. Institutions in low budget group (2.5), and in upper-middle budget group (2.5) were uncertain. Mean for all groups is 2.5. Consensus: Uncertain.

**Public Institutions by Budget (Table XVII).**—Public institutions in low budget group (2.4) agreed most. Those
in lower-middle budget group (2.5), in upper-middle budget group (2.6), and in high budget group (2.7) were uncertain. Mean for all groups is 2.6. Consensus: Uncertain.

_Private Institutions by Budget (Table XVIII)._—Private institutions in high budget group (2.0) agreed most, those in lower-middle budget group (2.2) next, those in upper-middle budget group (2.4) agreed least. Private institutions in low budget group (2.6) were uncertain. Mean for all groups is 2.4. Consensus: Agree.

_Public and Private Compared (Table XIX)._—Private institutions (2.4) agreed, public institutions (2.6) were uncertain. Mean for all institutions is 2.5. Consensus: Uncertain.

Examination of the above shows that private institutions agreed (Table XIX), among them those that were large (Table XV) and those in high budget group (Table XVIII) agree most. Among public institutions those that were small (Table XV) and those that in low budget group (Table XVII) agreed most.

Highest score (2.8) belongs to large public institutions (Table XV), and lowest score (2.0) belongs to high budget private institutions (Table XVIII).
Item #44

Zero-based budgeting would not work because in most organization the managers have become accustomed to analyzing their operations and tend to do so on a continuing basis rather than only during the budgeting cycle.

All by Type and Size (Table XV).—Large private institutions (3.8) disagreed. Small private (3.3), and both small (3.2) and large (3.2) public institutions were uncertain. Mean for all small is 3.3 (uncertain) and for all large 3.4 (uncertain). Consensus: Uncertain.

All Institutions by Budget (Table XVI).—Institutions in low budget group (3.5), in upper-middle budget group (3.5) disagree. Those in high budget group (3.4), and in lower-middle budget group (3.0) were uncertain. Mean for all groups is 3.4. Consensus: Uncertain.

Public Institutions by Budget (Table XVII).—Public institutions in low budget group (3.8) disagreed. Those in upper-middle budget group (3.4), in high budget group (3.2), and in lower-middle budget group (2.8) were uncertain. Mean for all groups is 3.3. Consensus: Uncertain.

Private Institutions by Budget (Table XVIII).—Private institutions in high budget group (3.8) disagreed most.
Those in upper-middle budget group (3.5) disagreed least. Private institutions in lower-middle budget group (3.4), and in low budget group (3.1) were uncertain. Mean for all groups is 3.5. Consensus: Uncertain.

**Public and Private Compared (Table XIX).**—Private institutions (3.5) disagreed, public institutions (3.3) were uncertain. Mean for all institutions is 3.4. Consensus: Uncertain.

Examination of the above shows that private institutions disagreed (Table XIX), among them those that were large (Table XV) and those in high budget group (Table XVIII) disagreed most. Among public institutions, those that were in low budget group (Table XVII) disagreed most.

Highest score (3.8) belongs to low budget public institutions (Table XVII) and lowest score (2.8) belongs to lower-middle budget group public institutions (Table XVII).

**Item #45**

Zero-based budgeting will help reviewers of the institution's budget have a greater degree of confidence and trust in the budget preparation and expenditure.

**All by Type and Size (Table XV).**—Small private institutions (2.6), large private (2.7), small public (2.9), and
large public (3.2) were uncertain. Mean for all small is 2.8 (uncertain) and for all large 3.0 (uncertain). Consensus: Uncertain.

**All Institutions by Budget (Table XVI).**—Institutions in low budget group (2.7), in lower-middle budget group (2.8), in upper-middle budget group (2.8), and in high budget group (3.2) were uncertain. Mean for all groups is 2.9. Consensus: Uncertain.

**Public Institutions by Budget (Table XVII).**—Public institutions in low budget group (2.8), in lower-middle budget group (2.9), in upper-middle budget group (3.1), and in high budget group (3.3) were uncertain. Mean for all groups is 3.0. Consensus: Uncertain.

**Private Institutions by Budget (Table XVIII).**—Private institutions in lower-middle budget group (2.4) agreed. Those in low budget group (2.6), in upper-middle budget group (2.6), and in high budget group (2.9) were uncertain. Mean for all groups is 2.6. Consensus: Uncertain.

Highest score (3.3) belongs to high budget group public institutions (Table XVII) and lowest score (2.4) belongs to lower-middle budget group private institutions (Table XVIII).
Item #46

Zero-based budgeting is increasingly significant because it is a budgeting approach which promises to reexamine what an institution of higher education does at the present time before embarking on new programs.

All by Type and Size (Table XV).—Small private institutions (2.3) and large private institutions (2.3) agreed. Small public (2.6), large public (2.7) were uncertain. Mean for all small institutions is 2.5 and for all large institutions 2.6. Consensus: Uncertain.

All Institutions by Budget (Table XVI).—All institutions in low budget group (2.4) agreed. Those in upper-middle budget group (2.5), in lower-middle budget group (2.5), and in high budget group (2.7) were uncertain. Mean for all groups is 2.5. Consensus: Uncertain.

Public Institutions by Budget (Table XVII).—Public institutions in low budget group (2.4) agreed. Those in lower-middle budget group (2.5), in upper-middle budget group (2.8), and in high budget group (2.9) were uncertain. Mean for all groups is 2.6. Consensus: Uncertain.

Private Institutions by Budget (Table XVIII).—Private institutions in upper-middle budget group (2.1) agreed
most, those in low budget level next (2.4), and those in both lower-middle budget group (2.4) and high budget group (2.4) agreed least. Mean for all groups is 2.3. Consensus: Agree.

Public and Private Compared (Table XIX).—Private institutions (2.3) agreed, public ones (2.6) were uncertain. mean for all is 2.5. Consensus: Uncertain.

Examination of the above shows that private institutions agreed (Table XIX), among them those that were small (Table XV) and those in upper-middle budget group (Table XVIII) agreed most.

Highest score (2.9) belongs to high budget group public (Table XVII), and lowest score (2.1) belongs to upper-middle budget group private institutions (Table XVIII).

Item #47

Zero-based budgeting will help as "professional development" device because it leads to an increase in the skill and ability of the mangers and staff and makes them to be more effective and rational.

All by Type and Size (Table XV).—Large private institutions (2.3) agreed. Small private (2.6), large public (2.8), and small public (2.9) were uncertain. Mean for all small institutions is 2.7 and for all large 2.6. Consensus: Uncertain.
All Institutions by Budget (Table XVI).—Institutions in lower-middle budget group (2.6), in high budget group (2.7), in upper-middle budget group (2.7), and in low budget group (2.7) were uncertain. Mean for all groups is 2.7. Consensus: Uncertain.

Public Institutions by Budget (Table XVII).—Public institutions in lower-middle budget group (2.7), in low budget group (2.8), in high budget group (2.8), and in upper-middle budget group (3.0) were uncertain. Mean for all levels is 2.8. Consensus: Uncertain.

Private Institutions by Budget (Table XVIII).—Private institutions in high budget group (2.3), and in upper-middle budget group (2.4) agreed. Private institutions in lower-middle budget group (2.6), and in low budget group (2.6) were uncertain. Mean for all groups is 2.5. Consensus: Uncertain.

Public and Private Compared (Table XIX).—Both public (2.8) and private (2.5) institutions were uncertain. Mean for all is 2.7. Consensus: Uncertain.

Highest score (3.0) belongs to upper-middle budget group public institutions (Table XVII), and lowest score (2.3) belongs both to large private (Table XV) and to high budget group private institutions (Table XVIII).
Item #48

Zero-based budgeting would not work because defining and delineating decision units and decision packages is hard work and very complicated.

All by Type and Size (Table XV).—Large private institutions (3.9), and large public institutions (3.5) disagreed. Small public (3.2), and small private institutions (3.2) were uncertain. Mean for all small institutions is 3.2 (uncertain) and for all large 3.6. Consensus: Disagree.

All Institutions by Budget (Table XVI).—Institutions in high budget group (3.8), in low budget group (3.5) disagreed. Institutions in upper-middle budget group (3.1), and in lower-middle budget group (3.0) were uncertain. Mean for all groups is 3.3. Consensus: Uncertain.

Public Institutions by Budget (Table XVII).—Public institutions in low budget group (3.8), and in high budget group (3.6) disagreed. Public institutions in upper-middle budget group (3.1), and in lower-middle budget group (2.9) were uncertain. Mean for all groups is 3.3. Consensus: Uncertain.

Private Institutions by Budget (Table XVIII).—Private institutions in high budget group (4.1) disagreed.
Those in lower-middle budget group (3.3), in upper-middle budget group (3.2), and in low budget group (3.1) were uncertain. Mean for all groups is 3.4. Consensus: Uncertain.

Among private institutions those that were large (Table XV) and those in high budget group (Table XVIII) disagreed most. Among public institutions, those that were large (Table XV) and those that were in low budget group (Table XVII) disagreed most.

It is evident that opposite opinions exist. Highest score (4.1) belongs to high budget group private (Table XVIII), and lowest score (2.9), belongs to public institutions in lower-middle budget group (Table XVII).

**Item #49**

Zero-based budgeting requires the preparation of a list of ranked decision packages which can serve as a basis for further planning and budget adjustments which may be required because of changing circumstances.

**All by Type and Size (Table XV).**—Large public institutions (2.0), large private (2.0), small public (2.0), and small private (2.2) agreed. Mean for all small institutions is 2.1 and for all large 2.1. Consensus: Agree.

**All Institutions by Budget (Table XVI).**—Institutions in high budget group (1.9), in lower-middle budget group
(2.1), in upper-middle budget group (2.2), and in low budget group (2.3) agreed. Mean for all groups is 2.1. Consensus: Agree.

Public Institutions by Budget (Table XVII).--Public institutions in high budget group (1.8) agreed most, those in lower-middle budget group (2.0) next, those in upper-middle budget group (2.1) next, and those in low budget group (2.4) agreed least. Mean for all groups is 2.1. Consensus: Agree.

Private Institutions by Budget (Table XVIII).--Private institutions in high budget group (2.0) agreed most, those in low budget group (2.2) next, and those in both lower-middle (2.2) and upper-middle (2.2) budget groups agreed least. Mean for all groups is 2.2. Consensus: Agree.

Public and Private Compared (Table XIX).--Both Public (2.1) and private (2.2) agreed. Mean for all institutions is 2.1. Consensus: Agree.

Public institutions agreed most (Table XIX), among them those that were large (Table XV) and those in high budget group (Table XVII). Among private institutions, those that were large (Table XV) and those that were in high budget group (Table XVIII) agreed most.
Highest score (2.4) belongs to low budget public (Table XVII), and lowest score (1.8) belongs to high budget group public institutions (Table XVII).

Effect of ZBB on the Time Spent in Budget Preparation: Item #50 (Tables XX-XXIV)

What effect would this system of budgeting have on the time spent in budget preparation in comparison to the currently-used budgeting system if that is not zero-based budgeting? Tables XX through XXIV show data for the question.

Public Institutions, N=77.—Of 71 respondents 64 (90 percent) believed that in the first year of implementation it would increase to some degree and none believed it would decrease. Statistical mean is 1.3. In subsequent years, 54 (75 percent) believed, it would increase to some degree and 5 (7 percent) believed it would decrease. Statistical mean is 2.0. Consensus: Increase.

Private Institutions, N=59.—Of 45 respondents, 42 (93 percent) believed that in the first year of implementation it would increase to some degree, none believed it would decrease. Statistical mean is 1.3. In subsequent years of implementation, 38 (84 percent) believed, it would increase to some degree, and 1 (2 percent) believed it would decrease. Statistical mean is 1.8. Consensus: Increase.
### TABLE XX

**EFFECT OF ZBB ON THE TIME SPENT IN BUDGET PREPARATION IN COMPARISON TO THE INSTITUTION'S CURRENT BUDGETING SYSTEMS INSTITUTIONS BY TYPE**

<table>
<thead>
<tr>
<th>Description</th>
<th>Public</th>
<th>%</th>
<th>Private</th>
<th>%</th>
<th>Public &amp; Private</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First year of implementation:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It would:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. increase considerably</td>
<td>55</td>
<td>77</td>
<td>34</td>
<td>75</td>
<td>89</td>
<td>77</td>
</tr>
<tr>
<td>2. increase slightly</td>
<td>9</td>
<td>13</td>
<td>8</td>
<td>18</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>3. remain about the same</td>
<td>7</td>
<td>10</td>
<td>3</td>
<td>7</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>4. decrease slightly</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5. decrease considerably</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>71</td>
<td>100</td>
<td>45</td>
<td>100</td>
<td>116</td>
<td>100</td>
</tr>
<tr>
<td><strong>Statistical mean</strong></td>
<td>1.3</td>
<td></td>
<td>1.3</td>
<td></td>
<td>1.3</td>
<td></td>
</tr>
</tbody>
</table>

| **Subsequent years of implementation:** |        |    |         |    |                  |    |
| It would:                             |        |    |         |    |                  |    |
| 1. increase considerably              | 22     | 31 | 16      | 36 | 38               | 33 |
| 2. increase slightly                  | 32     | 45 | 22      | 49 | 54               | 47 |
| 3. remain about the same              | 12     | 17 | 6       | 13 | 18               | 15 |
| 4. decrease slightly                  | 3      | 4  | 1       | 2  | 4                | 3  |
| 5. decrease considerably              | 2      | 3  | 0       | 0  | 2                | 2  |
| **Total**                             | 71     | 100| 45      | 100| 116              | 100|
| **Statistical mean**                  | 2.0    |    | 1.8     |    | 2.0              |    |
All Institutions, N=136.—Of 116 respondents, 106 (91 percent) believed that in the first year of implementation it would increase to some degree, none believed it would decrease. Statistical mean is 2.0. Consensus: Increase.

Comparison, Public versus Private Institutions.—Officers of both public and private institutions believed that ZBB would increase time spent in budget preparation in the first year and subsequent years of implementation. The figures for "increase to some degree" in the first year of implementation for public are 46 (90 percent) and 1.3 and for private institutions 42 (93 percent) and 1.3. The figures for subsequent years of implementation are for public 54 (76 percent) and 2.0, and for private institutions 38 (84 percent) and 1.8. Private institutions believed more than did public institutions that ZBB would increase time spent in budget preparation in both first year and subsequent years of implementation in comparison with their institutions' currently-used budgeting system(s).

Small Public Institutions, (0-6,999 FTE SE), N=50.—Of 45 respondents, 40 (89 percent) believed that in the first year of implementation it would increase to some degree, and none believed it would decrease. Statistical mean is 1.3. In subsequent years of implementation, 34 (76
percent) believed, it would increase to some degree, and 3 (7 percent) believed it would decrease. Statistical mean is 2.1. Consensus: Increase.

Large Public Institutions, (7,000-over FTE SE), N=27.—Of 26 respondents, 26 (92 percent) believed that in the first year of implementation, it would increase to some degree, and none believed that it would decrease. Statistical mean is 1.3. In the subsequent years of implementation, 20 (77 percent) believed, it would increase to some degree, 2 (8 percent) believed it would decrease. Statistical mean is 1.9. Consensus: Increase.

Comparison, Small versus Large Public Institutions.— Officers of both small and large public institutions believed that ZBB would increase to some degree the time spent in budget preparation in the first year and subsequent years of implementation in comparison to their institutions' currently used budgeting system. The figures for "increase to some degree" in the first year of implementation for small public are 40 (89 percent) and 1.3, for large public institutions 24 (92 percent) and 1.3. For subsequent years of implementation, the figures for small public are 34 (76 percent) and 2.1 and for large public 20 (77 percent) and 1.9. Consensus: Increase.
TABLE XXI
EFFECT OF ZZB ON THE TIME SPENT IN BUDGET PREPARATION
IN COMPARISON TO THE INSTITUTIONS' CURRENT BUDGETING SYSTEMS
ALL INSTITUTIONS BY SIZE AND TYPE

<table>
<thead>
<tr>
<th>Description</th>
<th>Public Small</th>
<th>Public Large</th>
<th>Private Small</th>
<th>Private Large</th>
<th>Public &amp; Private Small</th>
<th>Public &amp; Private Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>No %</td>
<td>No %</td>
<td>No %</td>
<td>No %</td>
<td>No %</td>
<td>No %</td>
<td>No %</td>
</tr>
<tr>
<td>A. First Year of Implementation:</td>
<td></td>
<td></td>
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<tr>
<td>It would:</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. increase considerably</td>
<td>36</td>
<td>80</td>
<td>19</td>
<td>71</td>
<td>71</td>
<td>67</td>
</tr>
<tr>
<td>2. increase slightly</td>
<td>4</td>
<td>9</td>
<td>5</td>
<td>19</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>3. remain about the same</td>
<td>5</td>
<td>11</td>
<td>2</td>
<td>15</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4. decrease slightly</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5. decrease considerably</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>100</td>
<td>26</td>
<td>100</td>
<td>34</td>
<td>100</td>
</tr>
<tr>
<td>Statistical mean</td>
<td>1.3</td>
<td>1.3</td>
<td>1.3</td>
<td>1.4</td>
<td>1.3</td>
<td>1.4</td>
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<td>B. Subsequent years of Implementation:</td>
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</tr>
<tr>
<td>It would:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. increase considerably</td>
<td>11</td>
<td>24</td>
<td>11</td>
<td>42</td>
<td>32</td>
<td>5</td>
</tr>
<tr>
<td>2. increase slightly</td>
<td>23</td>
<td>51</td>
<td>9</td>
<td>35</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>3. remain about the same</td>
<td>8</td>
<td>18</td>
<td>4</td>
<td>15</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>4. decrease slightly</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5. decrease considerably</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>100</td>
<td>26</td>
<td>100</td>
<td>34</td>
<td>100</td>
</tr>
<tr>
<td>Statistical mean</td>
<td>2.1</td>
<td>1.9</td>
<td>1.8</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
</tr>
</tbody>
</table>

*Small=0-6,999 FTE student enrollment, Large=7,000-over FTE student enrollment.
Small public institutions agreed a little more than private institutions that in the first year and subsequent years of implementation of ZBB, time spent would increase in comparison to their institution's currently used budgeting system(s).

Small Private Institutions, (0-6,999 FTE SE), N=46.-- Of 34 respondents, 32 (94 percent) believed that in the first year of implementation time spent would increase to some degree, and none believed that it would decrease. Statistical mean is 1.3. In subsequent years of implementation, 31 (91 percent) believed, it would increase to some degree, and none believed that it would decrease. Statistical mean is 1.8. Consensus: Increase.

Large Private Institutions, (7,000-over FTE SE), N=13.--Of 11 respondents, 10 (91 percent) believed that in the first year of implementation time spent would increase to some degree, and none believed that it would decrease. Statistical mean is 1.4. In subsequent years of implementation, 7 (64 percent) believed, it would increase to some degree, and 1 (9 percent) believed it would decrease. Statistical mean is 2.0. Consensus: Increase.

Comparison, Small versus Large Private Institutions.—Officers of both small and large private
institutions believed that ZBB would increase to some degree time spent in budget preparation in the first year and subsequent years of implementation of this system in comparison to their institutions' currently used budgeting systems. The figures for "increase to some degree" in the first year of implementation for small private are 32 (94 percent) and 1.3 and for large private 10 (91 percent) and 1.4. For subsequent years of implementation, the figures for small private are 31 (91 percent) and 1.8 and for large private are 7 (64 percent) and 2.0. Consensus: Increase.

Officers of small private institutions more agreed that ZBB would increase time spent in budget preparation in the first year and subsequent years of implementation of ZBB in comparison to their institutions' currently used budgeting system(s) than did officers of large private institutions.

All Small Institutions, (0-6,999 FTE SE), N=96.—Of 79 respondents, 72 (91 percent) believed that in the first year of implementation time spent would increase to some degree, and none believed it would decrease. Statistical mean is 1.3. In subsequent years of implementation, 65 (82 percent) believed, it would increase to some degree, and 3 (4 percent) believed it would decrease. Statistical mean is 2.0. Consensus: Increase.
All Large Institutions, (7,000-over FTE SE), N=40.—

Of 37 respondents, 34 (92 percent) believed that in the first year of implementation time spent would increase to some degree, and none believed it would decrease. Statistical mean is 1.4. In subsequent years of implementation, 27 (73 percent) believed it would increase to some degree, and 3 (8 percent) believed it would decrease. Statistical mean is 2.0. Consensus: Increase.

Comparison, All Small versus All Large Institutions.—Officers of both small and large institutions believed that ZBB would increase to some degree time spent in budget preparation in the first year and in subsequent years of implementation in comparison to their institutions' currently used budgeting system(s). Officers of small and large institutions believed that in the first year of implementation of ZBB more time would be spent in budget preparation than in subsequent years of implementation. The figures for "increase to some degree" in the first year of implementation for all small institutions are 72 (91 percent) and 1.3 and for all large 34 (92 percent) and 1.4. The figures for subsequent years of implementation for all small institutions are 65 (82 percent) and 2.0 and for all large 27 (73 percent) and 2.0. Consensus: Increase.
Both officers of small and of large institutions were in close agreement that in the first year of implementation ZBB time spent would increase in budget preparation in comparison to their institutions' current budgeting system(s).

**Comparison, Small Public versus Small Private Institutions.**—Both officers of small public and small private institutions believed that ZBB would increase time spent in budget preparation in the first year and subsequent year of implementation in comparison to their institutions' currently used budgeting system(s). Officers of small private institutions believed more than did officers of small public institutions that ZBB would increase time spent in budget preparation in the first year and subsequent years of implementation.

**Comparison, Large Public versus Large Private Institutions.**—Both officers of large public and large private institutions believed that ZBB would increase time spent in budget preparations in the first year and subsequent years of implementation. Officers of large public institutions believed a little more than did officers of large private institutions that in both first year and subsequent years of implementation of ZBB, time spent in budget preparation would increase in comparison to their institutions' currently used budgeting system(s).
Public Institutions, Low Budget Group, (0-5m), N=16.--Of 13 respondents, 10 (77 percent) believed that in the first year of implementation, time spent would increase to some degree, and none believed it would decrease. Statistical mean is 1.5. In subsequent years of implementation, 7 (54 percent) believed, it would increase to some degree, and 1 (8 percent) believed it would decrease. Statistical mean is 2.3. Consensus: Increase.

Public Institutions, Lower-Middle Budget Group, ($5-$15m), N=21.--Of 19 respondents, 18 (95 percent) believed that in the first year of implementation it would increase to some degree, none believed it would decrease. Statistical mean is 1.3. In subsequent years of implementation, 16 (84 percent) believed that it would increase to some degree, and 1 (5 percent) believed it would decrease. Statistical mean is 2.0. Consensus: Increase.

Public Institutions, Upper-Middle Budget Group, ($15-$60m), N=20.--Of 20 respondents 18 (90 percent) believed that in the first year of implementation time spent would increase to some degree, none believed it would decrease. Statistical mean is 1.5. In subsequent years of implementation, 15 (75 percent) believed it would decrease. Statistical mean is 2.1. Consensus: Increase.
TABLE XXII

EFFECT OF ZBB ON THE TIME SPENT IN BUDGET PREPARATION IN COMPARISON TO THE CURRENTLY USED BUDGETING SYSTEM IF NOT ZERO-BASED BUDGETING.
PUBLIC INSTITUTIONS BY BUDGET

<table>
<thead>
<tr>
<th>Description</th>
<th>Low Budget</th>
<th>Lower - Middle</th>
<th>Upper - Middle</th>
<th>High*</th>
<th>Total</th>
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</thead>
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<td>%</td>
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<td>%</td>
<td>No</td>
</tr>
<tr>
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<tr>
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<td>13</td>
<td>65</td>
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<tr>
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<td>3</td>
<td>23</td>
<td>1</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>4. decrease slightly</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5. decrease considerably</td>
<td>0</td>
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<td>Total</td>
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<td>100</td>
<td>19</td>
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<td>1.3</td>
<td>1.5</td>
<td>1.2</td>
<td>1.3</td>
</tr>
<tr>
<td>B. Subsequent years of implement-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ation:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>3</td>
<td>23</td>
<td>4</td>
<td>21</td>
<td>6</td>
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<td>1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>5. decrease considerably</td>
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<td>Total</td>
<td>13</td>
<td>100</td>
<td>19</td>
<td>100</td>
<td>19</td>
</tr>
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<td>2.0</td>
<td>2.1</td>
<td>1.8</td>
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</tr>
</tbody>
</table>

*Low budget group=0-$5 million budget, Lower-middle budget group=$5-$15 million budget, Upper-middle budget group=$15-$60 million budget, High budget group=$60 million and over budget.
Public Institutions, High Budget Group, ($60m-over), N=20.—Of 19 respondents, 81 (95 percent) believed that in the first year of implementation, time spent would increase to some degree, and none believed it would decrease. Statistical mean is 1.2. In subsequent years of implementation, 16 (84 percent) believed, it would increase to some degree, and 1 (5 percent) believed it would decrease. Statistical mean is 1.8. Consensus: Increase.

Comparison, Public Institutions by Budget.—All officers of public institutions, regardless of budget group, believed that ZBB would increase to some degree time spent in budget preparation in the first year and subsequent years of implementation in comparison to their institutions' currently-used budgeting system(s). The figures for upper two levels "increase to some degree" and statistical mean for the first year of implementation for low budget group are 10 (77 percent) and 1.5, for lower-middle 18 (95 percent) and 1.3, for upper-middle 18 (90 percent) and 1.5, and for high 18 (95 percent) and 1.2. Consensus: Increase.

The figures for "increase to some degree" and statistical mean for subsequent years of implementation for low budget group are 7 (54 percent) and 2.3, for lower-middle 16 (84 percent) and 2.0, for upper-middle 15 (75 percent) and 2.1, and for high 16 (84 percent) and 1.8. Consensus: Increase.
Private Institutions, Low Budget Group, (0-$5m), N=19.—Of 11 respondents, all 11 (100 percent) believed that in the first year of implementation time spent would increase to some degree. Statistical mean is 1.3. In subsequent years of implementation also, all 11 (100 percent) believed, it would increase to some degree. Statistical mean is 1.6. Consensus: Increase.

Private Institutions, Lower-Middle Budget Group, ($5-$15m), N=10.—Of 9 respondents, 6 (67 percent) believed that in the first year of implementation time spent would increase to some degree, and none believed it would decrease. Statistical mean is 1.8. In subsequent years of implementation, 6 (67 percent) believed, it would increase to some degree, and none believed it would decrease. Statistical mean is 2.0. Consensus: Increase.

Private Institutions, Upper-Middle Budget Group, ($15-$60m), N=20.—Of 17 respondents, all 17 (100 percent) believed that in the first year of implementation time spent would increase to some degree. Statistical mean is 1.1. In subsequent years of implementation, 15 (88 percent) believed, it would increase to some degree, and none believed it would decrease. Statistical mean is 1.8. Consensus: Increase.
Private Institutions, High Budget Group, ($60m-over), N=10.--Of 8 respondents, all 8 (100 percent) believed that in the first year of implementation it would increase to some degree. Statistical mean is 1.3. In subsequent years of implementation, 6 (75 percent) believed, it would increase to some degree, and 1 (12 percent) believed that it would decrease. Statistical mean is 2.0. Consensus: Increase.

Comparison, Private Institutions by Budget.--Officers of private institutions and in different budget groups believed that ZBB would increase time spent in budget preparation in the first year and subsequent years of implementation in comparison to their institutions' currently used budgeting system(s). The figures for "increase to some degree" and statistical mean for the first year of implementation for low budget group are 11 (100 percent) and 1.3, for lower-middle 6 (67 percent) and 1.8, for upper-middle 17 (100 percent) and 1.1, and for high 8 (100 percent) and 1.3. Consensus: Increase.

The figures for "increase to some degree" and statistical mean of subsequent years of implementation for low budget group are 11 (100 percent) and 1.6, for lower-middle 6 (67 percent) and 2.0, for upper-middle 15 (88 percent) and 1.8, and for high 6 (75 percent) and 2.0. Consensus: Increase.
### TABLE XXIII

**EFFECT OF ZZB ON THE TIME SPENT IN BUDGET PREPARATION IN COMPARISON TO THE CURRENTLY USED BUDGETING SYSTEM IF NOT ZERO-BASED BUDGETING PRIVATE INSTITUTIONS BY BUDGET**

<table>
<thead>
<tr>
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<th>Low Budget</th>
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<th>Upper-Middle</th>
<th>High*</th>
<th>Total</th>
</tr>
</thead>
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<td>No</td>
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<td></td>
<td></td>
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<tr>
<td>It would:</td>
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<td>73</td>
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<td>56</td>
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<td>31</td>
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</tr>
<tr>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td>11</td>
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<td>100</td>
<td>17</td>
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<td>1.1</td>
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<td></td>
<td></td>
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<tr>
<td>It would:</td>
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<td>33</td>
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<td>64</td>
<td>3</td>
<td>33</td>
<td>9</td>
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<td>3</td>
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<td>0</td>
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<td>0</td>
</tr>
<tr>
<td>5. decrease considerably</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
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<td>100</td>
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*Low budget group=0-$5 million budget, Lower-middle budget group=$5-$15 million budget, Upper-middle budget group=$15-$60 million budget, High budget group=$60 million and over budget.*
All Institutions, Low Budget Group, (0-$5m), N=35.-- Of 24 respondents, 21 (88 percent) believed that in the first year of implementation time spent would increase to some degree, and none believed that it would decrease. Statistical mean is 1.4. In subsequent years of implementation, 18 (75 percent) believed, it would increase to some degree, and 1 (4 percent) believed it would decrease. Statistical mean is 2.0. Consensus: Increase.

All Institutions, Lower-Middle Budget Group, ($5-$15m), N=31.-- Of 28 respondents, 24 (86 percent) believed that in the first year of implementation time spent would increase to some degree, none believed it would decrease. Statistical mean is 1.4. In subsequent years of implementation, 22 (79 percent) believed, it would increase to some degree, and 1 (3 percent) believed it would decrease. Statistical mean is 2.0. Consensus: Increase.

All Institutions, Upper-Middle Budget Group, ($15-$60m), N=40.-- Of 37 respondents, 35 (95 percent) believed that in the first year of implementation time spent would increase to some degree, and none believed that it would decrease. Statistical mean is 1.3. In subsequent years of implementation, 30 (81 percent) believed, it would
TABLE XXIV

EFFECT OF 22B ON THE TIME SPENT IN BUDGET PREPARATION IN COMPARISON TO THE CURRENTLY USED BUDGETING SYSTEM IF NOT ZERO-BASED BUDGETING ALL INSTITUTIONS BY BUDGET

<table>
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<th>Description</th>
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<th>Upper-Middle</th>
<th>High*</th>
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<td>%</td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
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<td>It would:</td>
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<td>20</td>
<td>72</td>
<td>76</td>
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<td>13</td>
<td>4</td>
<td>14</td>
<td>7</td>
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<td>3. remain about the same</td>
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<td>12</td>
<td>4</td>
<td>14</td>
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<tr>
<td>4. decrease slightly</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>5. decrease considerably</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>tion:</td>
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<td>25</td>
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<td>3</td>
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<td>Total</td>
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</tbody>
</table>

*Low budget group=0-$5 million budget, lower-middle budget group=$5-$15 million budget, upper-middle budget group=$15-$60 million budget, high budget group=$60 million and over budget.
increase to some degree, and 2 (5 percent) believed that it would decrease. Statistical mean is 2.0. Consensus: Increase.

All Institutions, High Budget Group, ($60m-over), N=30.--Of 27 respondents 26 (96 percent) believed that in the first year of implementation time spent would increase to some degree, and none believed it would decrease. Statistical mean is 1.2. In subsequent years of implementation, 22 (81 percent) believed, it would increase to some degree, and 2 (7 percent) believed it would decrease. Statistical mean is 1.9. Consensus: Increase.

Comparison, All Institutions by Budget.--Officers of the institutions in different budget groups all agree that ZBB would increase time spent in budget preparation in the first year and subsequent years of implementation in comparison to their institutions' currently used budgeting system(s). The figures for "increase to some degree" and statistical mean for the first year of implementation for low budget group are 21 (88 percent) and 1.4, for lower-middle 24 (86 percent) and 1.4, for upper-middle 35 (95 percent) and 1.3, and for high budget group 26 (96 percent) and 1.2. Consensus: Increase.

The figures for "increase to some degree" and statistical mean for subsequent years of implementation for low
budget group are 18 (75 percent) and 2.0, for lower-middle
22 (79 percent) and 2.0, for upper-middle 30 (81 percent)
and 2.0, and for high 22 (81 percent) and 1.9. Consensus: Increase.

In low budget group, officers of private institutions believed more than did officers of public ones that in the first year (1.3 versus 1.5), and in subsequent years (1.6 versus 2.3); of implementation ZBB time spent in budget preparation would increase to some degree in comparison to their institutions' currently used budgeting system(s). Consensus: Increase.

In lower-middle budget group, officers of private institutions believed more than did officers of public institutions (1.3 versus 1.8) that in the first year of implementation ZBB time spent would increase, but in subsequent years of implementation, officers of both public and private believed (2.0), that ZBB would increase time spent in budget preparation. Consensus: Increase.

In upper-middle budget group, officers of private institutions believed more than did officers of public ones that in the first year (1.1 versus 1.8) and in subsequent years (1.8 versus 2.1) of implementation of ZBB, time spent in budget preparation would increase to some degree in comparison to their institutions' currently used budgeting system(s).
In high budget group, officers of public institutions believed more than did officers of private ones that in the first year (1.2 versus 1.3), and in subsequent years (1.8 versus 2.0) of implementation of ZBB, time spent in budget preparation would increase to some degree in comparison to their institutions' currently used budgeting system.

The preceding analysis shows clearly that as a group the respondents believe that ZBB would require more time for budget preparation in the first year and in the subsequent years of use than is required for their current system(s). As might be expected this is more true for them, actually, for the first year than for the subsequent years.

Effect of ZBB on the Effort Spent in Budget Preparation: Item #51 (Tables XXV-XXIX)

What effect would this system of budgeting have on the effort spent in budget preparation in comparison to the currently used budgeting system if that is not zero-based budgeting? Tables XXV-XXIX shows data for the question.

Public Institutions, N=77.—Of 70 respondents, 63 (90 percent) believed that in the first year of implementation it would increase effort spent to some degree with 1.4 statistical mean, and none believed it would decrease. Fifty-two (75 percent) believed that in subsequent years of
implementation effort spent would increase to some degree. Statistical mean is 2.0. Four (6 percent) believed it would decrease. Consensus: Increase.

Private Institutions, N=59.--Of 45 respondents, 39 (87 percent) believed that in the first year of implementation it would increase effort spent to some degree. Statistical mean is 1.4. None believed it would decrease. In subsequent years of implementation, 34 (76 percent) believed effort spent would increase to some degree, and 1 (2 percent) believed it would decrease. Statistical mean is 2.0. Consensus: Increase.

All Institutions, N=136.--Of 115 respondents, 102 (89 percent) believed that in the first year of implementation it would increase effort spent to some degree, and none believed it would decrease. Statistical mean is 1.4. In the subsequent years of implementation, 86 (75 percent) believed, it would increase effort spent to some degree, and 5 (4 percent) believed it would decrease. Statistical mean is 2.0. Consensus: Increase.

Comparison, Public versus Private Institutions.--Officers of both public and private institutions believed that ZBB would increase effort spent in budget preparation in the first year and subsequent years of implementation. The
TABLE XXV

EFFECT OF ZBB ON THE EFFORT SPENT IN BUDGET PREPARATION IN COMPARISON TO THE INSTITUTIONS' CURRENTLY USED BUDGETING SYSTEMS INSTITUTIONS BY TYPE

<table>
<thead>
<tr>
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<td>%</td>
<td>No</td>
</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. increase considerably</td>
<td>50</td>
<td>71</td>
<td>34</td>
</tr>
<tr>
<td>2. increase slightly</td>
<td>13</td>
<td>19</td>
<td>5</td>
</tr>
<tr>
<td>3. remain about the same</td>
<td>7</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>4. decrease slightly</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5. decrease considerably</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>45</td>
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<tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. increase considerably</td>
<td>22</td>
<td>31</td>
<td>13</td>
</tr>
<tr>
<td>2. increase slightly</td>
<td>30</td>
<td>43</td>
<td>21</td>
</tr>
<tr>
<td>3. remain about the same</td>
<td>14</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>4. decrease slightly</td>
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<td>3</td>
<td>1</td>
</tr>
<tr>
<td>5. decrease considerably</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
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<tr>
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<td>2.0</td>
<td></td>
<td>2.0</td>
</tr>
</tbody>
</table>
figures for "increase to some degree" and statistical mean in the first year of implementation for public are 63 (90 percent) and 1.4, and for private 39 (87 percent) and 1.4, and for subsequent years of implementation for public 52 (74 percent) and 2.0 and for private 34 (76 percent) and 2.0.

Small Public Institutions (0-6,999 FTE SE), N=50.--Of 44 respondents, 40 (91 percent) believed that in the first year of implementation it would increase effort spent to some degree, and none believed it would decrease. Statistical mean is 1.4. In subsequent years of implementation, 33 (75 percent) believed, it would increase effort spent to some degree, and 2 (5 percent) believed it would decrease. Statistical mean is 2.1. Consensus: Increase.

Large Public Institutions, (7,000-over FTE SE), N=27.--Of 26 respondents, 23 (88 percent) believed that in the first year of implementation it would increase effort spent to some degree, and none believed it would decrease. Statistical mean is 1.4. In subsequent years of implementation, 19 (73 percent) believed, effort spent would increase to some degree, and 2 (8 percent) believed it would decrease. Statistical mean is 2.0. Consensus: Increase.

Comparison, Small versus Large Public Institutions.-- Officers of both small and large public institutions
<table>
<thead>
<tr>
<th>Description</th>
<th>Public Small</th>
<th>Public Large</th>
<th>Private Small</th>
<th>Private Large</th>
<th>Public &amp; Private Small</th>
<th>Public &amp; Private Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. First Year of Implementation:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It would:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>31</td>
<td>70</td>
<td>19</td>
<td>73</td>
<td>28</td>
<td>82</td>
</tr>
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<td>21</td>
<td>4</td>
<td>15</td>
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<td>6</td>
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<tr>
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<td>4</td>
<td>9</td>
<td>3</td>
<td>12</td>
<td>4</td>
<td>12</td>
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<tr>
<td>4. decrease slightly</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5. decrease considerably</td>
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<td>0</td>
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<td>100</td>
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<td>100</td>
<td>34</td>
<td>100</td>
</tr>
<tr>
<td>Statistical mean</td>
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<td>1.4</td>
<td>1.3</td>
<td>1.6</td>
<td>1.4</td>
<td>1.4</td>
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<tr>
<td>B. Subsequent years of Implementation:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>It would:</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1. increase considerably</td>
<td>11</td>
<td>25</td>
<td>11</td>
<td>42</td>
<td>11</td>
<td>32</td>
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<tr>
<td>2. increase slightly</td>
<td>22</td>
<td>50</td>
<td>8</td>
<td>31</td>
<td>17</td>
<td>50</td>
</tr>
<tr>
<td>3. remain about the same</td>
<td>9</td>
<td>21</td>
<td>5</td>
<td>19</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>4. decrease slightly</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5. decrease considerably</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>100</td>
<td>26</td>
<td>100</td>
<td>34</td>
<td>100</td>
</tr>
<tr>
<td>Statistical mean</td>
<td>2.1</td>
<td>2.0</td>
<td>1.9</td>
<td>2.4</td>
<td>2.0</td>
<td>2.0</td>
</tr>
</tbody>
</table>

*Small=0-6,999 FTE student enrollment, Large>=7,000-over FTE student enrollment.
believed that ZBB would increase to some degree effort spent in budget preparation in the first year and subsequent years of implementation in comparison to their institutions' currently used budgeting system. The figures for "increase to some degree" and statistical mean in the first year of implementation for small public are 40 (91 percent) and 1.4, and for large public 23 (88 percent) and 1.4. For subsequent years of implementation figures are for small public 33 (75 percent) and 2.1 and for large public 19 (73 percent) and 2.0.

Small Private Institutions, (0-6,999 FTE SE), N=46. -- Of 34 respondents, 30 (88 percent) believed that in the first year of implementation it would increase effort spent to some degree, and none believed it would decrease. Statistical mean is 1.3. In subsequent years of implementation, 28 (82 percent) believed, it would increase to some degree, and none believed it would decrease. Statistical mean is 2.0. Consensus: Increase.

Large Private Institutions, (7,000-over FTE SE), N=13. -- Of 11 respondents in this group, 9 (82 percent) believed that in the first year of implementation it would increase effort spent to some degree, and none believed it would decrease. Statistical mean is 1.2. In subsequent
years of implementation, 6 (55 percent) believed, it would increase to some degree, and 1 (9 percent) believed it would decrease. Statistical mean is 2.4. Consensus: Increase.

Comparison, Small versus Large Private Institutions. Officers of both small and large private institutions believed that ZBB would increase to some degree effort spent in budget preparation in the first year and subsequent years of implementation of this system in comparison to their institutions' currently used budgeting systems. The figures for "increase to some degree" and statistical mean for the first year of implementation for small private are 30 (88 percent) and 1.3 and for large private 9 (82 percent) and 1.6. For subsequent years of implementation the figures for small private are 28 (82 percent) and 1.9, and for large private 6 (55 percent) and 2.4. Consensus: Increase.

It can be seen that officers of small private institutions agreed more that than did officers of large private institutions ZBB would increase effort spent in budget preparation in the first year and subsequent years of implementation of ZBB in comparison to their institutions' currently used budgeting system(s).
All Small Institutions (0-6,999 FTE SE), N=96.—Of 78 respondents 70 (90 percent) believed that in the first year of implementation it would increase effort spent to some degree, none believed it would decrease. Statistical mean is 1.4. In subsequent years of implementation, 61 (78 percent) believed, it would increase to some degree, and 2 (3 percent) believed it would decrease. Statistical mean is 2.0. Consensus: Increase.

All Large Institutions, (7,000-over FTE SE), N=40.—Of 37 respondents, 32 (86 percent) believed that in the first year of implementation it would increase effort spent to some degree, and none believed it would decrease. Statistical mean is 1.5. In subsequent years of implementation, 25 (68 percent) believed, it would increase to some degree, and 3 (8 percent) believed it would decrease. Statistical mean is 2.1. Consensus: Increase.

Comparison, All Small versus All Large Institutions.—Officers both of small and of large institutions believed that ZBB would increase to some degree the effort spent in budget preparation in first year and in subsequent years of implementation in comparison to their institutions' currently used budgeting system(s). Officers both of small and of large institutions believed that in the first year of implementation of ZBB more effort would be spent in budget
preparation than in subsequent years of implementation. The figures for "increase to some degree" in the first year of implementation for all small are 70 (90 percent) and 1.4 and for all large 32 (86 percent) and 1.5. The figures for subsequent years of implementation for all small are 61 (78 percent) and 2.0 and for all large 25 (68 percent) and 2.1.

Officers of small institutions more agreed than did officers of large institutions that ZBB would increase effort spent in budget preparation in the first year and subsequent years of implementation in comparison to the institutions' currently used budgeting system(s).

Comparison Small Public versus Small Private Institutions.—Both officers of small public and small private institutions believed that ZBB would increase effort spent in budget preparation in the first year and subsequent years of implementation in comparison to the institutions' currently used budgeting system(s). Officers of small private institutions believed more than did officers of small public institutions that ZBB would increase effort spent in budget preparation in the first year and subsequent years of implementation in comparison to their institutions' currently used budgeting system(s).

Comparison, Large Public versus Large Private Institutions.—Both officers of large public and large private
institutions believed that ZBB would increase effort spent in budget preparation in the first year and subsequent years of implementation. Officers of large public institutions believed more than did officers of large private institutions that both in first year and subsequent years of implementation of ZBB effort spent would increase in comparison to the institutions' currently used budgeting system(s).

Public Institutions, Low Budget Group, (0-$5m), N=16. Of 13 respondents, 11 (85 percent) believed that in the first year of implementation effort spent would increase to some degree, and none believed it would decrease. Statistical mean is 1.5. In the subsequent years of implementation, 7 (54 percent) believed it would increase to some degree, and 1 (8 percent) believed it would decrease. Statistical mean is 2.2. Consensus: Increase.

Public Institutions, Lower-Middle Budget Group, ($5-$15m), N=21. Of 19 respondents, 17 (89 percent) believed that in the first year of implementation effort spent would increase to some degree, and none believed it would decrease. Statistical mean is 1.4. In subsequent years of implementation, 15 (79 percent) believed it would increase to some degree, and none believed it would decrease. Statistical mean is 2.0. Consensus: Increase.
TABLE XXVII

EFFECT OF ZEB ON THE EFFORT SPENT IN BUDGET PREPARATION IN COMPARISON TO THE CURRENTLY USED BUDGETING SYSTEMS IN PUBLIC INSTITUTIONS BY BUDGET

<table>
<thead>
<tr>
<th>Description</th>
<th>Low Budget</th>
<th>Lower-Middle</th>
<th>Upper-Middle</th>
<th>High*</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td>No</td>
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<tr>
<td>A. First year of implementation:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It would:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. increase considerably</td>
<td>9</td>
<td>69</td>
<td>13</td>
<td>68</td>
<td>12</td>
</tr>
<tr>
<td>2. increase slightly</td>
<td>2</td>
<td>16</td>
<td>4</td>
<td>21</td>
<td>5</td>
</tr>
<tr>
<td>3. remain about the same</td>
<td>2</td>
<td>15</td>
<td>2</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>4. decrease slightly</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5. decrease considerably</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>13</td>
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<td>19</td>
<td>100</td>
<td>19</td>
</tr>
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<td></td>
<td>1.4</td>
<td></td>
<td>1.4</td>
</tr>
<tr>
<td>B. Subsequent years of implementation:</td>
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<tr>
<td>1. increase considerably</td>
<td>4</td>
<td>31</td>
<td>5</td>
<td>26</td>
<td>5</td>
</tr>
<tr>
<td>2. increase slightly</td>
<td>3</td>
<td>23</td>
<td>10</td>
<td>53</td>
<td>10</td>
</tr>
<tr>
<td>3. remain about the same</td>
<td>5</td>
<td>38</td>
<td>4</td>
<td>21</td>
<td>2</td>
</tr>
<tr>
<td>4. decrease slightly</td>
<td>1</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>5. decrease considerably</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>100</td>
<td>19</td>
<td>100</td>
<td>19</td>
</tr>
<tr>
<td>Statistical mean</td>
<td>2.2</td>
<td></td>
<td>2.0</td>
<td></td>
<td>2.1</td>
</tr>
</tbody>
</table>

*Low budget group=0-$5 million budget, Lower-middle budget group=$5-$15 million budget, Upper-middle budget group=$15-$60 million budget, High budget group=$60 million and over budget.
Public Institutions, Upper-Middle Budget Group, ($15-$60m), N=20.--Of 19 respondents, 18 (95 percent) believed that in the first year of implementation effort spent would increase to some degree, none believed it would decrease. Statistical mean is 1.4. In subsequent years of implementation, 15 (79 percent) believed, it would increase to some degree, 2 (11 percent) believed it would decrease. Statistical mean is 2.1. Consensus: Increase.

Public Institutions, High Budget Group, ($60m-over), N=20.--Of 19 respondents, 17 (89 percent) believed that in the first year of implementation effort spent would increase to some degree; none believed it would decrease. Statistical mean is 1.3. In subsequent years of implementation, 15 (79 percent) believed, it would increase to some degree; 1 (5 percent) believed it would decrease. Statistical mean is 1.9. Consensus: Increase.

Comparison, Public Institutions by Budget.--All officer of public institutions, regardless of budget groups, believed that ZBB would increase to some degree, effort spent in budget preparation in the first year and subsequent years of implementation in comparison to their institutions' currently used budgeting system(s). The figure for "increase to some degree" and statistical mean for the first year of implementation for low budget group are 11 (85
percent) and 1.5, for lower-middle 17 (89 percent) and 1.4, for upper-middle 18 (95 percent) and 1.4, and for high 17 (89 percent) and 1.3.

The figures for "increase to some degree" and statistical mean in subsequent years of implementation for low budget group are 7 (54 percent) and 2.2, for lower-middle 15 (79 percent) and 2.0, for upper-middle 15 (79 percent) and 2.1, and for high 15 (79 percent) and 1.9.

Private Institutions, Low Budget Group (0-$5m), N=19.—Of 11 respondents, 9 (82 percent) believed that in the first year of implementation effort spent would increase to some degree, and none believed it would increase. Statistical mean is 1.5. In subsequent years of implementation, 9 (82 percent) believed, it would increase to some degree, and none believed it would decrease. Statistical mean is 1.9. Consensus: Increase.

Private Institutions, Lower-Middle Budget Group, ($5-$15m), N=10.—Of 9 respondents, 6 (67 percent) believed that in the first year of implementation effort spent would increase to some degree, and none believed it would decrease. Statistical mean is 1.8. In subsequent years of implementation, 5 (56 percent) believed, it would increase to some degree, and none believed it would decrease. Statistical mean is 2.2. Consensus: Increase.
TABLE XXVIII
EFFECT OF ZZB ON THE EFFORT SPENT IN BUDGET PREPARATION IN COMPARISON TO THE CURRENTLY USED BUDGETING SYSTEMS PRIVATE INSTITUTIONS BY BUDGET

<table>
<thead>
<tr>
<th>Description</th>
<th>Low Budget</th>
<th>Lower-Middle</th>
<th>Upper-Middle</th>
<th>High</th>
<th>Total</th>
<th></th>
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</thead>
<tbody>
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<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
</tr>
<tr>
<td>A. First year of implementation:</td>
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<td></td>
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<td></td>
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<td>73</td>
<td>5</td>
<td>56</td>
<td>16</td>
<td>94</td>
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<td>11</td>
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<td>3</td>
<td>33</td>
<td>0</td>
<td>0</td>
</tr>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5. decrease considerably</td>
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<td></td>
<td>1.8</td>
<td></td>
<td>1.1</td>
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</tr>
<tr>
<td>B. Subsequent years of implementation:</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>It would</td>
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<td>2</td>
<td>22</td>
<td>6</td>
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</tr>
<tr>
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<td>55</td>
<td>3</td>
<td>33</td>
<td>9</td>
<td>53</td>
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<tr>
<td>3. remain about the same</td>
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<td>18</td>
<td>4</td>
<td>45</td>
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<td>6</td>
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<td>0</td>
<td>0</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
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<td>11</td>
<td>100</td>
<td>9</td>
<td>100</td>
<td>17</td>
<td>100</td>
</tr>
<tr>
<td>Statistical mean</td>
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<td></td>
<td>2.2</td>
<td></td>
<td>1.8</td>
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</tr>
</tbody>
</table>
Private Institutions, Upper-Middle Budget Group
($15-$60m), N=20.--Of 17 respondents all, 17 (100 percent) believed that in the first year of implementation effort spent would increase to some degree, and none believed it would decrease. Statistical mean is 1.1. In subsequent years of implementation, 15 (88 percent) believed that it would increase to some degree, and 1 (6 percent) believed it would decrease. Statistical mean is 1.8. Consensus: Increase.

Private Institutions, High Budget Group, ($60m-over), N=10.--Of 8 respondents 7 (88 percent) believed that in the first year of implementation effort spent would increase to some degree, and none believed it would decrease. Statistical mean is 1.5. In subsequent years of implementation, 5 (63 percent), believed that it would increase to some degree, and none believed it would decrease. Statistical mean is 2.3. Consensus: Increase.

Comparison, Public Institutions by Budget.--Officers of private institutions, in whatever budget group, believed that ZBB would increase effort spent in budget preparation in the first year and subsequent years of implementation in comparison to their institutions' current budgeting system(s). The figures for "increase to some degree" and statistical mean for the first year of implementation for
low budget private institutions are 9 (82 percent) and 1.5, for lower-middle 6 (67 percent) and 1.8, for upper-middle 17 (100 percent) and 1.1 and for high 7 (88 percent) and 1.5. The figures for "increase to some degree" and statistical mean for subsequent years of implementation for low budget private institutions are 9 (82 percent) and 1.9, for lower-middle 5 (56 percent) and 2.2, for upper-middle 15 (88 percent) and 1.8, and for high 5 (63 percent) and 2.3.

All Institutions, Low Budget Group, (0-$5m), N=35.-- Of 24 respondents 20 (83 percent) believed that in the first year of implementation effort spent would increase to some degree, and none believed it would decrease. Statistical mean is 1.5. In subsequent years of implementation, 16 (67 percent) believed, it would increase to some degree, and 1 (4 percent) believed it would decrease. Statistical mean is 2.1. Consensus: Increase.

All Institutions, Lower-Middle Budget Group ($5-$15m), N=31.--Of 28 respondents, 23 (82 percent) believed that in the first year of implementation effort spent would increase to some degree, and none believed it would decrease. Statistical mean is 1.5. In subsequent years of implementation, 20 (71 percent) believed, it would increase to some degree, and none believed it would decrease. Statistical mean is 2.0. Consensus: Increase.
<table>
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<tr>
<th>Description</th>
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<th>Upper Middle</th>
<th>High</th>
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<td>%</td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
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<td>71</td>
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<td>3</td>
<td>12</td>
<td>5</td>
<td>18</td>
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<tr>
<td>3. remain about the same</td>
<td>4</td>
<td>17</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td>1.3</td>
<td>1.4</td>
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<td>7</td>
<td>29</td>
<td>7</td>
<td>25</td>
<td>11</td>
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<td>2. increase slightly</td>
<td>9</td>
<td>38</td>
<td>13</td>
<td>46</td>
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<td>7</td>
<td>29</td>
<td>8</td>
<td>29</td>
<td>3</td>
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<td>4. decrease slightly</td>
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<td>4</td>
<td>0</td>
<td>0</td>
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<td>5. decrease considerably</td>
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<td>Total</td>
<td>24</td>
<td>100</td>
<td>28</td>
<td>100</td>
<td>36</td>
</tr>
<tr>
<td>Statistical mean</td>
<td>2.1</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
</tr>
</tbody>
</table>
All Institutions, Upper-Middle Budget Group, ($15-$60m), N=40.--Of 36 respondents, 35 (97 percent) believed that in the first year of implementation effort spent would increase to some degree, and none believed it would decrease. Statistical mean is 1.3. In subsequent years of implementation, 30 (83 percent) believed, it would increase to some degree, and 3 (8 percent) believed that it would decrease. Statistical mean is 2.0. Consensus: Increase.

All Institutions, High Budget Group ($60m-over), N=30.--Of 27 respondents 24 (89 percent) believed that in the first year of implementation effort spent would increase to some degree, and none believed that it would decrease. Statistical mean is 1.3. In subsequent years of implementation, 20 (74 percent) believed, it would increase to some degree, and 1 (4 percent) believed that it would decrease. Statistical mean is 2.0. Consensus: Increase.

Comparison, All Institutions by Budget.--Officers of the institutions, regardless of budget group agree that ZBB would increase to some degree effort spent in budget preparation in the first year and subsequent years of implementation in comparison to their institutions' currently used budgeting system(s). The figures for "increase to some
degree" and statistical mean for the first year of implementation for low budget group are 20 (83 percent) and 1.5, for lower-middle 23 (82 percent) and 1.5, for upper-middle 35 (97 percent) and 1.3, and for high 24 (89 percent) and 1.3. The figures for "increase to some degree" and statistical mean for subsequent years of implementation for low budget group are 16 (67 percent) and 2.1, for lower-middle are 20 (71 percent) and 2.0, for upper-middle 30 (83 percent) and 2.0, and for high 20 (74 percent) and 2.0.

In the low budget group, both officers of public (1.5) and of private institutions (1.5) were in the same agreement that in the first year of implementation ZBB would increase effort spent in budget preparation, but officers of private institutions believed more (1.9) than did officers of public institutions (2.2) that in subsequent years of implementation ZBB would increase effort spent.

In the lower-middle budget group, officers of public institutions (1.4) believed more than did officers of private institutions (1.8) that in the first year and in subsequent years (2.0 public versus 2.2 private) of implementation ZBB would increase effort spent.

In the upper-middle budget group, officers of private institutions believed more than did officers of public institutions that in the first year (1.1 public versus 1.4
private) and subsequent years (1.82 private versus 2.1 public) of implementation ZBB effort spent would increase.

In the high budget institutions, officers of public institutions believed more than did officers of private institutions that in the first year (1.3 public versus 1.5 private) and in subsequent years of implementation (1.9 public versus 2.3 private) ZBB would increase effort spent.

The preceding analysis shows clearly that respondents, as a group, clearly believe that use of ZBB would in the first and in subsequent years of implementation increase the effort needed in budget preparation compared to their current system. As might be expected, they believe effort would increase less after the first year.

Elements of ZBB with Which Managers Have Greatest Difficulty: Item #52 (Tables XXX-XXXI)

If your institution is using or were to install zero-based budgeting, which of the following elements of it would the institution's managers have greatest difficulty with? Check all that apply

1. Cost calculation
2. Alternative selection
3. Assigning effectively
The above alternatives are the most common among ones in the related literature. There might be other difficulties perceived by the respondents but not shown here. Tables XXX-XXXI shows data for this item.

Small Public Institutions, (0-6,999 FTE SE), N=50.-- Of the respondents 14 (28 percent) believed "cost calculation," 27 (54 percent) believed "alternative selection," and 17 (34 percent) believed "assigning effectively" are the elements of ZBB which managers of the institutions have greatest difficulty with.

Large Public Institutions, (7,000-over FTE SE), N=27.--Of the respondents, 11 (41 percent) believed "cost calculation," 17 (63 percent) believed "alternative selection," and 8 (30 percent) believed "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.

All Public Institutions, N=77.--Of the respondents, 25 (33 percent) believed "cost calculation," 44 (57 percent) believed "alternative selection," and 25 (33 percent) believed "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.
TABLE XXX
ELEMENTS OF ZBB WITH WHICH MANAGERS OF THE INSTITUTIONS
HAVE GREATEST DIFFICULTY
ALL INSTITUTIONS BY SIZE AND TYPE

<table>
<thead>
<tr>
<th>Institutions' Type &amp; Budget</th>
<th>Cost Calculation</th>
<th>Alternative Selection</th>
<th>Assigning Effectively</th>
<th>Total Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
</tr>
<tr>
<td>Public Institutions:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>14</td>
<td>28</td>
<td>27</td>
<td>54</td>
</tr>
<tr>
<td>Large*</td>
<td>11</td>
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<td>Total public institutions</td>
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<td>Private Institutions:</td>
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<tr>
<td>Small</td>
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<td>51</td>
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<tr>
<td>Public and Private Institu-</td>
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<tr>
<td>tions:</td>
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<tr>
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<tr>
<td>Total public and private institutions</td>
<td>42</td>
<td>31</td>
<td>74</td>
<td>54</td>
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</tbody>
</table>

*Small=0-6,999 FTE student enrollment, Large=7,000-over FTE student enrollment.
Comparison, Small versus Large Public Institutions.--

Officers both of small and large public institutions believed most that "alternative selection" is one of the elements of ZBB which managers of institutions have greatest difficulty with. For small public institutions, the next are of difficulty is "assigning effectively," and the least one is "cost calculation," while for large public institutions, "cost calculation" is the next area of difficulty, and "assigning effectively" is the least one.

Small Private Institutions, (0-6,999 FTE SE), N=46.--

Of the respondents, 13 (28 percent) believed "cost calculation," 21 (46 percent) believed "alternative selection," and 11 (24 percent) believed that "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.

Large Private Institutions, (7,000-over FTE SE), N=13.--Of the respondents, 4 (31 percent) believed "cost calculation," 9 (69 percent) believed "alternative selection," and 6 (46 percent) believed that "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.

All Private Institutions, N=59.--Of the respondents, 17 (29 percent) believed "cost calculation," 30 (51 percent)
believed "alternative selection," and 17 (29 percent) believed "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.

Comparison, Small versus Large Private Institutions.--Most officers of both small and large private institutions were believed that "alternative selection" is one of the elements of ZBB which managers of the institutions have greatest difficulty with. For small private, the next area of difficulty is "cost calculation" and the least one is "assigning effectively," while for large private institutions, "cost calculation" is the next area of difficulty, and "assigning effectively" is the least one.

All Small Institutions, (0-6,999 FTE SE), N=96.--Of the respondents, 27 (28 percent) believed "cost calculation," 48 (50 percent) believed "alternative selection," and 28 (29 percent) believed that "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.

All Large Institutions, (7,000-over FTE SE), N=40.-- Of the respondents, 15 (38 percent) believed "cost calculation," 26 (65 percent) believed "alternative selection,"
and 14 (35 percent) believed that "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.

All Institutions, N=136.--Of all respondents, 42 (31 percent) believed "cost calculation," 74 (54 percent) believed "alternative selection," and 42 (31 percent) believed "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.

Comparison, Small versus Large Institutions.--Most officers of the institutions under study believed that "alternative selection" is one of the elements of ZBB which managers of the institutions have greatest difficulty with. For small institutions, the next two areas of difficulty are "assigning effectively" (29 percent) and "cost calculation" (28 percent), and for large institutions the next two areas of difficulty are "cost calculation" (38 percent) and "assigning effectively" (35 percent).

Comparison, Small Public versus Small Private.--Both officers of small public (54 percent) and small private (46 percent) believed that "alternative selection" is the element of ZBB which managers of institutions have greatest difficulty with. For small public the next two elements are "assigning effectively" (34 percent) and "cost calculation"
(28 percent). For small private the next two elements are "cost calculation" (28 percent) and "assigning effectively" (24 percent).

Comparison, Large Public versus Large Private Institutions.—Officers of both large public (46 percent) and large private (69 percent) believed that "alternative selection" is the element of ZBB which managers of the institutions have greatest difficulty with. For large public the next two elements are "cost calculation" (41 percent) and "assigning effectively" (30 percent). For large private the next two elements are "assigning effectively" (46 percent) and "cost calculation" (31 percent).

Public Institutions, Low Budget Group, (0-$5m), N=16.—Of the respondents, 4 (25 percent) believed "cost calculation," 9 (56 percent) believed "alternative selection" and 4 (25 percent) believed "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.

Public Institutions, Lower-Middle Budget Group, ($5-$15m), N=21.—Of the respondents, 6 (29 percent) believed "cost calculation," 10 (48 percent) believed "alternative selection," and 8 (38 percent) believed that "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.
<table>
<thead>
<tr>
<th>Institutions' Type &amp; Budget</th>
<th>Cost Calculation</th>
<th>Alternative Selection</th>
<th>Assigning Effectively</th>
<th>Total Respondents</th>
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<td>No</td>
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<td>60</td>
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<tr>
<td>Total private institutions</td>
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<td>74</td>
<td>54</td>
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*Low budget group=0-$5 million budget, Lower-middle budget group=$5-$15 million budget, Upper-middle budget group=$15-$60 million budget, High budget group=$60 million and over budget.
Public Institutions, Upper-Middle Budget Group, ($15-$60m), N=20.—Of the respondents, 6 (30 percent) believed "cost calculation," 13 (65 percent) believed "alternative selection," and 7 (35 percent) believed that "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.

Public Institutions, High Budget Group, ($60m-over), N=20.—Of the respondents, 9 (45 percent) believed "cost calculation," 12 (60 percent) believed "alternative selection," and 6 (30 percent) believed that "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.

Comparison, Public Institutions by Budget.—Most officers of public institutions in different budget groups as; low budget group (56 percent), lower-middle (48 percent), upper-middle (65 ), and high budget group (60 percent) agreed that "alternative selection" is the element of ZBB which managers of institutions have greatest difficulty with. The next two elements for low budget group were both "cost calculation" (25 percent) and "assigning effectively" (25 percent), for lower-middle budget group were "assigning effectively" (38 percent) and "cost calculation" (29 percent), for upper-middle budget group were "assigning
effectively" (35 percent) and "cost calculation" (29 percent), and for high budget group were "cost calculation" (45 percent) and "assigning effectively" (30 percent).

Private Institutions, Low Budget Group, (0-$5m), N=19.—Of the respondents, 4 (21 percent) believed cost calculation, 6 (32 percent) believed "alternative selection," and 3 (16 percent) believed that "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.

Private Institutions, Lower-Middle Budget Group, ($5-$15m), N=10.—Of the respondents, 3 (30 percent) believed "cost calculation," 8 (80 percent) believed "alternative selection," and 3 (30 percent) believed "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.

Private Institutions, Upper-Middle Budget, ($15-$60m), N=20.—Of the respondents, 7 (35 percent) believed "cost calculation," 10 (50 percent) believed "alternative selection," and 7 (35 percent) believed "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.

Private Institutions, High Budget Group, ($60m-over), N=20.—Of the respondents, 3 (30 percent) believed "cost
calculation," 6 (60 percent) believed "alternative selection," and 4 (40 percent) believed "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.

Comparison, Private Institutions by Budget.—Most officers of private institutions in different budget groups as; low budget (32 percent), lower-middle budget (80 percent), upper-middle budget (50 percent) and high budget group (60 percent), agreed that "alternative selection" is the element of ZBB which managers of the institutions have greatest difficulty with. The next two elements for low budget group are "cost calculation" (21 percent) and "assigning effectively" (16 percent), for lower-middle budget are both "cost calculation" (30 percent) and "assigning effectively" (30 percent), for upper-middle budget group are also both "cost calculation" (35 percent), and "assigning effectively" (35 percent), and for high budget group are "assigning effectively" (40 percent) and "cost calculation" (30 percent).

All Institutions, Low Budget Group, (0-$5m), N=35.—Of the respondents, 8 (23 percent) believed "cost calculation," 15 (43 percent) believed "alternative selection,"
and 7 (20 percent) believed that "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.

**All Institutions, Lower-Middle Budget Group, ($5-$15m), N=31.**—Of the respondents, 9 (29 percent) believed "cost calculation," 18 (58 percent) believed "alternative selection," and 11 (36 percent) believed that "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.

**All Institutions, Upper-Middle Budget Group, ($15-$60m), N=40.**—Of the respondents, 13 (33 percent) believed "cost calculation," 23 (58 percent) believed "alternative selection," and 14 (35 percent) believed that "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.

**All Institutions, High Budget Group, ($60m-over), N=30.**—Of the respondents, 12 (40 percent) believed "cost calculation," 18 (60 percent) believed "alternative selection," and 10 (33 percent) believed that "assigning effectively" are the elements of ZBB which managers of institutions have greatest difficulty with.

**Comparison, All Institutions by Budget.**—Most officers of the respondents institutions in different budget
group as; low budget (43 percent), lower-middle budget (58 percent), upper-middle budget (58 percent), and high budget group (60 percent) agreed that "alternative selection" is the element of ZBB which managers of the institutions have greatest difficulty with. The next two elements for low budget group are "cost calculation" (23 percent) and "assigning effectively" (20 percent), for lower-middle budget group are "assigning effectively" (36 percent) and "cost calculation" (29 percent), for upper-middle budget group are "assigning effectively" (35 percent) and "cost calculation" (33 percent), and for high budget group are "cost calculation" (40 percent) and "assigning effectively" (33 percent).

In low budget group, both officers of public (56 percent) and private (32 percent) believed that "alternative selection" is the element of ZBB which managers have most difficulty with. The next element of difficulty for public institutions are both "cost calculation" (25 percent) and "assigning effectively" (25 percent), while for private institutions, the second element is "cost calculation" (21 percent), and the third is "assigning effectively" (16 percent).

In lower-middle budget level, also, officers of both public (48 percent) and private (80 percent) institutions believed that "alternative selection" is the element of ZBB
which most managers have greatest difficulty with. The second element for public institutions is "assigning effectively" (38 percent), and the third is "cost calculation" (29 percent), while the next element for private institutions were both "cost calculation" (30 percent) and "assigning effectively" (30 percent).

In the upper-middle budget group, also, officers of both public (65 percent) and private (50 percent) institutions believed that "alternative selection" is the element of ZBB which most managers have greatest difficulty with. In this group, for public institutions the second element is "assigning effectively" (35 percent) and the third element is "cost calculation" (30 percent), while for private institutions, the second element were both "cost calculation" (35 percent) and "assigning effectively" (35 percent).

In high budget level also, officers of both public (60 percent) and private (60 percent) believed that "alternative selection" is the element of ZBB which most managers of the institutions have greatest difficulty with. For public institutions, the second element is "cost calculation" (45 percent) and the third was "assigning effectively" (30 percent), while for private institutions, the second element is "assigning effectively" (40 percent) and the third element is "cost calculation" (30 percent).
The preceding analysis shows clearly that respondents, as a group, clearly believe that "alternative selection" is the element of ZBB which most managers of the institutions have greatest difficulty with.

Effect of ZBB of the Quality of Management Information Item #53 (Tables XXXII-XXXIII)

All good budgeting systems generate information for management planning and control. If your institution does not now use zero-based budgeting, what effect would the implementation of zero-based budgeting have on the quality of management information in your institution's budgeting system?

1. Quality of management information will substantially improve.

2. Quality of management information will slightly improve.

3. Quality of management information will be about the same.

4. Quality of management information will slightly decrease.

5. Quality of management information will substantially decrease.

Tables XXXII-XXXIII shows data for this item.
### TABLE XXXII

**Effect of 38U on the Quality of Management Information**

**All Institutions by Type and Size**

<table>
<thead>
<tr>
<th>Institutions' type and size</th>
<th>SDS-I</th>
<th>SLTY-I</th>
<th>R.A.B.</th>
<th>SLTY-D</th>
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<td>%</td>
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<td>16</td>
<td>38</td>
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<td>38</td>
<td>45</td>
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<td>3</td>
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<td>20</td>
<td>44</td>
<td>40</td>
<td>36</td>
<td>5</td>
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</table>

*SDS-I=Quality of management information will substantially improve, SLTY-I=Quality of management information will slightly improve, R.A.B.=Quality of management information will remain about the same, SLTY-D=Quality of management information will slightly decrease, SRS-D=Quality of management information will substantially decrease.*

**Small=0-6,999 FTE student enrollment, Large=7,000-over FTE student enrollment.**
Public Institutions, N=77.—Of 67 respondents, 34 (51 percent) believed it would improve to some degree, 30 (45 percent) believed it would remain about the same, and 3 (4 percent) believed that it would decrease. Statistical mean is 2.4. Consensus: It would improve.

Private Institutions, N=59.—Of 44 respondents, 66 (59 percent) believed that it would improve to some degree, 40 (36 percent) believed it would remain about the same, and 5 (4 percent) believed that it would decrease. Statistical mean is 2.3. Consensus: It would improve.

Comparison, Public versus Private Institutions.—Both officers of public and of private institutions believed ZBB would improve quality of management information. Officers of public institutions believed that less than did those of private institutions. The figures for "quality of management information will improve to some degree" and statistical mean for public institutions are 34 (51 percent) and 2.4 and for private institutions 32 (72 percent) and 2.09.

Small Public Institutions, (0-6,999 FTE SE), N=50.—Of 42 respondents, 23 (55 percent) believed it would improve to some degree, 1 (2 percent) believed that it would decrease. Eighteen (43 percent) believed it would be about the same. Statistical mean is 2.3. Consensus: It would improve.
Large Public Institutions, (7,000-over FTE SE), N=27.—Of 25 respondents, 11 (44 percent) believed that it would improve to some degree, 2 (8 percent) believed it would decrease. Twelve (48 percent) believed it would be about the same. Statistical mean is 2.4. Consensus: It would improve.

Comparison, Small versus Large Public Institutions.—Most officers of public respondents (55 percent) believed that quality of management information would improve to some degree, and 43 percent believed it would be about the same, while in private institutions 44 percent believed it would improve to some degree, and 48 percent believed that it would be about the same.

Small Private Institutions, (0-6,999 FTE SE), N=46.—Of 34 respondents 25 (74 percent) believed that it would improve to some degree, 7 (21 percent) believed it would be about the same, and 2 (6 percent) believed that it would decrease. Statistical mean is 2.1. Consensus: It would improve.

Large Private Institutions, (7,000-over FTE SE), N=13.—Of 10 respondents 7 (70 percent) believed it would improve to some degree, 3 (30 percent) believed it would be about the same, and none believed it would decrease. Statistical mean is 2.0. Consensus: It would improve.
Comparison, Small versus Large Private Institutions.—Officers of both small and large private institutions believed that ZBB would improve quality of management information to some degree. The figures for upper two levels and statistical mean for small private are 25 (74 percent) and 2.1, and for large private are 7 (70 percent) and 2.0. The figures for "remain about the same" for small private 7 (21 percent) and for large private is 3 (30 percent).

All Small Institutions, (0-6,999 FTE SE), N=96.—Of 76 respondents, 48 (63 percent) believed it would improve to some degree, 25 (33 percent) believed it would remain about the same. Therefore 3 (4 percent) believed it would decrease. Statistical mean is 2.2. Consensus: It would improve.

All Large Institutions, (7,000-over FTE SE), N=40.—Of 35 respondents, 18 (51 percent) believed it would improve to some degree, 15 (43 percent) believed it would remain about the same, and 2 (6 percent) believed it would decrease. Statistical mean is 2.3. Consensus: It would improve.

Comparison, All Institutions.—Most officers of both small 48 (63 percent) and large 18 (51 percent) believed
that ZBB would improve quality of management information to some degree. The figures for "remain about the same" are for all small institutions 25 (33 percent) and for large institutions 15 (43 percent).

Officers of small private institutions (2.1) believed more than did officers of small public ones (2.3) that ZBB would improve quality of management information to some degree. The figure for "improve to some degree" for small public is 23 (55 percent) and for small private 25 (74 percent).

Officers of large private institutions (2.0) also believed more than did officers of large public institutions (2.4) that ZBB would improve management information to some degree. The figures for "improve to some degree" for large public institutions is 11 (44 percent) and for large private institutions 7 (70 percent).

Public Institutions, Low Budget Group, (0-$5m), N=16.—Of 12 respondents, 6 (50 ) believed it would improve to some degree, 6 (50 percent) believed it would remain about the same, and none believed it would decrease. Statistical mean is 2.3. Consensus: It would improve.

Public Institutions, Lower-Middle Budget Group, ($5-$15), N=21.—Of 18 respondents, 10 (56 percent) believed it would improve to some degree, 7 (39 percent)
believed it would remain about the same, and 1 (5 percent) believed it would decrease. Statistical mean is 2.3. Consensus: It would improve.

**Public Institutions, Upper-Middle Budget Group, ($15-$60m), N=20.**—Of 19 respondents, 9 (47 percent) believed it would improve to some degree, 9 (47 percent) believed it would remain about the same, and 1 (5 percent) believed it would decrease. Statistical mean is 2.4. Consensus: It would improve.

**Public Institutions, High Budget Group, ($60m-over), N=20.**—Of 18 respondents, 9 (50 percent) believed it would improve to some degree, 8 (44 percent) believed it would remain about the same, and 1 (6 percent) believed it would decrease. Statistical mean is 2.3. Consensus: It would improve.

**Comparison, Public Institutions by Budget.**—About half of the officers of public institutions, regardless of budget groups, believed that ZBB would improve the quality of management to some degree, and the other half believed that it would remain about the same. The figures for "improve to some degree" for low budget group is 6 (50 percent), for lower-middle 10 (56 percent), for upper-middle 9 (47 percent), and for high budget group 9 (50 percent).
### TABLE XXXIII

**EFFECT OF 3BB ON THE QUALITY OF MANAGEMENT INFORMATION**

**ALL INSTITUTIONS BY TYPE AND BUDGET**

<table>
<thead>
<tr>
<th>Institutions' type and budget group</th>
<th>SBS-I</th>
<th>SLT-I</th>
<th>R.A.S.</th>
<th>SLT-D</th>
<th>SBS-B</th>
<th>Total</th>
<th>Statistical Mean</th>
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<tbody>
<tr>
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<tr>
<td>Low budget group</td>
<td>2</td>
<td>17</td>
<td>6</td>
<td>50</td>
<td>0</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>Lower-middle budget group</td>
<td>3</td>
<td>17</td>
<td>7</td>
<td>39</td>
<td>1</td>
<td>5</td>
<td>0</td>
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<td>Upper-middle budget group**</td>
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<td>6</td>
<td>32</td>
<td>9</td>
<td>47</td>
<td>1</td>
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<td>Total public</td>
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<td>22</td>
<td>33</td>
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<td>45</td>
<td>3</td>
</tr>
<tr>
<td><strong>Private institutions:</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>7</td>
<td>64</td>
<td>2</td>
<td>10</td>
<td>1</td>
</tr>
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<td>Lower-middle budget group</td>
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<td>45</td>
<td>2</td>
<td>22</td>
<td>33</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Upper-middle budget group</td>
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<td>9</td>
<td>53</td>
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<td>10</td>
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<td>High budget group</td>
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<td>9</td>
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<td>Total</td>
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<td>22</td>
<td>44</td>
<td>40</td>
<td>36</td>
<td>5</td>
</tr>
</tbody>
</table>

**Statistical Mean:**

- SBS-I: Quality of management information will substantially improve.
- SLT-I: Quality of management information will slightly improve.
- R.A.S.: Quality of management information will remain about the same.
- SLT-D: Quality of management information will slightly decrease.
- SBS-B: Quality of management information will substantially decrease.

**Budget Group:**

- Low budget group: $0-$5 million budget.
- Lower-middle budget group: $5-$15 million budget.
- Upper-middle budget group: $15-$60 million budget.
- High budget group: $60 million and over budget.

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*305*
Private Institutions, Low Budget Group, (0-$5m),
N=19.—Of 11 respondents, 8 (89 percent) believed that it would improve to some degree, 2 (18 percent) believed it would remain about the same, and 1 (9 percent) believed it would decrease. Statistical mean is 2.3. Consensus: It would improve.

Private Institutions, Lower-Middle Budget Group, ($5-$15m), N=10.—Of 9 respondents, 6 (67 percent) believed it would improve to some degree, 3 (33 percent) believed it would remain about the same. Therefore none believed it would decrease. Statistical mean is 1.9. Consensus: It would improve.

Private Institutions, Upper-Middle Budget Group, ($15-$60m), N=20.—Of 17 respondents, 13 (76 percent) believed it would improve to some degree, 3 (18 percent) believed it would remain about the same, and 1 (6 percent) believed it would decrease. Statistical mean is 2.1. Consensus: It would improve.

Private Institutions, High Budget Group ($60m-over), N=10.—Of 7 respondents, 5 (71 percent) believed it would improve to some degree, 2 (29 percent) believed it would remain about the same. Therefore none believed it would decrease. Statistical mean is 2.1. Consensus: It would improve.
Comparison, Private Institutions by Budget.—Officers of private institutions, regardless of budget group, believed that ZBB would improve to some degree the quality of management information. The figures for "improve to some degree" for low budget group are 8 (89 percent), for lower-middle 6 (67 percent), for upper-middle 13 (76 percent), and for high are 5 (71 percent).

The figures for "remain about the same" for low budget group are 2 (18 percent), for lower-middle 3 (33 percent), for upper-middle 3 (18 percent), and for high 2 (29 percent).

All Institutions, Low Budget Group, (0-$5m), N=35.—Of 23 respondents, 14 (61 percent) believed that it would improve to some degree, 8 (35 percent) believed it would remain about the same, and 1 (4 percent) believed it would decrease. Statistical mean is 2.3. Consensus: It would improve.

All Institutions, Lower-Middle Budget Group, ($5-$15m), N=31.—Of 27 respondents, 16 (59 percent) believed it would improve to some degree, 10 (37 percent) believed it would remain about the same, and 1 (4 percent) believed it would decrease. Statistical mean is 2.2. Consensus: It would improve.
All Institutions, Upper-Middle Budget Group, ($15-$60m), N=40. --Of 36 respondents, 22 (61 percent) believed it would improve to some degree, 12 (33 percent) believed it would remain about the same, and 2 (6 percent) believed it would decrease. Statistical mean is 2.3. Consensus: It would improve.

All Institutions, High Budget Group, ($60m-over), N=30. --Of 25 respondents, 14 (56 percent) believed it would improve to some degree, 10 (40 percent) believed it would remain about the same, and 1 (4 percent) believed it would decrease. Statistical mean is 2.3. Consensus: It would improve.

Comparison, All Institutions by Budget. --It can be seen that a little more than half of the officers of the respondents institutions, regardless of budget groups, believed that ZBB would improve to some degree the quality of management information. The figures for "improve to some degree" for low budget group are 14 (61 percent), for lower-middle 16 (59 percent), for upper-middle 22 (61 percent) and for high budget 14 (56 percent). The figures for "remain about the same" for low budget group are 8 (35 percent), for lower-middle budget 10 (37 percent), for upper-middle budget 12 (33 percent) and for high budget group 10 (40 percent).
In low budget group, 50 percent of the officers of public, and 89 percent of officers of private institutions believed ZBB would improve to some degree quality of management information. Statistical mean for public is 2.3 and for private institutions 2.3.

In lower-middle budget group 56 percent of officers of public and 65 percent of officers of private institutions believed that ZBB would improve quality of management information. Statistical mean for public is 2.3 and for private institutions 1.9.

In upper-middle budget group, 47 percent of officers of public and 76 percent of officers of private institutions believed that ZBB would improve quality of management information. Statistical mean for public is 2.4 and for private institutions 2.1.

In high budget group 50 percent of officers of public and 71 percent of officers of private institutions believed that ZBB would improve to some degree the quality of management information. Statistical mean for public is 2.3 and for private institutions 2.1.

It can readily be seen that in each group of budget officers or private institutions agree more than officers of public institutions that ZBB would improve to some degree the quality of management information in comparison to their institutions currently used budgeting system(s).
Overall Evaluation of the Use of ZBB:
Item #54 (Tables XXXIV-XXXV)

What is your overall evaluation of the use of the technique of zero-based budgeting in the area of higher educational institutions?

1. It fails as a very effective budgeting system;
2. It fails as a budgeting system;
3. Uncertain about its effectiveness;
4. It works as a budgeting system;
5. It works well as a very effective budgeting system.

Tables XXXIV-XXXV shows data for this item.

Public Institutions, N=77.—Of 71 respondents, 24 (34 percent) believed ZBB fails to some degree, 22 (31 percent) believed it works to some degree, and 25 (35 percent) were uncertain about its effectiveness. Statistical mean is 2.8. Consensus: Uncertain about its effectiveness.

Private Institutions, N=59.—Of 47 respondents, 10 (21 percent) believed ZBB would fail to some degree, 16 (34 percent) believed it would work to some degree, and 25 (35 percent) were uncertain about its effectiveness. Statistical mean is 2.8. Consensus: Uncertain about its effectiveness.

All Institutions, N=136.—Of 118 respondents, 34 (29 percent) believed ZBB would fail to some degree, 38 (32 percent)
### TABLE XXXIV
OVERALL EVALUATION OF THE USE OF ITD IN HIGHER EDUCATIONAL INSTITUTIONS INSTITUTIONS BY TYPE AND SIZE

<table>
<thead>
<tr>
<th>Institutions' Type &amp; Budget</th>
<th>Uncertain</th>
<th>W.B.</th>
<th>W.T.E.</th>
<th>Total</th>
<th>Statistical Mean</th>
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</thead>
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<td></td>
<td>F.V.E.</td>
<td>F.B.</td>
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<td>No</td>
<td>No</td>
</tr>
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<td><strong>Public institutions</strong></td>
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<td>Small</td>
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<td>17</td>
<td>5</td>
<td>11</td>
<td>16</td>
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<tr>
<td>Large</td>
<td>7</td>
<td>28</td>
<td>4</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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<td>9</td>
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<td><strong>Private institutions</strong></td>
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<tr>
<td>Small</td>
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<td>14</td>
<td>3</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>Large</td>
<td>1</td>
<td>8</td>
<td>3</td>
<td>25</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>6</td>
<td>22</td>
<td>6</td>
<td>40</td>
<td>12</td>
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<td><strong>All institutions</strong></td>
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</tr>
<tr>
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<td>6</td>
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<tr>
<td>Large</td>
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<td>21</td>
<td>40</td>
<td>13</td>
<td>29</td>
<td>42</td>
</tr>
</tbody>
</table>

*Quality of management information will substantially improve, A.A.D=Quality of management information will slightly improve, N.A.D=Quality of management information will remain about the same, S.W.T=Quality of management information will slightly decrease, S.W.T=D=Quality of management information will substantially decrease.

**Small=0-6,999 FTE student enrollment, Large=7,000-over FTE student enrollment."
percent) believed it would work to some degree, and 46 (39 percent) were uncertain about its effectiveness. Statistical mean is 2.9. Consensus: Uncertain about its effectiveness.

Comparison, Public versus Private Institutions.---Although statistical mean for both officers of public (2.8) and of private institutions (3.1) are close to uncertainty, officers of public institutions tended to believe that ZBB would fail, while officers of private institutions were uncertain about its effectiveness. The figures for "fail to some degree" for public are 22 (31 percent) and for private 10 (21 percent). The figures for "works to some degree" for public are 22 (31 percent) and for private 16 (34 percent). The figures for "uncertain about its effectiveness" for public are 25 (35 percent) and for private institutions 21 (45 percent).

Small Public Institutions, (0-6,999 FTE SE), N=50.--Of 46 respondents, 13 (28 percent) believed ZBB would fail to some degree, 17 (37 percent) believed it would work to some degree, and 16 (35 percent) were uncertain about its effectiveness. Statistical mean is 2.9. Consensus: Uncertain about its effectiveness.
Large Public Institutions, (7,000-over FTE SE), N=27.—Of 25 respondents, 11 (44 percent) believed ZBB would fail to some degree, 5 (20 percent) believed it would work to some degree, and 9 (36 percent) were uncertain about its effectiveness. Statistical mean is 2.5. Consensus: Uncertain about its effectiveness.

Comparison, Small versus Large Public Institutions.—
Officers of small public institutions (2.9) and officer of large public institutions (2.5) were uncertain about the effectiveness of ZBB. The figures for "fail to some degree" for small public is 13 (28 percent) and for large public is 11 (44 percent). The figures for "works to some degree" for small public are 17 (37 percent) and for large public 9 (36 percent).

Small Private Institutions, (0-6,999 FTE SE), N=46.—Of 35 respondents, 6 (17 percent) believed that ZBB would fail to some degree, 14 (40 percent) believed that it would work to some degree, and 15 (43 percent) were uncertain about its effectiveness. Statistical mean is 3.2. Consensus: Uncertain about its effectiveness.

Large Private Institutions, (7,000-over FTE SE), N=13.—Of 12 respondents, 4 (33 percent) believed ZBB would fail to some degree, 2 (17 percent) believed it would work
to some degree, and 6 (50 percent) were uncertain about its effectiveness. Statistical mean is 2.8. Consensus: Uncertain about its effectiveness.

Comparison, Small versus Large Private Institutions.—Officers of small private institutions (3.2) and of large private (2.8) were uncertain about its effectiveness of ZBB. The figures for "fails to some degree" for small private are 6 (17 percent) and for large private 4 (33 percent). The figures for "works to some degree" for small private are 14 (40 percent) and for large private 2 (17 percent). The figures for "uncertain about its effectiveness" for small private are 15 (43 percent) and for large private 6 (50 percent).

All Small Institutions, (0-6,999 FTE SE), N=96.—Of 81 respondents, 19 (25 percent) believed ZBB would fail to some degree, 31 (38 percent) believed it would work to some degree, and 31 (38 percent) were uncertain about its effectiveness. Statistical mean is 3.0. Consensus: Uncertain about its effectiveness.

All Large Institutions, (7,000-over FTE SE), N=40.—Of 37 respondents, 15 (41 percent) believed ZBB would fail to some degree, 7 (19 percent) believed it would work to
some degree, and 15 (40 percent) were uncertain about its effectiveness. Statistical mean is 2.6. Consensus: Uncertain about its effectiveness.

Comparison, All Small versus All Large Institutions. Officers of small institutions (3.0) and of large institutions (2.6) were uncertain about its effectiveness of ZBB. The figures for "fails to some degree" for all small institutions are 19 (24 percent) and for all large institutions 15 (41 percent). The figures for "works to some degree" for all small institutions are 31 (38 percent) and for all large institutions 7 (19 percent). The figures for "uncertain about its effectiveness" for all small institutions are 31 (38 percent) and for all large institutions 15 (40 percent).

Officers both of small public (2.9) and of small private institutions (3.2) were uncertain about its effectiveness of ZBB. The figures for "fails to some degree" for small public are 13 (28 percent) and for small private are 6 (17 percent). The figures for "works to some degree" for small public are 17 (37 percent) and for small private 14 (40 percent). Thus, 16 (35 percent) of small public and 15 (43 percent) of small private were uncertain about its effectiveness of ZBB.
Officers both of large public (2.5) and of large private (2.8) uncertain about its effectiveness of ZBB. The figures for "fails to some degree" for large public are 11 (44 percent) and for large private are 4 (33 percent). The figures for "works to some degree" for large public are 5 (20 percent) and for large private are 2 (17 percent). Thus, 9 (36 percent) of large public and 6 (50 percent) of large private were uncertain about its effectiveness of ZBB.

Public Institutions, Low Budget Group, (0-$5m), N=16.—Of 14 respondents, 1 (7 percent) believed ZBB would fail to some degree, 8 (57 percent) believed it would work to some degree, and 5 (36 percent) were uncertain about its effectiveness. Statistical mean is 3.5. Consensus: It works to some degree.

Public Institutions, Lower-Middle Budget Group, ($5-$15m), N=21.—Of 19 respondents, 5 (26 percent) believed ZBB would fail to some degree, 7 (37 percent) believed it would work to some degree, and 7 (37 percent) were uncertain about its effectiveness. Statistical mean is 3.0. Consensus: Uncertain about its effectiveness.

Public Institutions, Upper-Middle Budget Group, ($15-$60m), N=20.—Of 20 respondents, 8 (40 percent) believed it would fail to some degree, 4 (20 percent)
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*EAS-I=Quality of management information will substantially improve, EAS-II=Quality of management information will slightly improve, H.A.S.-Quality of management information will remain about the same, GUS-D=Quality of management information will slightly decrease, GUS-D=Quality of management information will substantially decrease.

²Low budget group=0-$5 million budget, Lower-middle budget group=$5-$15 million budget, Upper-middle budget group=$15-$40 million budget, High budget group=$40 million and over budget.
believed it would work to some degree, and 8 (40 percent) were uncertain about its effectiveness. Statistical mean is 2.5. Consensus: Uncertain about its effectiveness.

Public Institutions, High Budget Group, ($60m-over), N=20.—Of 18 respondents, 10 (55 percent) believed it would fail to some degree, 3 (17 percent) believed it would work to some degree, and 5 (28 percent) were uncertain about its effectiveness. Statistical mean is 2.3. Consensus: It fails to some degree.

Comparison, Public Institutions by Budget.—Officers of those public institutions with least budget (3.5) believed that ZBB would work to some degree, and officers of those institutions with high budget (2.3) believed ZBB would fail to some degree, and the institutions between were uncertain about its effectiveness of ZBB. The figures for "fails to some degree" and "works to some degree" for low budget group are 1 (7 percent) and 8 (57 percent), for lower-middle 5 (26 percent) and 7 (37 percent), for upper-middle budget are 8 (40 percent) and 4 (20 percent), and for high budget 10 (55 percent) and 3 (17 percent). Thus, 5 (36 percent) of low budget group, 7 (37 percent) of lower-middle, 8 (40 percent) of upper-middle, and 5 (28 percent) for high group were uncertain about its effectiveness of ZBB.
Private Institutions, Low Budget Group, (0=\$5m), N=19.--Of 11 respondents, 2 (18 percent) believed ZBB would fail to some degree, 4 (36 percent) believed it would work to some degree, and 5 (46 percent) were uncertain about its effectiveness. Statistical mean is 3.0. Consensus: Uncertain about its effectiveness.

Private Institutions, Lower-Middle Budget Group, ($5-$15m), N=10.--Of 9 respondents, none believed ZBB would fail to some degree, 5 (56 percent) believed it would work to some degree, and 4 (44 percent) were uncertain about its effectiveness. Statistical mean is 3.7. Consensus: Works to some degree.

Private Institutions, Upper-Middle Budget Group, ($15-$60m), N=20.--Of 18 respondents, 5 (28 percent) believed ZBB would fail to some degree, 4 (22 percent) believed it would work to some degree, and 9 (50 percent) were uncertain about its effectiveness. Statistical mean is 2.9. Consensus: Uncertain about its effectiveness.

Private Institutions, High Budget Group, ($60m-over), N=10.--Of 9 respondents, 3 (33 percent) believed ZBB would fail to some degree, and 3 (33 percent) believed it would work to some degree, and 3 (33 percent) were uncertain about its effectiveness. Statistical mean is 3.0. Consensus: Uncertain about its effectiveness.
Comparison, Private Institutions by Budget.---Officers of private institutions in low budget (3.0), in upper-middle budget (2.9) and high budget (3.0) were uncertain about its effectiveness of ZBB. Officers of private institutions in lower-middle budget group (2.7) agreed that ZBB would work to some degree. The figures for "fails to some degree" and "works to some degree" for low budget private institutions are 2 (18 percent) and 4 (36 percent), for lower-middle 0 and 5 (56 percent), for upper-middle 5 (28 percent) and 4 (22 percent), and for high 3 (33 percent) and 3 (33 percent). Thus, 5 (46 percent) in low budget group, 4 (44 percent) in lower-middle budget, 9 (50 percent) in upper-middle budget, and 3 (33 percent) in high budget group were uncertain about its effectiveness of ZBB.

All Institutions, Low Budget Group, (0-$5m), N=35.---Of 25 respondents, 3 (12 percent) believed ZBB would fail to some degree, 12 (48 percent) believed it would work to some degree, and 10 (40 percent) were uncertain about its effectiveness. Statistical mean is 3.3. Consensus: Uncertain about its effectiveness.

All Institutions, Lower-Middle Budget Group, ($5-$15m), N=31.---Of 28 respondents, 5 (18 percent) believed ZBB would fail to some degree, 12 (43 percent)
believed it would work to some degree, and 11 (39 percent) were uncertain about its effectiveness. Statistical mean is 3.2. Consensus: Uncertain about its effectiveness.

All Institutions, Upper-Middle Budget Group, ($15-$60m), N=40.—Of 38 respondents, 13 (34 percent) believed ZBB would fail to some degree, 8 (21 percent) believed it would work to some degree, and 17 (45 percent) were uncertain about its effectiveness. Statistical mean is 2.7. Consensus: Uncertain about its effectiveness.

All Institutions, High Budget Group, ($60m-over), N=30.—Of 27 respondents, 13 (48 percent) believed ZBB would fail to some degree, 6 (22 percent) believed it would work to some degree, and 8 (30 percent) were uncertain about its effectiveness. Statistical mean is 2.5. Consensus: Uncertain about its effectiveness.

Comparison, All Institutions by Budget.—Officers of all the institutions regardless of their budget groups were uncertain about its effectiveness of ZBB. The figures for statistical mean for low budget group of 3.3, lower-middle 3.2, upper-middle 2.7, and high budget group are 2.5. The above figures shows that institutions with less budget interested more in the technique of ZBB, than did institutions with higher budget. The figures for "fails to some degree"
and "works to some degree" for low budget group are 3 (12 percent) and 12 (48 percent), for lower-middle 5 (18 percent) and 12 (43 percent), for upper-middle 13 (34 percent) and 8 (21 percent), and for high budget 13 (48 percent) and 6 (22 percent). Thus, 10 (40 percent) of low budget group, 11 (39 percent) of lower-middle budget group, 17 (45 percent) of upper-middle budget group, and 8 (30 percent) of high budget group were uncertain about its effectiveness of ZBB.

In low budget group, officers of private institutions were uncertain (3.0) about the effectiveness of ZBB, while officers of public institutions (3.5) agreed that ZBB would work to some degree.

In lower-middle budget group, officers of public institutions were uncertain (3.0) about the effectiveness of ZBB, while officers of private institutions (3.7) agreed that ZBB would work to some degree as a budgeting system.

In upper-middle budget group, officers both of public (2.5) and of private institutions (2.9) were uncertain about its effectiveness of ZBB.

In the high budget group, officers of private institutions were uncertain (3.0) about the effectiveness of ZBB, while officers of public institutions (2.3) agreed that ZBB would fail as a budgeting system.
The preceding analysis shows clearly that respondents, as a group were uncertain about its effectiveness of ZBB. Among the respondent institutions, officers of public institutions in low budget group, and private institutions in lower-middle budget group agreed that ZBB would work to some degree. Officers of public institutions in high budget group agreed that ZBB would "fail to some degree." All other institutions under different size and budget groups were uncertain about its effectiveness of ZBB.
CHAPTER VI

SUMMARY, FINDINGS, AND RECOMMENDATIONS

It is the purpose of this chapter to summarize the study, state conclusions, and make recommendations for further study. The first part of this chapter reviews the development of the study and its background. The second part summarizes the data presented in chapter IV, the third part states conclusions based on the data, and the fourth part states recommendations concerning additional investigation.

Development and Background of the Study

This study was designed to describe the status of Zero-Based Budgeting in the institutions of higher education in the United States. The purposes of this study were (1) to determine to what extent the chief financial administrators of the selected institutions of higher education are familiar with the general concept and technique of ZBB, (2) how many of the selected institutions (a) have utilized the process of ZBB, (b) how many are now utilizing ZBB, and (c) plan to change their current budgeting system to ZBB, (3) how many of the selected institutions were at the time of study using fully or partially one of the following
budgeting systems(s): Incremental, Formula, Planning, Programming and Budgeting, and line-item, (4) chief financial officers' perceptions of ZBB according to subgroups of institution type (public or private), institution size (FTE student enrollments) as small or large, and amount of budget.

In order to conduct this study, a questionnaire draft was designed. The questionnaire draft was constructed from a study of books, periodicals, unpublished materials, dissertations, and theses related to zero-based budgeting and other budgeting systems.

The questionnaire was validated by a panel of authorities with expertise in the area of higher education institution budgeting. Two hundred validated questionnaires were sent to financial officers of randomly-selected colleges and universities. There were two equal groups of institutions: 100 public institutions and 100 private institutions within the forty-eight contiguous states and authorized to offer at least a one-year program of college-level studies toward a degree.

The institutions were divided into two major groups as public or private institutions. Public institutions were those which, according to their affiliation, were Federal, State, Local, State and Local institutions. Private
institutions were those which, according to their affiliation, were independent non-profit, profit-making, or religious institutions.

Each of the above groups was divided into two sub-groups, according to 1979-80 FTE student enrollments, as "small" or "large" institutions. Small institutions were those public or private institutions which had less than 7,000 FTE student enrollment, and large institutions were those which had a more than 7,000 FTE student enrollment.

Each major group was also divided into four sub-groups, according to the institution's 1979-80 budget, as low budget, lower-middle budget, upper-middle budget, and high budget. Low budget institutions were those which had a budget of less than $5 million. Lower-middle budget institutions were those which had a budget of more than $5 million, but less than $15 million. Upper-middle budget institutions were those which had a budget of more than $15 million, but less than $60 million. High budget institutions were those which had a budget of more than $60 million.

By mid-February 1981, of 200 questionnaires sent, 136 usable responses (68 percent of total) were received and are included in this study. Seventy-seven usable responses (77 percent of total public) were received from public institutions, and fifty-nine (59 percent of total private) were received from private institutions. The data from the
questionnaire, then, were tabulated according to the institution type, size, and amount of budget in the above.

**Summary of Background and Significance of the Study**

Institutions of higher education are non-profit organizations with goals and objectives different from those in business and industry, and because of these differences, the process of budgeting in these institutions perhaps need to be different from those in business and industry.

Although the authorities of the institutions of higher education are aware of these differences, they, instead of developing a new budgeting system or modifying the existing budgeting processes which best fit their institutions financial practices, turn to the budgeting practices of business and industry or governmental agencies. That creates some problems and confusions for them.

ZBB is one of the budgeting systems which were developed in business and applied at the Federal level by President Carter and which more or less became accepted among the administrators of the educational institutions.

The concept of ZBB is a "total rejustification of every activity from zero." Although those who applied or studied ZBB are not in close agreement about the effectiveness of this budgeting system, it has proven successful in the budgeting for the so-called "soft areas" of services and
support activities of businesses and industries, and institutions of higher education primarily are a kind of service activity organization for which, according to some writers, this system could be useful.

In recent years, educators have become very interested in ZBB. Although some believe that ZBB will control staff expenses and combine planning, budgeting proposals, and operational decision-making into one process and that ZBB is the most significant and powerful budgeting technique, there are other writers who believe the implementation of ZBB requires cautious examination. It is difficult to implement, and they believe that there are more reasons for ZBB to fail than for it to succeed.

ZBB is a new budgeting technique, and in the institutions of higher education this technique has not been practiced widely, and most of the administrators have not been well acquainted with it. The administrators of higher educational institutions need to know more about it and have a number of questions concerning it. They need to know whether it is an effective way to control their institution's cost so as to receive the greatest return from their limited resources, or at least whether it is worth trying and benefits from application of this system exceed the costs of implementation. They need to know whether
application of ZBB brings any changes in the area of budget and management control in the institutions of higher education.

This study attempted to do part of the research which is needed to understand ZBB better and to reveal the perceptions, of those who are more familiar with the institutions of higher education, about this system of budgeting.

**Summary of Literature About ZBB**

Institutions of higher education in this country in recent years have faced the greatest financial challenges in their history. This creates great pressure to be more efficient and effective. The rate of growth of American institutions of higher education in recent years has become slower than in the past, and American citizens have apparently lost a significant amount of faith in the leadership of these institutions. Thus, great pressure has been put on the leadership of these institutions to manage their operations more efficiently. In order to do so, administrators of these institutions have sought new management approaches and techniques. They have adopted a variety of new administrative and management tools developed initially to manage business organizations and governmental agencies.

A number of attempts have been made by the educational administrators to transplant business practice and governmental agencies' managerial techniques to colleges and
universities: Management Information System (MIS), PPBS, MBO, Organizational Development (OD), and Zero-Based Budgeting, for example. The emergence of ZBB in higher education was a response to the need for a new budgeting system in order for administrators to cope with their financial problems and to make decisions for achieving the most effective utilization of available financial resources.

The concept of ZBB, put simply, is that in order to develop an organization's budget without using previous years as a base, the base should be zero, and the budget should be calculated from the zero base. The term ZBB was first used in the U.S. Department of Agriculture for the 1964 Department's fiscal budget estimate. About the same time, Texas Instruments used the technique, called "Objective Strategies Tactics" (OST), to evaluate their research and development project.

Peter A. Pyhrr, a system analyst in the research division of TI at that time, convinced TI's top management that OST could be modified and adapted to other segments of the company. He authored an article for Harvard Business Review, describing his new budgeting system. It was read by many businessmen and governmental leaders, including Mr. Jimmy Carter, then Governor of the State of Georgia. Mr. Pyhrr was hired by Carter to install ZBB for the Georgia State Budget. Later, Carter, as President of the United
States was to order that ZBB be installed for the 1979 federal budget. Executives of business and industry also became interested in the Pyhrr idea, and some of them adopted the system. Among the latter were Southern California Edison, United California Bank, Xerox, and Allied Van Lines. By 1976, at least eleven states appeared to be using ZBB, and in education, also, a number of agencies adopted this system.

**Concept of ZBB.**--The concept of ZBB is simply that the cost of every item in the proposed budget must be justified and approved. Starting from ground zero, one should view all activities and priorities afresh and create a new and better set of allocations of funds for the upcoming budget year. Every expenditure, whether old and new, must be justified anew on the basis of its costs and benefits.

**Process of ZBB.**--This budgeting technique can be applied best to the service and support areas of an organization, and the institutions of higher education are primarily service activity organizations. ZBB is useful in any area in which cost/benefit analysis can be conducted. It is also beneficial if used in capital budgeting. The process of ZBB can be simplified into four basic steps.

1. Define the organization's decision unit. A decision unit in an organization can be a cost center, a
group of people within an organization performing the same function, and in higher education it can be an academic course, faculty development, departments, and so on.

2. Development of decision packages: A decision package is a document which identifies and describes a specific activity in such a manner that management can (a) evaluate it and rank it against other activities competing for the same or similar limited resources and (b) decide whether to approve or disapprove it. The number and nature of decision packages vary from organization to organization and mostly depend on the activities of the organizations and or their size.

3. Ranking: Once the decision units have been identified and decision packages are completed, the management of the organization first ranks all the packages in order of decreasing benefits, and once the organization has set the budget amount, the packages would be accepted down to the spending levels. This is the final structuring in ZBB.

Arguments For and Against ZBB.—ZBB, like any other budgeting and management techniques, has some strengths and some weaknesses. Some believe that ZBB is inefficient, and others believe that this system gives a better chance for more effective management and control. Arguments for ZBB are as follows.
1. It improves the management information upon which decision makers set policy

2. It will throw out the stated or implied budget argument that because something was done the preceding year, it should be continued the next year, the year after, and so forth

3. In the institutions of higher education, by applying ZBB, campus politics will be reduced as a factor in determining budget allocation

4. ZBB will prevent history, tradition, or custom from becoming the justification for maintaining certain expenditures

5. The technique of ZBB will force all levels of management to evaluate the cost effectiveness of old and new programs

6. ZBB saves money because this system enables the decision-makers to identify and to eliminate the vestigial and out-dated methods and programs

7. ZBB gives top management a better view of the total organization from the standpoint of resource allocation and various alternatives possible and their likely impact on institutional objectives
8. By using ZBB, the rationale for budget proposal will more truly reflect the real reasons for operational decisions, and operational decisions will be divorced from budget consequences.

9. ZBB enables top management to review the alternatives and recommendations of middle management systematically, with the planning goals always in sight.

10. ZBB will improve communication and understanding between management levels.

11. In ZBB, the staff members become more cost conscious, cost-benefit sensitive, and more involved in fiscal planning; thus, institutions can develop higher staff morale.

12. ZBB provides management training and participation in decision making.

13. ZBB also complements and supplements other systems, such as MBO and PPBS, and should be used with them.

14. In ZBB, the flow of information in an organization goes from the bottom up to the top. Thus, all levels of managers are involved in decision making.

15. ZBB is useful in training and education of the personnel and the staff of the implementing organization. It is professional development activity which should increase the skills and the ability of the institutions' managers and make them more effective.
Arguments against ZBB are as follows.

1. ZBB requires a number of forms and procedures that make it very difficult to implement.

2. ZBB requires a lot of time, money and paper work. The work load involved is excessive.

3. In ZBB, the reviewing process is a big problem, needing too much time and effort. There is not enough time for management to do an adequate job for evaluating programs in a relatively large organization.

4. ZBB also needs more time to educate the staff of the organization to the concept and technique of this system.

5. ZBB would cost so much in management time and expenses that the cost would outweigh any benefit which could be reasonably obtained from this system of budgeting.

6. "The opportunity cost," the cost of management time required in the ZBB process, could be used for something else.

7. Managers of the organization will not have enough time to manage if their time is taken to review the decision packages.

8. ZBB will cause little motivation for staff members and will make them function ineffectively.

9. ZBB will cause fear among the staff concerning whether or not there is a need for them.
10. Management of the organization hesitates to implement ZBB because of possible lawsuits, tenure policies, and union contracts.

11. ZBB in the area of higher education cannot work. There would be fear it might reduce the number of personnel. In these institutions the largest expenditures belong to the faculties, staff, and personnel's salaries, so ZBB will effect little in these institutions.

12. If ZBB preparation of decision packages require a significant amount of information, and if in an organization, available information system is not sufficient, or does not provide the right kind of information, the process of ZBB will not be very effective.

Some Experiments in ZBB.—The United States Department of Agriculture (USDA), during 1962, was the first organization which used ZBB on a large scale. Aaren Wildavsky and Arthur Hammond studied in detail the application and the result of application of ZBB in USDA. They concluded that during application of this system (1) managers in that department had great difficulty in thinking about budget or budgeting because of ties to legislative mandate, or to the department's past commitments, (2) in the USDA, time was serious constraint for the managers, and no one was able to read through and evaluate all the submitted
materials and (3) the work load measures for the managers was high, and it was difficult for them to relate cost and benefits in meaningful ways. They concluded that in USDA the process of ZBB failed to achieve its objectives.

Texas Instruments was the first private corporation to use ZBB. TI started this system in 1964. According to Allen Austin, the benefits of ZBB derived in TI were (1) better participation of first-line supervisors in forming their budget, (2) increased efficiency in the evaluation of resources, and (3) a close matching of resources to potential profit contributions and a reduction in the number of forms required for budgeting in that company.

In January 1972, Governor Carter introduced the technique of ZBB in the State of Georgia. George Minmier studied ZBB as implemented in that state, and he concluded that this system (1) gave the state the guidelines it needed to satisfactorily meet its goals and objectives with its limited financial resources, (2) improved the quality of management information and increased involvement of personnel in the state budgeting process, (3) the amount of time and effort spent during budget preparation was a disadvantage of this system, (4) ineffectiveness of the ranking of the decision packages in the level of funding was also another disadvantage, (5) the system in the State of Georgia had not significantly improved the efficiency of the allocation of
State's financial resources, and (6) in that state, 78 percent of the department budget analysts recommended the continued use of ZBB in some form.

American Management Association (AMA) in 1977 conducted a survey in order to answer the question "What purpose does ZBB serve in your organization?" They came to conclusion that from total responses, 30 percent believed that ZBB will better allocate resources, 25 percent believed it would improve decision making, 20 percent believed it would facilitate planning, and 12 percent believed that ZBB would reduce cost, and/or personnel. The AMA came to the conclusion that 94 percent of the respondents felt that ZBB achieved its purpose well, 25 percent judged that it performed extremely well, 43 percent believed very well, and 26 percent believed fairly well, and 6 percent felt that it achieved its purpose poorly or not at all.

In a survey conducted by National Association of State Budget Officers, in 1976, only two out of eleven states (18 percent) with some form of ZBB in existence reported changes in allocation of financial resources as a result of ZBB.

According to Allen Schich, the experience with ZBB in Rhode Island was at least partially responsible for (1) elimination of 1300 positions, (2) maintaining the reduced employment level during the past eighteen months, and (3) allowing for reallocation of funds from institutional community programs.
ZBB and Other Budgeting Systems

Several budgeting approaches have been used widely by American colleges and universities. Among them are Incremental budgeting, Line-item budgeting, Planning Programming and Budgeting System (PPBS), Formula budgeting, and Zero-based Budgeting. ZBB was discussed fully in Chapter II, and in Chapter III the above budgeting systems were discussed and compared with ZBB.

Incremental Budgeting.--This traditional budgeting system is the most-frequently-used budgeting system and simply is adding or deducting a percentage to the organization's previous year's budget. By using this system, managers of an organization assume that last year's budget is correct, so they use it as a base, adding or deducting a percentage to that budget.

Although this system is very easy to operate, it has a number of disadvantages. They are

1. Focus on what the organization buys rather than on what it does

2. Difficulty in relating expenditures to objectives and outputs

3. Lack of provisions for evaluating alternative courses of action

4. A substantial degree of inflexibility in budget execution especially in addressing needs of emergency nature
5. Most organizations to contain a "good deal of fat" because of failure to exorcise past programs, which may have increased in dollars over the years, while the need for them may have diminished or disappeared.

All the above disadvantages of Incremental Budgeting are not in ZBB, because in ZBB programs will be reviewed thoroughly and then financial resources will be allocated only to those programs and activities which will yield the most benefits.

In ZBB each program or activity is to be compared and analyzed against all other programs, and those programs will be selected which have the maximum benefit for the organization, but in Incremental Budgeting, there is no need for comparing and analyzing the programs in order to select them according to their merit and benefit. Those who are in favor of "incremental" argue that there is a limited ability for the managers of the organizations to foresee the full social consequences of a program change and so, in order to move toward the objective of the organization, one should proceed by small sequential steps, correcting and adjusting for unforeseen consequences along the way. Thus, Incremental Budgeting avoids serious mistakes.

Line-Item Budgeting.—Line-item or object budget traditionally has been the budgeting system for most American
Line-Item Budgeting.—Line-item or object budget traditionally has been the budgeting system for most American colleges and universities. The nature of this budgeting system is from "expenditure budget" focused on the expenditures, and it may be operated on the cash basis. It is a financial plan of estimated expenditures expressed in terms of the kind and quantities of objects to be purchased and the estimated revenue needed to finance them during a specified period of, usually, one year.

Advantages are that it

1. Safeguards funds for their assigned uses and provides protection of fiscal resources;

2. Forces management to regularly review activities and policies, because this process of budgeting is repeated every year;

3. Increases could be justified in terms of projection for the next year. Each year the department or organization's subunits are required to submit request for the forthcoming year on budget forms that provide tabulation of request for additional resources. Then the decision-making process will be take place at the organization's top management, or the administrative and board of trustee level in the institutions of higher education;

4. Protects the organization fiscal resources.
Disadvantages are that it

1. Causes competition among departments, for acquiring available funds, to increase. As the result, there will be a little enthusiasm for interdepartmental collaboration on the programs whose objectives are similar. The above difficulty will be alleviated if the organization implements ZBB;

2. Raises the question "How shall we increase or decrease what we are doing?" rather than the question "What should we be doing?";

3. Is a year-to-year process and is short term in its view into the future;

4. Is impossible to relate the budget to the organization's objectives and to relate its expenditures to the organization's accomplishment or outputs;

5. Makes no provision for examining alternative methods of accomplishing objectives;

6. Provides justification for decisions that been made historically and does not yield systems data which can be used to evaluate alternative courses of action;

7. Leaves duplication of effort undetected;

8. Does not provide the type of program analysis necessary for the administrators of the colleges and universities to make difficult but wise economic decisions.
Performance Budgeting.—This budgeting system was recommended by the Hoover Commission in 1949 and was intended to relate the thing purchased by an organization and activity performed.

Advantages are that it
1. Has provisions for uniformity of budget preparation and presentation;
2. Has provision for objective costs;
3. Deals with how efficiently an activity was being accomplished, but ignores altogether the question of need for an activity.

Disadvantages are that it
1. Needs a great deal of statistical analysis and computation, and that makes it difficult to operate;
2. Does not address the adequacy of present service levels;
3. Is not generally favored by central budget staff, because of perceived loss of control.

Formula Budgeting.—Formula budgeting is "an objective procedure for estimating the future budgeting requirements of a college or university through the manipulation of objective (quantitative) data about future programs, and relationships between programs and costs in such a way as to derive an estimate of future costs." It is an attempt to
relate allocation of resources to standard, consistent measures of an activity. In it the fund generated within the functional categories of expenditure are based on standard unit cost and developed for instructional cost per student credit hour by discipline and by level of instruction. In higher educational institutions, because of diversity of the programs and activities, separate formulas are used for different levels of activity. A formula consists of a series of activity breakdowns or factors or subformulas.

   **Advantages:**

1. An accurate comparison of the institutions and of programs and activities within the institutions will be greatly facilitated

2. Because this process is systematic and orderly it helps to provide greater assurance that institutions will operate more economically and effectively

3. This technique is useful in making or keeping the process of the budget preparation more manageable and encourage standardization and discourages diversities

4. It attempts to achieve equality of funding the institutions of higher education

   **Disadvantages:**

1. Because student enrollment is directly or indirectly the factor most used in appropriation of state funds, if enrollment is increasing that means more funds; if it is
decreasing that means less funds; if it is fluctuating it will jeopardize programs until definite student population trends are established

2. By using the formula approach, because rates are tied to the historical expenditures, an institution which has a unique mission or participates in a minor way will lose some credit, more than those institutions which have more common missions

3. This approach guarantees the continuation of lower per-student allocation of funds by using the rate of future expenditures on the historical averages. Using historical averages creates a number of problems

4. The formula system involves the projection rather than prediction of budgetary requirements. It is for budget preparation only

5. The formula system encourages standardization and discourages diversities among institutions of higher education. However, in these institutions, because of different objectives, diversities are valued

6. This approach creates budgeting incentives that cause institutions of higher education to act counter to their mission

Planning, Programming and Budgeting System (PPBS).—This concept of budgeting in the private sector was first
developed in 1948 by the Rand Corporation and is a systematic method of linking long-range planning with yearly budgeting and evaluation. It has three factors: (1) a desired outcome (planning), (2) the structuring of methods of achieving to outcome (programming), and (3) the funds available to accomplish the end result (budgeting).

Advantages:
1. It cuts across conventional department lines and measures the performance of program in terms of its outputs
2. It aims at improving resource allocation in the situation in which an organization confronts competing objectives and has only limited resources
3. This system evaluates the organization's programs or activities and also searches for more effective program alternatives
4. In PPBS, a basic program analysis, once completed, does not have to be repeated every budget cycle

Disadvantages:
1. In PPBS, the output measurement in terms of achievements were either lacking, too subjective, or too argumentative
2. In PPBS, the focus is on what will be done, but not on how to do it
3. In PPBS, budgeting is a cost calculation which is based on the decision made in the planning and programming steps, whereas there are alternatives to be evaluated during the actual budget preparation.

4. PPBS does not provide a mechanism to evaluate the impact of various funding levels on each program and program element, or to establish priorities among the programs and varying levels of program effort.

Most of the limitations of PPBS are not inherent in ZBB, and according to Peter Pyhrr a marriage of two systems would strengthen both and PPB and ZBB can be merged into a coordinated process by changing the concept of budgeting in PPB into ZBB.

Summary of Presentation and Analysis of Data

The First Research Question

The first research question was "To what extent are the chief financial administrators of the selected institutions familiar with the general concept and technique of zero-based budgeting?" The data collected in response to this research question are here briefly summarized in two sections: (1) "The General Concept of ZBB," and (2) "The Technique of ZBB." Except for \( N = \), the figures in parentheses are mean scores. "Were" is used for convenience,
hence the use of "were" rather than "believed themselves to be." In the following, "knowledgeable to some degree" includes "very knowledgeable," "moderately knowledgeable," and "knowledgeable."

**General Concept of ZBB.**—Of 135 respondents, 112 (83 percent) were knowledgeable to some degree (2.4) about the concept of ZBB. Among them were 71 (93 percent) of the officers of public (2.2) and 41 (69 percent) of the officers of private institutions (2.7). Thus, most officers were knowledgeable about the concept of ZBB. Thus also, officers of public institutions were more knowledgeable to some degree about the concept of ZBB than were officers of private institutions.

When institutions were divided into two groups according to their size as small or large institutions. Of 40 large institutions, all 40 (100 percent), among them 27 (100 percent) of large public (2.0) and 13 (100 percent) of large private (2.0), were knowledgeable to some degree about the concept of ZBB. Thus, all officers of large institutions were knowledgeable about the concept of ZBB.

Of 95 small institutions, 72 (76 percent), among them 44 (90 percent) of small public (2.3) and 28 (61 percent) of small private (2.9), were knowledgeable to some degree about
the concept of ZBB. Thus, officers of small public institutions were more knowledgeable about the concept of ZBB than were officers of private institutions.

When institutions were divided into four groups according to their 1979 budget as Low, Lower-middle, Upper-middle, or High budget group, the following findings and conclusions occurred.

In low budget group (N=34), 20 (59 percent) of officers (3.1) were knowledgeable to some degree about the concept of ZBB, among them 13 (87 percent) of the public (2.6) and 7 (37 percent) of the private institutions (3.4). Thus, officers of public institutions in this group were more knowledgeable about the concept of ZBB than were officers of private institutions.

In lower-middle budget group (N=31), 26 (84 percent) of the officers (2.4) were knowledgeable to some degree about the concept of ZBB, among them were 19 (90 percent) officers of public (2.20) and 7 (70 percent) of the officers of private institutions (2.9). Thus, in this group, officers of public institutions were more knowledgeable about the concept of ZBB than were officers of private ones.

In upper-middle budget group (N=40), 36 (90 percent) of the officers (2.4) were knowledgeable to some degree about the concept of ZBB, among them 19 (95 percent) of the public (2.3) and 17 (85 percent) of the private institutions (2.5).
Thus, in this group also, officers of public institutions were more knowledgeable about the concept of ZBB than were officers of private ones.

In High budget group, (N=30), all 30 (100 percent) officers (1.9) were knowledgeable to some degree about the concept of ZBB, among them all 20 (100 percent) officers of public (1.9) and all 10 (100 percent) of the officers of private institutions (1.8). Thus, in this group, officers of private institutions were more knowledgeable about the concept of ZBB than were officers of public institutions.

Technique of ZBB.—Of 135 respondents, 101 (75 percent) were knowledgeable to some degree (2.8) about the technique of ZBB, among them 65 (85 percent) of the public (2.5) and 36 (61 percent) of the officers of private institutions (3.2). Thus, officers of public institutions were more knowledgeable about the technique of ZBB than were officers of private institutions.

When institutions were divided into two groups according to their size as small or large institutions, of 40 large institutions, 36 (90 percent) of the officers (2.4) were knowledgeable to some degree about the technique of ZBB, among them 25 (95 percent) of the large public (2.3) and 11 (85 percent) of the large private institutions (2.5).
Thus, officers of large public were more knowledgeable about the technique of ZBB than were officers of large private institutions.

Of 95 small institutions, 65 (68 percent), among them 40 (82 percent) of the small public (2.6) and 25 (54 percent) of the small private (3.4) institutions were knowledgeable to some degree about the technique of ZBB. Thus, officers of small public institutions were more knowledgeable about the technique of ZBB than were officers of private institutions.

When institutions were divided into four groups according to their 1979 budget as Low, Lower-middle, Upper-middle, and High budget groups, the following findings and conclusions occurred.

In Low budget group (N=34), 19 (56 percent) of the officers were knowledgeable to some degree about the technique of ZBB (3.3), among them 12 (80 percent) of the officers of public (2.7) and 7 (37 percent) of the officers of private institutions (3.8). Thus, in this group, officers of public institutions were more knowledgeable about the technique of ZBB than were officers of private institutions. Officers of private institutions were not very knowledgeable about the technique of ZBB.

In Lower-middle budget group (N=31), 23 (74 percent) of the officers (2.7) were knowledgeable to some degree about
the technique of ZBB, among them 17 (81 percent) of the officers of public (2.6) and 6 (60 percent) of the officers of private institutions were more knowledgeable about the technique of ZBB than were officers of private one.

In Upper-middle budget group (N=40), 34 (85 percent) of the officers were knowledgeable to some degree (2.7) about the technique of ZBB, among them 19 (95 percent) of the officers of public (2.4), and 15 (75 percent) of the officers of private institutions (3.0). Thus, in this group, officers of private institutions were more knowledgeable about the technique of ZBB than were officers of private ones.

In High budget group (N=10), 25 (83 percent) of the officers (2.4) were knowledgeable to some degree about the technique of ZBB, among them 17 (85 percent) of the officers of public (2.4) and 8 (80 percent) of the officers of private institutions (2.4). Thus, officers of public and private institutions had similar knowledgeability about the technique of ZBB.

Thus, also, in each group of institutions, officers of those institutions with larger budget were more knowledgeable about the technique of ZBB than were officers of those institutions with lesser budget.
The Second Research Question

The second research question was "How many of the institutions of higher education (1) have used ZBB, (2) are now using it, (3) plan to use ZBB within the next three years?" The data collected in response to this research question are briefly summarized and tabulated according to the institutions' type, size, and budget as follows.

Of all 136 respondents, 4 (3 percent) had used ZBB, among them 2 (3 percent) of public (N=77) and 2 (3 percent) of private institutions (N=59). Thus, the same number of public and private institutions had used ZBB. Twelve (9 percent) of all respondents were using ZBB, among them 8 (10 percent) of the public (N=77) and 4 (7 percent) of the private (N=59) institutions. Thus, more public institutions than private ones were using ZBB. Twenty-three (17 percent) of all respondents planned to use ZBB, among them 16 (21 percent) of public (N=77) and 7 (12 percent) of private (N=59) institutions. Thus, more public institutions than private ones planned to use ZBB.

When the institutions were divided into two groups according to their size as small or large institutions, of all small (N=96) institutions 1 (1 percent), (a public institution), had used ZBB. Seven (7 percent) of all small institutions were using it, among them 5 (10 percent) of small public and 2 (4 percent) of small private
institutions. Thus, more small public institutions than private ones were using ZBB. Eighteen (19 percent) of all small institutions planned to use ZBB, among them 14 (28 percent) of small public and 4 (9 percent) of private institutions. Thus, more small public institutions than small private ones planned to use ZBB.

Of all 40 large institutions, 3 (8 percent) had used ZBB, among them 2 (7 percent) of large public and 1 (8 percent) of large private institutions. Five (13 percent) of all large institutions were using ZBB, among them 3 (11 percent) of large public and 2 (15 percent) of large private institutions. Thus, percentagewise, more large private institutions than large public ones were using ZBB. Five (13 percent) of all large institutions planned to use ZBB, among them 2 (7 percent) of large public and 3 (23 percent) of large private institutions. Thus, more large private than large public institutions planned to use ZBB.

When institutions were divided into four groups according to their 1979 budget as Low, Lower-middle, Upper-middle, and High budget groups the following findings occurred.

In Low budget group (N=35), none had used ZBB, 2 (6 percent) were using it among them were 1 (6 percent) of public and 1 (5 percent) of private institutions. Thus, there was no difference between public and private institutions. Three (9 percent) of the institutions in this group planned
to use ZBB, among them 3 (19 percent) of public and none of the private institutions. Thus, in this group more public institutions than private ones were planning to use ZBB.

In Lower-middle budget group (N=31), 1 (3 percent) had used ZBB, among them no public and 1 (10 percent) of the private institutions. Three (10 percent) of the institutions were using ZBB, among them 2 (10 percent) of public and 1 (10 percent) of private institutions. Thus, there was no difference between public and private institutions. Ten (32 percent) of the institutions in this group planned to use ZBB, among them 7 (33 percent) of public and 3 (30 percent) of private institutions. Thus, more public than private institutions planned to use ZBB.

In Upper-middle budget group (N=40), 2 (5 percent) of all in this group had used ZBB, among them 1 (5 percent) of public and 1 (5 percent) of private institutions. Thus, there was no difference between public and private institutions. Three (8 percent) were using ZBB, among them 3 (15 percent) of public and none of private institutions. Five (13 percent) of all in this group planned to use ZBB among them were 4 (20 percent) of public and 1 (5 percent) of private institutions. Thus, more public than private institutions planned to use ZBB.

In High budget group (N=30), 1 (3 percent) of all institutions in this group a public institution had used ZBB.
Four (13 percent) were using it, among them 2 (10 percent) of public and 2 (20 percent) of private institutions. Thus, percentagewise, more private than public institutions were using ZBB. Five (17 percent) planned to use ZBB, among them 2 (10 percent) of public and 3 (30 percent) of private institutions. Thus, more private than public institutions planned to use ZBB.

The Third Research Question

The third research question was "How many institutions are using fully or partially one of the following systems and which one(s) are they using: Incremental budgeting; planning-programming and budgeting system; Line-item budgeting; Formula budgeting?" The data collected in response to this research questionnaire were briefly summarized and tabulated according to institution type, size, and budget as follows:

Of all 136 respondents, the most common budgeting system was Line-item, 58 (43 percent), and the next two were Incremental, 44 (32 percent) and PPBS, 32 (24 percent). The least common budgeting system was Formula, 21 (15 percent).

Among public institutions (N=77), the most common budgeting system was Line-item, 32 (42 percent) and the next two were Incremental, 26 (34 percent) and Formula, 20 (26 percent). The least common budgeting system was PPBS, 18 (23 percent).
Among private institutions (N=59), the most common budgeting system was Line-item, 26 (44 percent), and the next two were Incremental, 18 (31 percent) and PPBS, 14 (24 percent). The least common budgeting system was Formula, 1 (2 percent).

Thus, Line-item, for both public and private institutions, was the budgeting system which most institutions were using. Incremental was the second-most-used budgeting system.

When institutions were divided into two groups according to their size as small or large institutions, in small public (N=50) Line-item was the most common, 23 (46 percent), and the next two were PPBS, 14 (28 percent) and Incremental, 13 (26 percent). Formula was the least, 12 (24 percent), common budgeting system.

Among small private institutions (N=46), Line-item was the most common, 21 (46 percent), and the next two were Incremental, 12 (26 percent), and PPBS, 12 (26 percent). Formula was the least common budgeting system.

Thus, among all small institutions (N=96), Line-item was the most common 44 (46 percent), and the next two were PPBS, 26 (27 percent) and Incremental, 25 (26 percent). Formula was the least common, 13 (14 percent), budgeting system.

Among large public institutions (N=27), Incremental was the most common, 13 (48 percent), and the next two were
Line-item, 9 (33 percent), and Formula, 8 (30 percent).
PPBS, 4 (15 percent), was the least common budgeting system.

Among large private institutions (N=13), Incremental, 6 (46 percent), was the most common, and the next two were Line-item, 5 (38 percent), and PPBS, 2 (15 percent). No institutions were using Formula.

Thus, among all large institutions (N=40), Incremental 19 (48 percent) was the most common, and the next two were Line-item, 14 (35 percent), and Formula, 8 (20 percent). PPBS, 6 (15 percent), was the least-common budgeting system.

When institutions were divided into four groups according to budget as Low, Lower-middle, Upper-middle, and High budget groups institutions, the findings were as follows,

In Low budget group (N=35), among public institutions (N=16), Line-item, 8 (50 percent), was the most common, and the next two were PPBS, 5 (31 percent), and Formula, 5 (31 percent). Incremental was the least common, 4 (25 percent), budgeting system. Among private institutions in this group (N=19), Line-item, 10 (53 percent), was the most common budgeting system. The next two were PPBS, 6 (32 percent), and Incremental, 3 (16 percent). No private institutions in this group were using Formula. Thus, among all institutions in this group, Line-item, 18 (51 percent), was the most
common, and the next two were PPBS, 11 (31 percent), and Incremental, 7 (20 percent). Formula, 5 (14 percent), was the least common.

In the Lower-middle budget group (N=31), among public institutions (N=21), Line-item, 7 (33 percent), and PPBS, 7 (33 percent), were equally common. The next was Incremental, 4 (19 percent). Among private institutions (N=10), Line-item, 6 (60 percent), was the most common, and the next two were PPBS, 3 (30 percent), and Incremental, 2 (20 percent). No private institutions in this group were using Formula. Thus, in this group of institutions Line-item, 13 (42 percent), was the most common, and the next three were PPBS, 10 (32 percent), Incremental, 6 (19 percent), and Formula, 6 (19 percent).

In the Upper-middle budget group (N=40), among public institutions (N=20), Line-item, 11 (55 percent), was the most common, and the next two were Incremental, 6 (30 percent), and PPBS, 4 (20 percent). The least common was Formula, 2 (10 percent). Among private institutions in this group (N=20), Line-item, 9 (45 percent), was the most common, and the next two were Incremental, 8 (40 percent), and PPBS, 3 (15 percent). The least common was Formula, 1 (5 percent). Thus, in this group, Line-item, 20 (50 percent), was the most common. The next two were Incremental, 14 (35 percent), and PPBS, 7 (18 percent). In this group, Formula, 3 (8 percent), was the least common.
In the High budget group (N=30), among public institutions (N=20), Incremental, 12 (60 percent), was the most common, and the next two were Formula, 7 (35 percent), and Line-item, 6 (30 percent). PPBS, 2 (10 percent), was the least common. Among private institutions (N=10), Incremental, 5 (50 percent), was the most common, PPBS, 2 (20 percent), and Line-item, 1 (10 percent), were next. No private institutions in this group were using Formula. Thus, in this group, Incremental, 17 (57 percent), was the most common, Line-item, 7 (23 percent), and Formula, 7 (23 percent), were next. PPBS, 4 (13 percent), was the least common.

Thus also, for institutions up to $60 million budget, whether public or private, the most common budgeting system was Line-item. For those institutions with more than $60 million budget the most common budgeting system was Incremental. It should be noted that among private institutions the least common budgeting system was Formula.

**Fourth Research Question**

The fourth research question was "What are the chief financial officers' perceptions of zero-based budgeting as a management tool and budgeting system?" For this research question only those chief financial officers who indicated they were knowledgeable to some degree about the concept of ZBB were used. Responses were tabulated according to the
institution type, size, and amount of budget. Means of
responses are in parentheses. For each item "R" (range) is
from highest to lowest mean. The range is for all group-
ings. Item numbers correspond to the questionnaire item
numbers.

Item #20 (R=4.9-2.8=2.1).--Officers of public institu-
tions disagreed (3.7) that ZBB is the best budgeting
system for institutions of higher education. Officers of
private ones (3.3) were uncertain. Mean for all insti-
tutions was 3.6. Consensus: Disagree.

Among public institutions the large (4.9) and the high
budget group (4.2) disagreed most. Among private insti-
tutions the upper-middle budget group (3.7) disagreed most.

Item #21 (R=3.6-2.5=1.1).--Officers of public institu-
tions (3.1) and officers of private ones (2.9) were
uncertain that ZBB will give effective control over the
institutions' faculty and staff expenses. Mean for all
institutions was 3.00. Consensus: Uncertain.

Among public institutions the high budget group (3.6)
disagreed most. Among private institutions the large (2.9)
and the low budget group (2.5) were uncertain.

Item #22 (R=2.4-1.7=0.7).--Officers of private institu-
tions (2.0) more agreed than did officers of public
institutions (2.2) that ZBB focuses on management process,
analysis, and decision making rather than on incremental requests. Mean for all institutions was 2.1. Consensus: Agree.

Among private institutions the large (1.7) and the high budget group (1.6) agreed most. Among public institutions the small (2.2) and the low budget group (2.1) agreed most. The high budget group agreed least (2.4).

Item #23 (R=3.3-2.2=1.1).--Officers of private institutions (2.6), and officers of public ones (3.0) were uncertain that ZBB would be very threatening to the organization's staff member. Mean for all institutions was 2.8. Consensus: Uncertain.

Among private institutions the upper-middle budget group (2.3) agreed most. Among public institutions the large (2.2) agreed most.

Item #24 (R=2.9-2.0=0.9).--Officers of private institutions (2.4) agreed. Officers of public ones (2.7) were uncertain that ZBB puts more attention on the budgeting priorities and leads to better output measures in higher educational institutions. Mean for all institutions was 2.6. Consensus: Uncertain.

Among private institutions the large (2.2) and the high budget group (2.0) agreed most.
Item #25 (R=2.8-1.8=1.0).--Officers of private institutions more agreed (2.2) than did officers of public ones (2.4) that ZBB would heighten the role of planning and policy analysis for priorities and increase the need for general analysis in programmed decisions. Mean for all institutions was 2.3. Consensus: Agree.

Among private institutions the large (2.0) and the high budget group (1.8) agreed most. Among public institutions the small (2.2) and the low budget group (2.1) agreed most.

Items #26 (R=3.2-2.0=1.2).--Officers of public institutions (2.4) agreed and officers of private ones (2.6) were uncertain that ZBB would require more time and money to implement than it would be worth. Mean for all institutions was 2.5. Consensus: Uncertain.

Among public institutions the large (2.0) and the upper-middle budget group (2.2) agreed most. Among private institutions the upper-middle budget group (2.3) agreed most.

Item #27 (R=3.5-2.3=1.2).--Officers both of private institutions (2.7) and of public ones (3.2) were uncertain that ZBB puts decision making on a more rational basis than do other budgeting system. Mean for all institutions was 3.0. Consensus: Uncertain.
Among private institutions the large (2.4) and the high budget (2.3) and lower-middle budget groups (2.3) agreed most. Among public institutions the large (3.5) and upper-middle budget group (3.5) disagreed.

Item #28 (R=3.0-2.0=1.0).—Officers both of private institutions (2.6) and of public ones (2.8) were uncertain that ZBB makes possible allocation of financial resources on a more rational basis. Mean for all institutions was 2.7. Consensus: Uncertain.

Among private institutions the large (2.3) and the lower-middle budget group (2.0) agreed most.

Item #29 (R=3.5-2.2=1.3).—Officers both of private institutions (2.6) and of public ones (3.0) were uncertain that ZBB would cause a kind of resistance among the managers in the institutions because of their fear of the possible elimination of jobs. Mean for all institutions was 2.8. Consensus: Uncertain.

Among private institutions the large (2.2) and the high budget group (2.2) agreed most. Among public institutions the low budget group (3.5) disagreed.

Item #30 (R=3.9-2.7=1.2).—Officers of public institutions disagreed (3.5) and officers of private ones (2.9) were uncertain that ZBB would serve better than any other
budgeting system to explain to the taxpayer and/or to other funders of the institutions of higher education the need for and the allocation of funds. Mean for all institutions is 3.3. Consensus: Uncertain.

Among public institutions the large (3.9) and the high budget group (3.8) disagreed most.

**Item #31 (R=3.1-2.2=0.9).**—Officers both of public (2.5) and of private institutions (2.5) were uncertain that ZBB would be more costly to install than any other budgeting system. Mean for all institutions was 2.5. Consensus: Uncertain.

Officers of public institutions that were large (2.3) and those in upper-middle budget group (2.2) agreed most.

Officers of private institutions that were small (2.3) and those in the low budget group (2.3) agreed most.

**Item #32 (R=3.3-2.7=0.6).**—Officers both of public institutions (3.1) and of private ones (2.8) were uncertain that ZBB would give top management a better system for receiving detailed information concerning the organization's financial operation. Mean for all institutions was 3.00. Consensus: Uncertain.

Officers of public institutions that were large (3.3), those in high budget group (3.3), those in low budget (3.0), lower-middle (3.0), upper-middle (3.0), high budget (3.1)
were uncertain. Officers of private institutions that were small (2.8), in lower-middle budget groups (2.7), and those in high budget group (3.1) were uncertain.

**Item #33** (R=3.6-2.6=1.0).—Officers both of public institutions (3.3) and of private ones (2.9) were uncertain that ZBB would promote more efficient allocation of financial resources than would any other budgeting system. Mean for all institutions is 3.2. Consensus: Uncertain.

Officers of public institutions that were large (3.6), and those in high budget group (3.5) disagreed most.

**Item #34** (R=3.1-1.8=1.3).—Officers both of public institutions (2.4) and of private ones (2.4) agreed that ZBB would prevent history, tradition, or custom from becoming the justification for maintaining certain expenditures. Mean for all institutions was 2.4. Consensus: Agree.

Officers of public institutions that were small (2.2), and those in lower-middle budget group (1.9) agreed most. Officers of private institutions that were large (1.8) and those in high budget group (1.9) agreed most.

**Item #35** (R=3.9-2.7=1.2).—Officers both of private institutions (3.3) and of public ones (3.2) were uncertain that ZBB would fail in higher educational institutions because of problem of faculty tenure. Mean for all institutions was 3.3. Consensus: Uncertain.
Officers of private institutions that were in lower-middle budget group (3.8) disagreed most. Officers of public institutions that were in low budget group (3.9) disagreed most.

**Item #36 (R=3.6-2.3=1.3).** Officers both of private institutions (2.7) and of public ones (2.8) were uncertain that ZBB would identify and eliminate vestigial and outdated methods and programs. Mean for all institutions was 2.7. Consensus: Uncertain.

Officers of private institutions that were large (2.3) and those in high budget group (2.4) agreed most. Officers of large public institutions (3.6) disagreed.

**Item #37 (R=3.9-2.9=1.0).** Officers both of private institutions (3.4) and of public ones (3.3) were uncertain that ZBB would fail because of problem of faculty unions in higher educational institutions. Mean for all institutions was 3.3. Consensus: Uncertain.

Officers of private institutions that were large (3.8) and those in high budget group (3.8), and officers of public institutions in low budget group (3.9) disagreed most.

**Item #38 (R=3.3-2.3=1.0).** Officers both of private institutions (2.6) and of public ones (2.9) were uncertain that ZBB would allow for more effective identification of
the low-cost alternative methods for providing educational services. Mean for all institutions is 2.9. Consensus: Uncertain.

Officers of private institutions that were large (2.3) agreed most.

Item #39 (R=3.5-2.4=1.1).—Officers both of private institutions (2.5) and of public ones (2.8) were uncertain that ZBB would cause each staff member to become more cost conscious, cost-benefit sensitive, and involved in fiscal planning. Mean for all institutions was 2.7. Consensus: Uncertain.

Officers of private institutions that were large (2.4), were in low budget group (2.4), and officers of public institutions in low budget group (2.4) agreed most. Public institutions in high budget group (3.5) disagreed.

Item #40 (R=3.6-2.7=0.9).—Officers of public institutions (3.5) disagreed, while officers of private ones (3.1) were uncertain, that ZBB would develop higher morale among staff because an open system of budgeting is used with expenditures and programs openly and rationally justified. Mean for all institutions is 3.3. Consensus: Uncertain.

Officers of public institutions that were large (3.6) and those that were in high budget group (3.6) disagreed most.
Item #41 (R=3.7-2.9=0.8).—Officers both of private institutions (3.2) and of public ones (3.1) were uncertain that ZBB would not work because formalized policy and planning are often nonexistent, inadequate, or not communicated properly to lower level managers. Mean for all institutions was 3.1. Consensus: Uncertain.

Officers of private institutions that were large (3.7), and those that were in high budget group (3.7) disagreed most. Officers of public institutions that were in low budget group (3.5) disagreed most.

Item #42 (R=3.0-2.6=0.4).—Officers both of private institutions (2.7) and of public ones (2.8) were uncertain that ZBB would provide concrete feedback from the planning and budgeting process and provide the administrators a clear indication of how she or he is doing. Mean for all institutions was 2.8. Consensus: Uncertain.

Officers both of public and private institutions in different subgroups were uncertain.

Item #43 (R=2.8-2.0=0.8).—Officers of private institutions (2.4) agreed, while officers of public ones (2.6) were uncertain, that ZBB would give top management a better view of the total organization from the standpoint of resource allocation, the various alternative possible, and
probable impact on institutional objectives, thus allowing greater flexibility. Mean for all institutions is 2.5. Consensus: Uncertain.

Officers of private institutions that were large (2.2) and in high budget group (2.0) agreed most. Officers of public institutions that were small (2.4) and in low budget group (2.4) agreed most.

**Item #44 (R=3.8-2.8=1.0).** Officers of private institutions (3.5) disagreed while officers of public ones (3.3) were uncertain that ZBB would not work because in most organizations the managers have become accustomed to analyzing their operations and tend to do so on a continuing basis rather than only during the budgeting cycle. Mean for all institutions was 3.4. Consensus: Uncertain.

Officers of private institutions that were large (3.8) and in high budget group (3.8) disagreed most. Officers of public institutions in low budget group (3.8) disagreed most.

**Item #45 (R=3.3-2.4=0.9).** Officers both of private institutions (2.6) and of public ones (3.0) were uncertain that ZBB would help reviewers of the institution's budget have a greater degree of confidence and trust in the budget preparation and expenditure. Mean for all institutions was 2.9. Consensus: Uncertain.
Officers of private institutions that were in lower-middle budget group (2.4) agreed most.

**Item #46 (R=2.9-2.1=0.8).** Officers of private institutions (3.3) agreed, while officers of public ones (2.6) were uncertain, that ZBB is increasingly significant because of its budgeting approach which promises to reexamine what an institution of higher education does at the present time before embarking on new programs. Mean for all institutions was 2.5. Consensus: Uncertain.

Officers of private institutions that were small (2.3) and in upper-middle budget group (2.1) agreed most. Officers of public institutions that were in low budget group (2.4) agreed most.

**Item #47 (R=3.0-2.3=0.7).** Officers of public institutions (2.4) agreed while officers of private ones (2.8) were uncertain that ZBB will help as "professional development" device because it leads to an increase in the skill and ability of the managers and staff and make them to be more effective and rational. Mean for all institutions was 2.7. Consensus: Uncertain.

Officers of private institutions that were large (2.3) and in high budget group (2.3) agreed most.
Item #48 (R=4.1-2.9=1.2).—Officers both of private institutions (3.4) and of public ones (3.3) were uncertain that ZBB would not work because defining and delineating decision units and decision packages is hard work and very complicated. Mean for all institutions was 3.3. Consensus: Uncertain.

Officers of private institutions that were large (3.9) and in high budget group (4.1) disagree most. Officers of public institutions that were large (3.5) and in low budget group (3.8) disagreed most.

Item #49 (R=2.4-1.8=0.6).—Officers of public institutions agreed (2.1) more than did officers of private ones (2.2) that ZBB requires the preparation of a list of ranked decision packages which can serve as a basis for further planning and budget adjustments which may be required because of changing circumstances. Mean for all institutions was 2.1. Consensus: Agree.

Officers of public institutions that were large (2.0) and in the high budget group (1.8) agreed most. Officers of private institutions that were large (2.1), and were in high budget group (2.0) agreed most.

Item #50.—Of 116 respondents 106 (91 percent), among them 64 (90 percent) of public and 42 (93 percent) of
private institutions believed that in the first year of implementation of ZBB time spent would increase, and 92 (79 percent), among them 54 (76 percent) of public and 38 (84 percent) of private institutions, believed that in subsequent years of implementation of ZBB, time spent in budget preparation will increase to some degree in comparison to their institutions currently-used budgeting system(s).

Officers of both public and private institutions were in agreement that in the first year of implementation of ZBB (M=1.3 versus M=1.3) and in subsequent years of implementation (M=2.0 versus M=1.8) the time spent in budget preparation would increase to some degree in comparison to their institutions currently used budgeting system(s).

When the institutions were grouped according to their size as small or large, of all small institutions 72 (91 percent), among them 40 (89 percent) of small public and 32 (94 percent) of small private, believed that in the first year of implementation time spent would increase. Of all small institutions 65 (82 percent), among them 34 (76 percent) of small public and 31 (91 percent) of small private, believed that in subsequent years of implementation ZBB would increase time spent in budget preparation in comparison to their institutions' currently-used budgeting system(s). Officers both of small private institutions and of small public ones believed that ZBB would increase time spent in
budget preparation in the first year (M=1.3 and M=1.3), and in subsequent years of implementation (M=1.8 versus M=2.1) in comparison to their institutions' currently-used budgeting system(s).

Of all large institutions, 34 (92 percent), among them 24 (92 percent) of large public and 10 (91 percent) of large private institutions believed that in the first year of implementation time spent would increase, and 27 (73 percent) of all large, among them 20 (77 percent) of large public and 7 (64 percent) of large private institutions, believed that in subsequent years of implementation of ZBB time spent in budget preparation would increase to some degree in comparison to their institutions' currently-used budgeting system(s). Officers of large public institutions believed more than did officers of large private ones that ZBB in both first year (M=1.3 versus M=1.4) and subsequent years (M=1.9 versus M=2.0) of implementation of ZBB, time spent in budget preparation would increase to some degree in comparison to their institutions' currently-used budgeting system(s).

If when institutions were grouped according to their budget as Low, Lower-middle, Upper-middle, and High budget groups, in Low budget group 21 (88 percent), among them 10 (77 percent) of public and 11 (100 percent) of private institutions, believed that in the first year of
implementation, and 18 (75 percent) of all respondents, among them 11 (100 percent) of public and 7 (54 percent) of private institutions, believed that in subsequent years of implementation of ZBB time spent in budget preparation will increase to some degree in comparison to their institutions’ currently-used budgeting system(s). Officers of private institutions believed more than did officers of public institutions that in the first year (M=1.3 versus M=1.5) and in subsequent years of implementation (M=1.6 versus M=2.3) of ZBB time spent in budget preparation will increase in comparison to their institutions' currently-used budgeting system(s).

In Lower-middle budget group 24 (86 percent) of all respondents in this group, among them 18 (95 percent) of public and 6 (67 percent) of private institutions, believed that in the first year of implementation ZBB time spent would increase, and 22 (79 percent), among them 16 (84 percent) of public and 6 (67 percent) of private institutions, believed that in subsequent years of implementation ZBB will increase time spent in budget preparation in comparison to their institutions' currently-used budgeting system(s). In this group, officers of private institutions believed more than did officers of public ones that in the first year of implementation (M=1.3 versus M=1.8) time spent in budget preparation would increase, but in subsequent years of
implementation officers of both public (M=2.0) and private (M=2.0) believed the same that ZBB would increase time spent in budget preparation in comparison to their institutions' currently used budgeting system(s).

In Upper-middle budget group, 35 (95 percent) among them 18 (90 percent) of public and 17 (100 percent) of private institutions believed that in the first year of implementation of ZBB time spent would increase, and 30 (81 percent), among them 15 (75 percent) of public and 15 (88 percent) of private institutions, believed that in subsequent years of implementation of ZBB, time spent in budget preparation would increase to some degree in comparison to their institutions' currently-used budgeting system(s). In this group, officers of private institutions believed more than did officers of public ones that in the first year (M=1.1 versus M=1.8) and in subsequent years of implementation (M=1.8 versus M=2.1) of ZBB, time spent in budget preparation would increase to some degree in comparison to their institutions' currently-used budgeting system(s).

In High budget group, of the respondents 26 (96 percent) among them 18 (95 percent) of public and 8 (100 percent) of private institutions believed that in the first year of implementation of ZBB time spent would increase, and 22 (81 percent), among them 16 (84 percent) of public and 6
(75 percent) of private institutions, believed that in subsequent years of implementation of ZBB time spent in budget preparation will increase to some degree in comparison to their institutions' currently used budgeting system(s). In this group, officers of public institutions agreed more than did officers of private ones that in the first year of implementation (M=1.2 versus M=1.3), and in subsequent years of implementation (M=1.8 versus M=2.0) of ZBB, time spent in budget preparation would increase to some degree in comparison to their institutions' currently-used budgeting system(s).

It shows clearly that as a group the respondents believed that ZBB would require more time for budget preparation in the first year and in the subsequent years of use than is required for their current budgeting system, as might be expected. This is more true for them, actually, for the first year than for subsequent years.

Item #51.--Of 115 respondents, 102 (89 percent) among them 63 (90 percent) of public and 39 (87 percent) of private institutions believed that in the first year of implementation of ZBB time spent will increase, and 86 (75 percent) among them 52 (74 percent) of public and 34 (76 percent) of private institutions believed that in subsequent years of implementation of ZBB, effort spent in budget preparation will increase to some degree in comparison to their
institutions currently used budgeting system(s). Both officers of public and of private institutions agreed the same that in the first year of implementation (M=1.4 versus M=1.4), and in subsequent years of implementation (M=2.0 versus M=2.0) the effort spent in budget preparation would increase to some degree in comparison to their institutions' currently-used budgeting system(s).

When institutions were grouped according to their size as small or large, of all small institutions 70 (90 percent) among them 40 (91 percent) of small public and 30 (88 percent) of small private institutions believed that in the first year of implementation of ZBB time spent will increase, and 61 (78 percent) of all small institutions, among them 33 (75 percent) of small public and 28 (82 percent) of small private institutions, believed that in subsequent years of implementation of ZBB effort spent would increase to some degree in comparison to their institutions' currently-used budgeting system(s). Officers of small private institutions believed more than did officers of small public institutions that ZBB would increase effort spent to some degree in budget preparation in the first year (M=1.3 versus M=1.4) and in subsequent years of implementation (M=1.9 versus M=2.1) in comparison to their institutions' currently-used budgeting system(s).
Of all large institutions 32 (86 percent), among them 23 (88 percent) of public and 9 (82 percent) of large private institutions believed that in the first year of implementation, and 25 (68 percent) of all large among them 19 (73 percent) of large public and 6 (55 percent) of large private institutions believed that in subsequent years of implementation, ZBB would increase to some degree the effort spent in budget preparation in comparison to their institutions' currently-used budgeting system(s). Officers of large public institutions believed more than did officers of large private ones that in the first year (M=1.4 versus M=1.6) and in subsequent years of implementation (M=2.0 versus M=2.4) of ZBB, effort spent in budget preparation will increase to some degree in comparison to their institutions currently used budgeting system(s).

If the institutions are grouped according to their budget as Low, Lower-middle, Upper-middle, and High budget groups, in Low budget group of all respondents 20 (83 percent) among them 11 (85 percent) of public and 9 (82 percent) of private institutions believed that in the first year of implementation, and 16 (67 percent) of all among them 7 (54 percent) of public and 9 (82 percent) of private institutions believed that in subsequent years of implementation of ZBB, effort spent in budget preparation would increase to some degree in comparison to their institutions'
currently used budgeting system(s). In this group officers of both public (M=1.5) and private (M=1.5) were in close agreement that ZBB would increase effort spent in budget preparation in the first year of implementation, but officers of private institutions believed more that did officers of public ones that in subsequent years of implementation (M=1.9 versus 2.2) effort spent would increase to some degree in comparison to their institutions' currently-used budgeting system(s).

In Lower-middle budget group, of all respondents, 23 (82 percent), among them 17 (89 percent) of public and 6 (67 percent) of private institutions, believed that in the first year of implementation of ZBB time spent will increase, and 20 (71 percent) among them 15 (79 percent) of public and 5 (56 percent) of private institutions believed that in subsequent years of implementation of ZBB effort spent in budget preparation will increase to some degree in comparison to their institutions' currently-used budgeting system(s). In this group, officers of public institutions believed more than did officers of private ones that in the first year (M=1.4 versus M=1.8) and in subsequent years of implementation (M=2.0 versus M=2.2) of ZBB, effort spent in budget preparation will increase to some degree in comparison to their institutions' currently-used budgeting system(s).
In upper-middle budget group, 35 (97 percent) among them 18 (95 percent) of public and 17 (100 percent) of private institutions believed that in the first year of implementation, and 30 (83 percent) among them 15 (79 percent) of public and 15 (88 percent) of private institutions believed that in subsequent years of implementation of ZBB, effort spent in budget preparation would increase to some degree in comparison to their institutions' currently-used budgeting system(s). In this group, officers of private institutions believed more than did officers of public ones that in the first year ($M=1.1$ versus $M=1.4$), and subsequent years of implementation ($M=1.8$ versus $M=2.1$) of ZBB, effort spent in budget preparation would increase to some degree in comparison to their institutions' currently-used budgeting system(s).

In the high budget group, of all institutions in this group, 24 (89 percent) among them 17 (89 percent) of public and 7 (88 percent) of private institutions believed that in the first year of implementation, and 20 (74 percent) among them 15 (79 percent) of public and 5 (63 percent) of private institutions believed that in subsequent years of implementation of ZBB, effort spent in budget preparation would increase to some degree in comparison to their institutions currently used budgeting system(s). In this group, officers of public institutions believed more than did officers of
private ones that in the first year (M=1.3 versus M=1.5), and in subsequent years of implementation (M=1.9 versus M=2.3) of ZBB, effort spend in budget preparation would increase to some degree in comparison to their institutions' currently-used budgeting system(s).

The preceding analysis shows clearly that respondents as a group clearly believe that use of ZBB would in the first year and subsequent years of implementation increase the effort needed in budget preparation compared to their current system.

As might be expected, they believe effort would increase less after the first year of implementation of ZBB.

Item #52.—Of all respondent officers, most, 74 (54 percent), among them 44 (57 percent) of public and 30 (51 percent) of private institutions believed that "alternative selection" is one of the elements of ZBB which managers of the institutions have greatest difficulty with. Forty-two (31 percent) of all respondents, among them 25 (33 percent) of public and 17 (29 percent) of private institutions believed "cost calculation," and the same number, 42 (31 percent) among them 25 (33 percent) of public and 17 (29 percent) of private institutions, believed that "assigning effectively" were the next two elements of ZBB which managers of the institutions have greatest difficulty with.
When institutions were grouped according to their size as small or large institutions, of all small institutions 48 (50 percent) among them 27 (54 percent) of small public and 21 (46 percent) small private institutions believed "alternative selection" as one of the areas of ZBB which managers of the institutions have greatest difficulty with. For small public, the next two elements are "assigning effectively" 17 (34 percent) and "cost calculation" 14 (28 percent). For small private, the next two elements are "cost calculation" 13 (28 percent) and "assigning effectively" 11 (24 percent).

Of all (40) large institutions, 26 (65 percent) among them 17 (63 percent) of large public and 9 (69 percent) of large private, also believed that "alternative selection" is one of the elements of ZBB which managers of the institutions have greatest difficulty with. For large public, the next two elements are "cost calculation" 11 (41 percent) and assigning effectively" 8 (30 percent), while for large private institutions, the next two elements were "assigning effectively" 6 (46 percent) and "cost calculation" 4 (31 percent).

If respondent institutions are grouped according to their budget as Low, Lower-middle, Upper-middle, and High budget group, in Low budget group, 15 (43 percent) among them 9 (56 percent) of public and 6 (32 percent) of private
institutions believed that "alternative selection" is one of the elements of ZBB which managers of the institutions have greatest difficulty with. The next two elements, in this group for public institutions were "cost calculation" 4 (25 percent) and "assigning effectively" 4 (25 percent), and for private institutions were "cost calculation" 4 (21 percent) and "assigning effectively" 3 (16 percent) respectively.

Of all 31 institutions in lower-middle budget group, 18 (58 percent) among them 10 (48 percent) of public and 8 (80 percent) of private institutions believed "alternative selection" was one of the elements of ZBB which managers of the institutions have greatest difficulty with. The next two elements in this group for public institutions were "assigning effectively" 8 (38 percent) and "cost calculation" 6 (29 percent), and for private institutions were "cost calculation" 3 (30 percent) and "assigning effectively" 3 (30 percent).

Of all 40 respondents in upper-middle budget group, 23 (58 percent) among them 13 (65 percent) of public and 10 (50 percent) of private institutions believed "alternative selection" was one of the elements of ZBB which managers of the institutions would have greatest difficulty with. In this group, the next two elements, for public institutions, were "assigning effectively" 7 (35 percent) and "cost
calculation" 6 (30 percent), and for private institutions were "cost calculation" 7 (35 percent) and "assigning effectively" 7 (35 percent).

Of all 30 respondents in high budget group, 18 (60 percent) among them 12 (60 percent) of public and 6 (60 percent) of private institutions believed that "alternative selection" was one of the elements of ZBB which managers of the institutions have greatest difficulty with. In this group, the next two elements for public institutions were "cost calculation" 9 (45 percent) and "assigning effectively" 6 (30 percent), and for private institutions were "assigning effectively" 3 (3 percent) and "cost calculation" 4 (40 percent).

It can be seen that most officers in different budget groups believed that "alternative selection" was the element of ZBB which managers of the institutions have greatest difficulty with.

Item #53.—Of 111 respondent officers, 66 (59 percent) among them 34 (51 percent) of public and 32 (72 percent) of private institutions agreed that implementation of ZBB would improve to some degree the quality of management information. Officers of private institutions agreed (2.1) more than did officers of public ones (2.4) that ZBB
will improve quality of management information to some degree in comparison to their institutions' currently-used budgeting system(s).

When institutions were divided into two groups according to their size as small or large institutions, of 76 small institutions, 48 (63 percent), among them 23 (55 percent) of small public and 25 (75 percent) of small private, and of 35 large institutions 18 (51 percent), among them 11 (44 percent) of large public and 7 (70 percent) of large private institutions, agreed that implementation of ZBB would improve to some degree quality of management information in comparison to their institutions' currently-used budgeting system(s). Officers of small private institutions agreed more (2.1) than did officers of small public ones (2.3), and officers of large private institutions (2.0) agreed more than did officers of large public ones (2.4) that ZBB would improve quality of management information.

When institutions were divided into four groups according to the institutions budget as Low, Lower-middle, Upper-middle budget, and High budget groups, of 23 respondents in low budget group 14 (61 percent) among them 6 (50 percent) of public and 8 (89 percent) of private institutions agreed that ZBB would improve to some degree quality of management information in comparison to their institutions' currently-used budgeting system(s). In this group, officers of
private institutions agreed 92.3) more than did officers of public ones (2.3) that ZBB would improve to some degree quality of management information.

Of 27 respondents in Lower-middle budget group, 16 (59 percent) among them 10 (56 percent) of public and 6 (67 percent) of private institutions agreed that ZBB would improve to some degree quality of management information in comparison to their institutions' currently-used budgeting system(s). In this group, officers of private institutions (1.9) agreed more than did officers of public ones (2.3) that ZBB would improve to some degree quality of management information.

Of 36 respondents in upper-middle budget group, 22 (61 percent) among them 9 (47 percent) of public and 13 (76 percent) of private institutions agreed that ZBB would improve quality of management information to some degree in comparison to their institutions' currently-used budgeting system(s). In this group, officers of private institutions (2.1) agreed more than did officers of public ones (2.4) that ZBB would improve quality of management information.

Of 25 respondents in high budget group, 14 (56 percent) among them 9 (50 percent) of public and 5 (71 percent) of private institutions agreed that ZBB would improve to some degree quality of management information in comparison to the institutions' currently-used budgeting system(s). In
this group, officers of private institutions (2.1) agreed more than did officers of public ones (2.3) that ZBB would improve to some degree quality of management information.

The preceding analysis shows clearly that respondents as a group clearly believe that use of ZBB would improve quality of management information compared to their currently-used budgeting system(s). Also in each group, officers of private institutions agreed more than did officers of public ones of such improvement.

Item #54.—Of 118 respondents, 34 (29 percent), among them 24 (34 percent) of public and 10 (21 percent) of private institutions, believed ZBB would fail to some degree; 38 (32 percent), among them 22 (31 percent) of public and 16 (34 percent) of private institutions, believed it would work to some degree, and 46 (39 percent), among them 25 (35 percent) of public and 21 (45 percent) of private institutions, were uncertain about its effectiveness. Officers of public institutions (2.8) and officers of private (3.1) were uncertain about the effectiveness of ZBB. In general, officers of all institutions (2.9) were uncertain.

When institutions were divided into two groups according to their size as small or large institutions. Of 81 small institutions, 19 (24 percent), among them 13 (28 percent) of small public and 6 (17 percent) of small private, believed ZBB would fail to some degree, 31 (38 percent),
among them 17 (37 percent) of small public and 14 (40 percent) of small private, believed it would work, and 31 (38 percent) among them 16 (35 percent) of small public and 15 (43 percent) of small private institutions were uncertain about its effectiveness. Officers of small public (2.9) and officers of small private institutions (3.2) were uncertain about the effectiveness of ZBB. Mean for all small is 3.0. Consensus: Uncertain.

Of 37 large institutions, 15 (41 percent), among them 11 (44 percent) of large public and 4 (33 percent) of large private institutions, believed ZBB would fail to some degree, 7 (19 percent), among them 5 (20 percent) of large public and 2 (17 percent) of large private, believed it would work to some degree, and 15 (40 percent), among them 9 (36 percent) of large public and 6 (50 percent) of large private, were uncertain about its effectiveness. Officers of both large public (2.5) and large private (2.8) were uncertain about the effectiveness of ZBB. Mean for all large is 2.6. Consensus: Uncertain.

Institutions were divided into four groups according to the institutions budget as Low, Lower-middle, Upper-middle, and High budget groups.

Of 25 respondents in low budget group, 3 (12 percent), among them 1 (7 percent) of public and 2 (18 percent) of private believed ZBB would fail to some degree, 12 (48
percent), among them 8 (57 percent) of public and 4 (36 percent) of private, believed it would work, and 10 (40 percent), among them 5 (36 percent) of public and 5 (46 percent) of private institutions, were uncertain about ZBB’s effectiveness. Thus, officers of private institutions were uncertain (3.0), while officers of public ones (3.5) agreed that ZBB would work to some degree. Consensus: Uncertain.

Of 28 respondents in Lower-middle budget group, 5 (18 percent), among them 5 (26 percent) of public and none of private, believed ZBB would fail to some degree, 12 (43 percent), among them 7 (37 percent) of public and 5 (56 percent) of private institutions, believed it would work, and 11 (39 percent), among them 7 (37 percent) of public and 4 (44 percent) of private institutions, were uncertain about its effectiveness. In this group, officers of public institutions were uncertain (3.0), while officers of private ones (3.7) agreed that ZBB would work to some degree. Consensus: Uncertain.

Of 38 respondents in upper-middle budget group, 13 (34 percent), among them 8 (40 percent) of public and 5 (28 percent) of private institutions, believed ZBB would fail to some degree 8 (21 percent), among them 4 (20 percent) of public and 4 (22 percent) of private institutions, believed it would work to some degree, and 17 (45 percent), among them 8 (40 percent) of public and 9 (50 percent) of private,
were uncertain about its effectiveness. Thus, officers of public institutions (2.5) and officers of private ones (2.9) were uncertain about the effectiveness of ZBB. Consensus: Uncertain.

Of 27 respondents in High budget group, 13 (48 percent), among them 10 (55 percent) of public and 3 (33 percent) of private institutions, believed ZBB would fail to some degree, 6 (22 percent), among them 3 (17 percent) of public and 3 (33 percent) of private, believed it would work to some degree, and 8 (30 percent), among them 5 (28 percent) of public and 3 (34 percent) of private institutions, were uncertain about its effectiveness. Thus officers of private institutions (3.0) were uncertain about effectiveness of ZBB, while officers of public ones (2.3) agreed that ZBB would fail to some degree as a budgeting system. Consensus: Uncertain.

The preceding analysis shows that respondents, as a group were uncertain, that zero-based budgeting would work or fail as a budgeting system in the area of higher educational institutions.

Summary of Findings

It is not intended that the findings should be generalized to institutions dissimilar to those utilized in this study.
1. Knowledgeability of the chief financial officers about the concept and technique of zero-based budgeting.

   a. Most officers were knowledgeable to some degree about the concept (83 percent) and the technique (75 percent) of ZBB.

   b. Officers of public institutions were more knowledgeable about the concept and technique of ZBB than were officers of private institutions.

   c. Officers of large institutions were more knowledgeable about the concept and technique of ZBB than were officers of small institutions. This was true in both public and private institutions.

   d. Officers of the institutions with a large budget were more knowledgeable about the concept and technique of ZBB than were officers of the institutions with lesser budget. This was true in both public and private institutions.

2. Institutions' use of Zero-Based Budgeting:

   a. Only 3 percent of the institutions had used ZBB, 9 percent were using it, and 17 percent planned to use it.

   b. More public institutions than private ones were using and planned to use ZBB.
c. More large institutions than small ones had used and were using ZBB, but more small institutions than large ones planned to use it.

d. In low budget group, none had used ZBB, the same number of public and private were using it, and more public than private institutions planned to use it.

e. In lower-middle budget group, no public institutions and one private institution had used ZBB, the same percentage of both were using it, and more public than private ones planned to use ZBB.

f. In upper-middle budget group, one public and one private institution had used ZBB, three public but no private were using it, and more public than private institutions planned to use it.

g. In high budget group, one public and no private institution had used ZBB, and percentagewise, more private institutions than public ones were using and planned to use it.

3. Other system(s) of budgeting in use:

Among four budgeting system(s) under study (Incremental, PPBS, Line-item, and Formula), the following shows groups and also system(s) in use, in order of percentage of users and groups.
a. All institutions: Line-Item (43 percent), Incremental (32 percent), PPBS (24 percent), and Formula (15 percent)
b. Public institutions: Line-item (42 percent), Incremental (34 percent), Formula (26 percent), and PPBS (23 percent)
c. Private institutions: Line-item (44 percent), Incremental (31 percent), PPBS (24 percent), and Formula (2 percent)
d. Large public institutions: Incremental (48 percent), Line-item (33 percent), Formula (30 percent), and PPBS (15 percent)
e. Large private institutions: Incremental (46 percent), Line-item (38 percent), PPBS (21 percent), and Formula (0 percent)
f. Small public institutions: Line-item (46 percent), PPBS (28 percent), Incremental (13 percent), and Formula (12 percent)
g. Small private institutions: Line-item (46 percent), Incremental (26 percent), PPBS (26 percent), and Formula (1 percent).
h. Low-budget group: Line-item (51 percent), PPBS (31 percent), Incremental (20 percent), and Formula (14 percent)
i. Lower-middle budget group: Line-item (42 percent), PPBS (32 percent), Incremental (19 percent) and Formula (19 percent)

j. Upper-middle budget group: Line-item (50 percent), Incremental (35 percent), PPBS (18 percent), and Formula (8 percent)

k. High budget group: Incremental (57 percent), Line-item (23 percent), Formula (23 percent), and PPBS (13 percent)

Thus, among all institutions, Line-item was the most common. Among all small institutions Line-item, and among all large institutions Incremental, was the most common budgeting system. Line-item also was the most common budgeting system among both public and private institutions. For institutions an up to $60 million budget, Line-item, and for those with a $60 million or over budget Incremental was the most common budgeting system.

4. Perceptions of the chief financial officers about the system of ZBB:

a. Chief financial officers were agreed that ZBB focuses on management process, analyses, and decision making rather than on incremental requests.

b. Chief financial officers were agreed that zero-based budgeting heightens the role of planning and policy analysis for priorities and increases the need for general analysis in programmed decisions.
c. Chief financial officers were agreed that zero-based budgeting would prevent history, tradition, or custom from becoming the justification for maintaining certain expenditures.

d. Chief financial officers were agreed that zero-based budgeting requires that preparation of a list of ranked decision packages which can serve as a basis for further planning and for budget adjustments which may be required because of changing circumstances.

e. Chief financial officers disagreed that zero-based budgeting are at the time of the study the best budgeting system for institutions of higher education.

f. Chief financial officers as a group believed that ZBB would require more time and effort for budget preparation in the first year and in subsequent years of use than is required for their institutions' current system(s). This is more true for them, actually, for the first year than for the subsequent years.

g. Chief financial officers, as a group, clearly believed that "alternative selection" is the element of ZBB which most managers of the institutions of higher education have greatest difficulty with.
h. Chief financial officers, as a group, clearly believed that use of the zero-based budgeting would improve quality of management information compared to their institutions' currently-used budgeting system(s).

i. Chief financial officers as a group, were uncertain that the system of zero-based budgeting would work or fail to some degree as a budgeting system in the institutions of higher education.

Recommendations for Further Study

On the basis of the findings and conclusions of this study, the following recommendations are made.

1. Since this study was limited to the institutions of higher education, it is recommended that a similar study be conducted for those in business and industry using this system of budgeting and the results compared with those in this study to determine any significant differences, concerning ZBB, between institutions of higher education and those in business and industry. This would present a more complete picture of the effectiveness of zero-based budgeting in resource allocation and management information.

2. It is recommended that an in-depth study be conducted to determine any significant difference of resource
allocation and management information between those institutions of higher education using ZBB with those which are using a budgeting system other than ZBB.

3. A study should be conducted of those institutions of higher education which changed their budgeting system to ZBB to determine the advantages and disadvantages of this budgeting system relative to their old ones and to determine the perceptions of the chief financial officers of those institutions about this technique and their institutions' old system(s) in management information and resource allocation and or other aspects of budgeting.

4. A comparison study of those most used budgeting techniques in the area of the institutions of higher education should be conducted in order to determine the best possible budgeting system or combinations of systems most useful for the institutions of higher education.

5. Finally, it is recommended that an in-depth study conducted to determine the need of the institutions of higher education for resource allocations and management information in order to develop a kind of budgeting system or modifying of existing system(s) most suitable for them.
APPENDIX A

FINAL FORMAT OF THE QUESTIONNAIRE
Dear Sir:

The following pages consist of a questionnaire which is part of a doctoral dissertation research titled "Status of Zero-Based Budgeting in Higher Educational Institutions in the United States." Zero-Based Budgeting (ZBB) has been much discussed and examined in literature concerning budgeting processes for governmental agencies, for businesses, and for educational institutions.

Many writers have stated that budgeting in higher education needs extensive research, and thus, in light of that need and the literature and other commentary on ZBB, this research is being undertaken. Some authorities believe that ZBB is the best, or is a very good system for higher education; others believe that it is not.

This study is an attempt to identify the perceptions, of higher education institutions' financial officers, of ZBB. You can contribute by taking time to respond to the enclosed questionnaire. We know that there are many demands upon your time, but a search of related literature--general and research--has shown that substantial information about ZBB in higher education is missing.

Your participation will be most gratefully received. Please understand that respondents and their institutions will not be identified or discussed in the dissertation by name or otherwise. Strict confidentiality is assured, then.

Please return the questionnaire by December 1, 1980.

Thank you for your cooperation and assistance!

Sincerely,

Bahram Hatefi, B.A., M.B.A.
Doctoral Candidate
College of Education

Roderic C. DuChemin, Ph.D.
Professor of Education
College of Education
Division of Higher Education
North Texas State University
Denton, Texas 76203
Please respond to the following items by placing a check mark on the provided space according to your best knowledge and judgment. The information supplied by you on this questionnaire will be tabulated and reported in a doctoral dissertation with no respondents, schools, colleges, or universities identified in the dissertation in connection with these responses or comments upon them.

Section I. General Information

(101) 1. Name of your institution_______________________________.

(104) 2. Your institution is
   1. Public
   2. Private, but not church affiliated
   3. Church affiliated

(105) 3. Please check all of the following that apply:
   Your institution has a
   1. Two-year program
   2. Four-year program
   3. Master's program
   4. Doctoral program

(109) 4. Your institution's current budgeting system is
   1. Zero-based budgeting
   2. Planning, Programming, and Budgeting System
   3. Formula budgeting
   4. Line-item budgeting
   5. Incremental budgeting
   6. Others (please specify)__________________________

(110) 5. Are you satisfied with the institution's current budgeting system?
   1. Yes
   2. No
   3. Undecided

(111) 6. Does your institution plan to use any of the following budgeting systems within the next three years? If so, please indicate which one.
   1. Zero-based budgeting
   2. Planning, Programming, and Budgeting System
   3. Formula budgeting
   4. Line-item budgeting
   5. Incremental budgeting
   6. Others (please specify)__________________________

(112) 7. Among the following budgeting systems, which one would be your personal preference, if your institution were to change to another budgeting system?
   1. Zero-based budgeting
   2. Planning, Programming, and Budgeting System
   3. Formula budgeting
   4. Line-item budgeting
   5. Incremental budgeting
   6. Others (please specify)__________________________

(113) 8. Did your institution change its budgeting system in the past 6 years?
   1. Yes (please specify when)_______________________
   2. No
   3. Don't know
9. If your institution changed its budgeting system in the past, what was the institution's last budgeting system?
1. Zero-based budgeting
2. Planning, Programming, and Budgeting System
3. Line-item budgeting
4. Formula budgeting
5. Incremental budgeting
6. Others (please specify)

10. Is the process of budget preparation in your institution computerized?
1. Yes
2. No
3. Will be so within next three years

11. Your institution's approximate total budget for the fiscal year 1980 is $________.

12. Your institution's fiscal year started at________.

13. Your institution's projected budget for the fiscal year 1981 is $________.

14. Best estimate of student enrollment (full-time equivalent) in entire university at your location:
   a. Spring 1980
   b. Summer 1980
   c. Fall 1980
   d. Spring 1981 projected
   e. Summer 1981 projected
   f. Fall 1981 projected

15. Student enrollment in relation to three years ago is
   1. Increasing
   2. Decreasing
   3. Fluctuating

16. Number of faculty (full-time equivalent) for the academic year 1980-1981 is________.

17. Predicted faculty number (full-time equivalent) for the academic year 1981-1982 is________.

18. In your best judgment, how knowledgeable are you about the general concept of zero-based budgeting?
   1. Very knowledgeable
   2. Moderately knowledgeable
   3. Knowledgeable
   4. Not very knowledgeable
   5. Not knowledgeable at all

19. In your best judgment, how knowledgeable are you about the techniques of zero-based budgeting?
   1. Very knowledgeable
   2. Moderately knowledgeable
   3. Knowledgeable
   4. Not very knowledgeable
   5. Not knowledgeable at all

If your answers to items 18 and 19 were 1, 2, 3, or 4, please respond to the following items. If your answer to question number 18 is 5, there is no need to answer the following items, but please return the questionnaire in the provided envelope.
Section II.

About the System of Zero-based Budgeting

Please indicate your own degree of agreement or disagreement with the following statements. Circle 1, 2, 3, 4, or 5.

1. Strongly disagree
2. Disagree
3. Uncertain
4. Agree
5. Strongly agree

Zero-based budgeting

(202) 20. is presently the best budgeting system for institutions of higher education

1 2 3 4 5

(203) 21. will give effective control over the institution's faculty and staff expenses

1 2 3 4 5

(204) 22. focuses on management process, analyses, and decision making rather than on incremental requests

1 2 3 4 5

(205) 23. would be very threatening to the organization's staff members

1 2 3 4 5

(206) 24. puts more attention on the budgeting priorities and leads to better output measures in higher educational institutions

1 2 3 4 5

(207) 25. heightens the role of planning and policy analysis for priorities and increases the need for general analysis in programmed decisions

1 2 3 4 5

(208) 26. would require more time and money to implement than it would be worth

1 2 3 4 5

(209) 27. put decision making on a more rational basis than do other budgeting systems

1 2 3 4 5

(210) 28. makes possible allocation of financial resources on a more rational basis

1 2 3 4 5

(211) 29. would cause a kind of resistance among the managers in the institutions because of their fear of the possible elimination of jobs

1 2 3 4 5

(212) 30. will serve better than any other budgeting system to explain to the taxpayers and/or to other funders of the institutions of higher education the need for and the allocation of funds

1 2 3 4 5

(213) 31. would be more costly to install than any other budgeting system

1 2 3 4 5

(214) 32. would give top management a better system for receiving detailed information concerning the organization's financial operation

1 2 3 4 5

(215) 33. would promote more efficient allocation of financial resources than any other budgeting system

1 2 3 4 5
Zero-based budgeting

(216) 34. would prevent history, tradition, or custom from becoming the justification for maintaining certain expenditures

(217) 35. would fail in higher educational institutions because of problems of faculty tenure

(218) 36. would identify and eliminate vestigial and outdated methods and programs

(219) 37. would fail because of problems of faculty unions in higher educational institutions

(220) 38. would allow for more effective identification of the low-cost alternative methods for providing educational services

(221) 39. would cause each staff member to become more cost-conscious, cost-benefit sensitive, and involved in fiscal planning

(222) 40. would develop higher morale among staff because an open system of budgeting is used with expenditures and programs openly and rationally justified

(223) 41. would not work because formalized policy and planning are often nonexistent, inadequate, or not communicated properly to lower level managers

(224) 42. would provide concrete feedback from the planning and budgeting process and provide the administrator a clear indication of how she or he is doing

(225) 43. would give top management a better view of the total organization from the standpoint of resource allocation, the various alternatives possible, and probable impact on institutional objectives, thus allowing greater flexibility

(226) 44. would not work because in most organizations the managers have become accustomed to analyzing their operations and tend to do so on a continuing basis rather than only during the budgeting cycle

(227) 45. will help reviewers of the institution's budget have a greater degree of confidence and trust in the budget preparation and expenditure

(228) 46. is increasingly significant because it is a budgeting approach which promises to reexamine what an institution of higher education does at the present time before embarking on new programs
Zero-based budgeting

(229) 47. will help as "professional development" device because it leads to an increase in the skill and ability of the managers and staff and makes them be more effective and rational

(230) 48. would not work because defining and delineating decision units and decision packages is hard work and very complicated

(231) 49. requires the preparation of a list of ranked decision packages which can serve as a basis for further planning and budget adjustments which may be required because of changing circumstances.

Section III.
The Technique of Zero-based Budgeting and Your Institution

Please describe your own view by completing the following items. Place a check mark on the provided spaces.

50. What effect would this system of budgeting have on the time spent in budget preparation in comparison to the currently used budgeting system if that is not zero-based budgeting?

A. First year of implementation?
1. ____ It would increase considerably
2. ____ It would increase slightly
3. ____ It would remain about the same
4. ____ It would decrease slightly
5. ____ It would decrease considerably

B. In subsequent years of implementation?
1. ____ It would increase considerably
2. ____ It would increase slightly
3. ____ It would remain about the same
4. ____ It would decrease slightly
5. ____ It would decrease considerably

51. What effect would this system of budgeting have on the effort spent in budget preparation in comparison to the currently used budgeting system if that is not zero-based budgeting?

A. First year of implementation?
1. ____ It would increase considerably
2. ____ It would increase slightly
3. ____ It would remain about the same
4. ____ It would decrease slightly
5. ____ It would decrease considerably

B. In subsequent years of implementation?
1. ____ It would increase considerably
2. ____ It would increase slightly
3. ____ It would remain about the same
4. ____ It would decrease slightly
5. ____ It would decrease considerably
52. If your institution is using or were to install zero-based budgeting, which of the following elements of it would the institution's managers have greatest difficulty with? Check all that apply.

1. Cost calculation
2. Alternative selection
3. Assigning effectively

53. All good budgeting systems generate information for management planning and control. If your institution does not now use zero-based budgeting, what effect would the implementation of zero-based budgeting have on the quality of management information in your institution's budgeting system?

1. Quality of management information will substantially improve
2. Quality of management information will slightly improve
3. Quality of management information will be about the same
4. Quality of management information will slightly decrease
5. Quality of management information will substantially decrease

54. What is your overall evaluation of the use of the technique of zero-based budgeting in the area of higher education institutions?

1. It fails as a very effective budgeting system
2. It fails as a budgeting system
3. Uncertain about its effectiveness
4. It works as a budgeting system
5. It works well as a very effective budgeting system

55. To your best knowledge please indicate what you consider a minimum figure, for each of the following areas, before ZBB would be beneficial.

a. Minimum amount of budget: $____________________

b. Minimum number of full time equivalent student enrollment: __________________________

c. Minimum number of full time equivalent faculty members: __________________________

d. Minimum number of administrator's staff members: __________________________

e. Other requirement if any________________________
APPENDIX B

FINANCIAL OFFICER'S RECOMMENDATIONS AND COMMENTS
FINANCIAL OFFICERS' RECOMMENDATIONS AND COMMENTS

"Do not consider ZBB applicable to the I&R function at all."

"Based on my knowledge of ZBB, I don't think it ever would be beneficial in an educational institution."

"I believe ZBB is a useful technique but that it shouldn't be used regularly since it is very time-consuming and anxiety producing."

"Depending on how costly you define beneficial, it would be beneficial but not very cost efficient."

"ZBB is better used as an analytical tool—not a budgeting system."

ZBB requires "automated mgmt info system."

ZBB requires "considerable amount of staff training before implementation."

ZBB "would never be beneficial."

"Zero-based budgeting could work in most institutions, including higher education. Also, ZBB could be employed selectively and applied to a segment of the budget--not across the board."

Other requirements of ZBB: "Freedom from: (1) Educ. Program parameters fixed by govt. agency and trustees; (2) faculty union agreement; (3) staff union agreement; (4) high percentage of personnel costs; public demand for cost-ineffective services."
"I feel that Zero base budgeting would not be effective in higher education regardless of dollars, FTE & ETC."

Other requirement of ZBB is "sophisticated management information system."

"Regents and Legislatures do not really understand ZBB and they can relate to incremental budget with provisions to approve new programs and debate how producing programs."

"ZBB requires a certain attitude and way of thinking. Size is not a critical issue."
BIBLIOGRAPHY

Books


Articles


Anthony, R. N., "Zero-Base Budgeting: A Useful Fraud?", Accounting Digest, XLIII (December, 1977), 82-85.
Barnes, Clifford R., "Budgeting for Large Organization," (a review of Mosher, Program Budgeting), Public Administration Review, XIV (Summer 1954), 212-6.


Dror, Yehezel, "Muddling Through--'Science' or Inertia?,” Public Administration Review, XXIV (September, 1964), 153-57.


Mauceri, Paul; O'Neil, James, "Zero Base Budgeting--A Decision Package," School Business Affairs, XLIII (May 1977), 111.


Schick, Allen, "Zero-Base Budgeting and Sunset—Redundancy or Symbiosis," The Bureaucrat, VI (Spring 1977), 12-32.


Taylor, G. M., "Introduction to ZBB," The Bureaucrat, VI (Spring 1977), 33-35.


Publications of Learned Organizations


Minmier, George S., An Evaluation of Zero-Base Budgeting System in Governmental Institutions, Research monograph no. 68, Atlanta, Georgia, Georgia State University School of Business Administration, 1976.


Unpublished Materials


