

THE BUDGETARY ALLOCATION PROCESS
IN PUBLIC SECTOR INSTITUTIONS:
THE CASE OF THE UNIVERSITY OF NAIROBI

By

ESTHER J.R. BIWOTT

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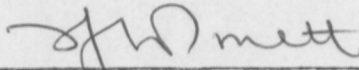
A MANAGEMENT PROJECT SUBMITTED
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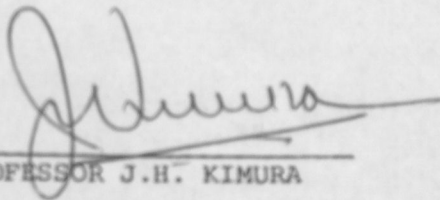
DECLARATION

This Management Project is my original work and has not been presented for a degree in any other university.



ESTHER J.R. BIWOTT

This Management project has been submitted for examination with my approval as University supervisor.



PROFESSOR J.H. KIMURA

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To my father

Mr. K.N.K. Biwott

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was always at hand to act as a surrogate mother to the children. To them all, I am deeply indebted.

Finally, whereas I received a lot of support and guidance in the production of this paper, blame for any deficiencies therein must rest on my shoulders.

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LIST OF ABBREVIATIONS USED

ACT_{t-1} = Actual expenditure in year $t-1$

BA_t = Budget allocation in year t

BA_{t-1} = Budget allocation in year $t-1$

RE_t = Budget request in year t

UON = University of Nairobi

ABSTRACT

This study sought to establish the various relationships existing between the budget allocation in any year t and each of the following variables:

- (i) The budget request for year t
- (ii) The budget allocation in year $t-1$, and
- (iii) The actual expenditure in year $t-1$

in a bid to establish the best predictor of any year's budget allocation.

For the research, data from forty University of Nairobi (UON) departments were gathered and a series of simple regression analysis run using the budget allocation as the criterion variable and each of the variables (i) to (iii) as the predictor variables.

It was found out that budgeting in the UON is a hierarchical process which starts at the University departments with departmental requests and ends up in Parliament with the approved estimates.

Evidence gathered from the data analysis suggests that each of the three predictor variables is highly related to the budget allocation in any year. It specifically, provides evidence to indicate that the budget requests that are sent by the UON to the Treasury through the Ministry of Education, conforms to a large extent, to the guidelines stipulated by the Treasury such that any subsequent revisions are minimal. For this reason, budget requests at this level, tend to

Conclude

act as good indicators of what the budget allocations will be, although they need not necessarily reflect departmental needs.

Evidence also suggests that the vote head does appear to have an effect on the strength of the relationship between the budget allocation as the criterion variable and each of the predictor variables. In this regard, it was found to be the Equipment and Furniture vote which had the greatest effect, i.e. it was distinctly different from the other votes.

Finally, the findings of this research should be understood and evaluated in light of the limitations of the study, which were mainly twofold. First, the study restricted itself to only a subset of the variables which may have an effect on the budget allocation in any year. Secondly, there were several cases of missing data.

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

A budget whether it be for a public institution or for a private profit oriented company, is a basic and powerful tool in management. In this regard it serves as a tool for planning and controlling the use of scarce financial resources in the accomplishment of organizational goals. As the Royal Institute of Public Administration puts it,

Budgets occupy a leading place among the special tools of management employed to direct and control the affairs of large and multifarious organizations. They are used not only by governments, where budgeting had its origins, but in other public bodies, in industry and commerce and in private families. All have found that a budgetary system can be an invaluable aid in planning and formulating policy and in keeping check on its execution¹.

The budget thus stipulates which activities and programs should be actively pursued, emphasised or ignored in the budget period considering the limited financial resources available to the organization.

In certain types of organizations, the budgetary process usually starts at the organizational subunit level where the various activities

1. Royal Institute of Public Administration, Budgeting in Public Authorities, George Allen & Unwin Ltd., 1959, p. 13.

take place. It is the decision makers at the subunit level who have the relevant facts to effectively classify activities into various categories according to their importance. It is here, therefore, that projects and activities requiring urgent attention and hence financial support can be identified. As Lewis says, "the basic reason for requiring estimates from subordinate officials is that higher officials do not have enough detailed information, time or specialized skills to prepare the plans themselves"². This is perhaps the only point of convergence of the budgetary process in both private and public institutions.

1.2 BUDGETING IN THE PRIVATE SECTOR

Companies in the private sector are profit motivated. As such, their budgeting reflects a conscious effort on their part to plan for certain desirable results and control to maximize the chances of achieving those results. (Jones and Trentin (1966))

Budgeting in a typical private sector company is a collective and closely coordinated exercise in which each activity is systematically related to the other. The exercise usually starts some months prior to the start of the financial year. In this period, the company undertakes a thorough analysis of its previous experience, the state of the economy, corporate objectives together with the available resources. This

2. Lewis, V.B., "Towards a Theory of Budgeting" In Lyden, F.J. and E.G. Miller: Planning Programming Budgeting. A Systematic Approach to Management. Second Edition Markham Publishing Company, Chicago 1972, p. 238.

analysis is aimed at providing a framework for the budget preparation exercise and it therefore sets out the "ground rules" for the preparation of the budget for the following financial year.

With the "ground rules" thus laid, each line manager proceeds to prepare his operating plans for the next financial year indicating the various priority areas. The sales manager, for example, prepares the sales projections and operating plans for the various sales and advertising campaigns. The end results of these exercises by the various line managers, are summaries of expected sales, operating levels, projected costs and expenses and detailed financial programs for the year. These are subsequently submitted to the officer in charge of budgeting, who is usually a Budget Director.

With all the basic data in hand, the Budget Director commences the task of assigning or confirming money values to the various operating programs submitted to him. He may compile individual departmental budgets which he then consolidates into operating and financial summaries using the sales budget as the cornerstone of the overall corporate budget since it sets the basic level of activity for the entire business. The overall master budget which is forwarded to the Chief Executive Officer (CEO) or the Board of the organization consists of projected financial statements namely projected Profit and Loss Account, projected Balance Sheet and projected Cashflow Statement.

If, on examination of these budgets, the CEO (or the Board) finds them unsatisfactory then he would ask his line managers and departmental heads to adjust their programs in a specified manner in order to accomplish the desired profit and Return on Investment (ROI). Once the budgets are found acceptable they are normally approved and circulated to the operating units. From then on the exercise enters a "control of operations" phase in which actual performance is compared with budgeted performance and variances are highlighted and investigated. The budgeting system may be fixed or it could be flexible.

1.3 BUDGETING IN THE PUBLIC SECTOR

Unlike private sector companies, public organizations are mainly concerned with the provision of public goods to members of the society. Their budgets are therefore mainly intended for authorizing actions and providing ceilings for management actions. (Horngren (1983))

Budgeting in public organizations is normally a hierarchical process which starts at the subunit level and ends at the "apex" of the hierarchy (in our case the Treasury) which may be outside the organization itself. Often, therefore, there are several tiers between these two levels of the budgetary hierarchy.

As an example, consider the budgetary process of a typical Ministry in the Government of Kenya. For such a ministry the budgetary process would normally start at the district level where each departmental head of that ministry would be required to prepare estimates. These would then be aggregated into district estimates and forwarded to the

Provincial Headquarters. At the Provincial Headquarters these estimates would be aggregated with the estimates from the other districts and forwarded to the Ministry Headquarters where they would be further aggregated to form one ministerial budget to be forwarded to the Treasury by the Ministry's Accounting Officer³.

Before Accounting Officers prepare their estimates, the Treasury issues a circular advising them on the procedures and guidelines to be followed in preparing the estimates. The guidelines include, among other things, "ceilings" on individual votes. A ceiling is the maximum allowed rate of growth of a budget head.

When the Ministerial estimates are received by the Treasury, they are studied to ascertain that they conform to the instructions contained in the issued Treasury circulars. Once this is done, a meeting is arranged with the relevant officers of the Ministries concerned in order to discuss their draft estimates. Once the proposals have been discussed and agreed upon by the Treasury, the estimates are printed in readiness for presentation to Parliament.

Public sector budgeting can thus be seen to be an exercise involving a large number of people at different hierarchical levels. Usually, once the budget has passed each particular level, the officers at that level no longer have any influence on it.

3. "Accounting officer means any person appointed by the Treasury and charged with the duty of accounting for any service in respect of which moneys have been appropriated by Parliament or any person to whom issues are made from the Exchequer Account".

1.4 STATEMENT OF THE PROBLEM

Public sector institutions like the University of Nairobi (UON), which undertake budgeting on a hierarchical basis face a situation where at each level in the hierarchy, there is a possibility that the original requests from the subunits will be changed in one way or another or even ignored altogether as the various budgets are processed further and aggregated. Where this is the case, the budgetary process loses its effectiveness in that the estimates that ultimately get to the Treasury may be materially different from the original requests from the subunits. Indeed departmental chairmen of the University of Nairobi in their Management seminar held between 27th and 29th of August 1986 (Min. 4.1) had the following to note of the University budget preparation exercise:

----- after spending a considerable amount of effort, time and resources in preparing the estimates for the department most Chairmen felt that no consideration was given to their inputs at higher levels of the Estimates process. There were strong feelings that the allocation process did not take into consideration the department's needs, leave alone its requests.

The above problem aside it can also be argued that any budgetary process should take into account actual expenditures in the preceeding period as an indication of what the future expenditures are likely to be. As Smithes says, "A review of actual performance provides a link between the past and the future in the determination of policy objectives and formulation of a budget"⁴. If, however, what used to happen in the

4. Smithes, A.: The Budgetary Process in the United States: McGraw-Hill Book Co., Inc., 1955, p. 25.

early sixties (1963/64) is anything to go by, and further, if our university inherited the same from the then University of East Africa, it would appear that in our University's budgeting process, actual expenditures are not compared with budgeted expenditure as documented by Prof. Philip W. Bell, who says,

----- I could not help but reflect on an experience I had in East Africa in 1963-64 when I served ----- an Economic Commission for the University of East Africa ----- We were given a budget of expenditure broken into various categories ----- I asked if we might have the actual expenditures using the same categories and was told "No we do not have those", "But then how do you make up your budget for the succeeding year?". The answer came back "On the basis of the budget for the previous year". It turned out that actual expenditures were never compared with planned or budgeted expenditures in devising future plans.⁵

It is these two observations by University departmental Chairmen and by Bell, both touching on a public budgetary process that gave impetus to this study.

1.5 OBJECTIVE OF THE STUDY

The study's main aim was to establish, for a sample of departments, the relationship between the actual budget allocation in any year t (Y_t) and each of the following variables:-

5. Bell, P.W.: "On Current Replacement Costs and Business Income" in Sterling, R.: Asset Valuation and Income Determination Scholars Book Co., 1971, p. 27.

- i) Request for Year t (Y_t)
- ii) Actual Expenditure in the preceding year (Y_{t-1})
- iii) Allocation in the preceding year (Y_{t-1})

Ultimately, it was hoped that the study would establish which of the three variables above was the best predictor of any year's budget allocation. In other words, it was hoped that from the study we could determine which of the above factors best explains any year's budget allocation as far as the University of Nairobi is concerned.

1.6 SIGNIFICANCE OF THE STUDY

It is hoped that this study will be useful to the Departmental Chairmen of the University of Nairobi who have voiced concern over the University budgetary process.

The study could also prove useful to the university authorities as it will hopefully bring out the single most important factor that the budgetary authorities take into consideration during the budgetary process. This could act as a stepping stone towards a thorough re-evaluation of the university budgetary system in the event of there being no predictor.

Finally, this study could be useful to academics as a model for the study of other budgetary systems especially those of public institutions.

1.7 OVERVIEW OF THE REPORT

This report consists of five chapters. Chapter one is the introductory chapter and is therefore devoted to the background of the study.

Chapter two is devoted to the theoretical aspects of budgeting; it highlights the role of budgets, both in public and private organizations. It also proposes a "working hypothesis" of what one would expect to find in the University of Nairobi budgetary system if it were to work in the manner of any government agency.

Chapter three deals with aspects of research design, namely; the population, the sample and the data collection method.

Chapter four is devoted to the research findings and data analysis. Here, we explain the university budgetary process and explore the problem as viewed by the college bursars. We also describe the research findings.

Chapter five is the concluding chapter and is devoted to the discussion and implication of the research findings, the limitations of the study and the recommendations and directions for further research.

CHAPTER 2

LITERATURE REVIEW

2.1 HISTORICAL BACKGROUND

According to the literature available, the English word 'Budget' originated from the French word 'Bougette' which means a leather bag or a large sized purse which travellers in earlier centuries hung on the saddle of their horses. The Treasurer's 'Bougette' was the predecessor of the small leather case from which the finance ministers in countries like Britain and Kenya still present their annual financial plan for the state. Over time, the meaning of the word budget has shifted to the financial plan itself. In fact, as we know it today, the budget is the central instrument of expenditure policy.

As regards budgetary responsibility, historical development of modern budgeting suggests two significant generalizations: First, that the budget system developed as an instrument of "democratic control over the executive"⁶. As Burkhead says, "the power of the purse came to reside in the legislature in order to prevent the executive from imposing wilful and arbitrary tax payments on his subjects"⁷.

6. Burkhead, J.: Government Budgeting,
John Wiley & Sons, Inc., 1956, p. 83.

7. Ibid.

Secondly, the budget system requires the development of a two way pattern of responsibility centering on the executive. The first such line of responsibility runs from the executive to the administrative agencies. In this regard, the executive must be responsible for the supervision and control of the administration, for it is only then that it is possible for him to prepare a financial plan and execute it as adopted by the legislature. The second line of responsibility runs from the executive to the legislature. In a democratic governmental setting, the legislature may approve, reject or modify the proposals of the executive. "In the exercise of this authority the legislature must be able to hold the executive accountable - both for the execution of last year's financial plans and for the comprehensiveness of this year's program"⁸. Many of the features which characterise a budget system today, are in actual fact, a product of this pattern of two way responsibility.

From the outset then, it can be seen that budgeting techniques initially evolved purely for use within government and only later permeated to other spheres of human endeavour. According to Hofstede, for example, "the use of budgets as financial control tools for the business enterprise is historically a rather young phenomenon: It seems to date from around 1920"⁹.

8. Ibid., p. 84.

9. Hofstede, G.H., The Game of Budget Control
Koninklijke Van Corcum & Comp, N.V. Assen, The Netherlands,
1968, p. 20.

2.2 BUDGET: DEFINITION

The term budget may be defined in a variety of ways depending on the context in which it is used. When used in the context of Public Administration, Lynch has proposed the following definition as "an excellent operational definition".

"Budget" is a plan for the accomplishment of programs related to objectives and goals within a definite time period, including an estimate of resources required together with an estimate of the resources available, usually compared with one or more past periods and showing future requirements¹⁰.

In this context, Lynch sees the budget as always representing "what someone wishes to do or have someone else do"¹¹. This view is also shared by Wildafsky who sees a budget as "intended behaviour". In his view, if the requests for funds are granted and if such funds are spent in accordance with instructions and further if the actions involved lead to the desired consequences, then the purposes outlined in the budget document will be achieved, in which case "the budget becomes a link between financial resources and human behaviour to accomplish policy objectives"¹².

10. Lynch, T.D.: Public Budgeting in America, Prentice-Hall, Inc., Englewood Cliffs N.J., 1979 p. 5.

11. Ibid.

12. Wildafsky, A.: The Politics of the Budgetary Process. Second Edition Little Brown and Company, 1964, p. 1.

Although budgeting was traditionally regarded as one of the tasks falling within the domain of the financial expert which could be clearly distinguished from the realm of the policy maker, it is now understood that budgeting is an integral part of the whole process of decision making. In this regard, budgeting is said to provide the arena in which policy decisions are made. (Lynch (1979)).

Lynch, further sees public budgeting as a "political process conducted in the political arena for political advantage"¹³. This view is again shared by Wildafsky, whose book, The Politics of the Budgetary Process, is devoted to the study of budgets as "political things". As he says, "If politics is regarded in part as conflict over whose preferences shall prevail in the determination of national policy, then the budget records the outcomes of this struggle ----- (and) ----- if one looks at politics as a process by which the government mobilizes resources to meet pressing problems, then the budget is a focus of these efforts"¹⁴.

In the private sector, a budget is normally regarded as primarily being a plan, a goal or an objective. As Jones and Trentin put it, "we know of no better definition of budgeting than to say it is primarily a planning and control system"¹⁵. In this regard, planning and control

13. Lynch, op. cit. p. 5.

14. Wildafsky, op. cit. p. 4.

15. Jones R.L., and H.G. Trentin: Budgeting: Key to Planning and Control. American Management Association, Inc., 1966, p. 2.

are fundamental aspects of the management process, and viewing budgeting as a system is important as it implies a continuing process throughout the year, which is "the key to good budgeting in any business operation"¹⁶.

2.3 THE ROLE OF BUDGETING

The need for budgeting, whether it be in the public or the private sector, mainly arises from the simple, fact that resources are scarce when considered in relation to human wants and desires. Both at the organizational and the individual levels, mankind operates in a restricted environment as far as resources, financial or otherwise, are concerned. This puts a limit as to what can be done and introduces the need to choose from among competing alternatives. More often than not, it is through budgeting that these choices are made. As Wildafsky says,

Since funds are limited and have to be divided in one way or another, the budget becomes a mechanism for making choices among alternative expenditures¹⁷.

He infact sees a budget as a "series of goals with price tags attached"¹⁸.

2.3.1 THE ROLE OF BUDGETING IN THE PUBLIC SECTOR

When one talks about budgeting in the public sector, the first thing that might come to one's mind is the government budget. Government

16. Ibid.

17. Wildafsky, op. cit., p. 2.

18. Ibid.

expenditure in any country is usually a significant item of the national accounts and, it has, over time tended to become increasingly important. The government budget usually therefore, "embodies decisions of dramatic national importance"¹⁹.

In a broad sense, the government budget is an economic tool that may be used by the government to shape the nation's economic life. Colm proposes two interrelated ways by which budgetary policy can contribute to economic growth. One is through what may be called the "Micro economic effect" which is the effect on economic growth, of government programs such as those in support of research, training, education and development of national resources. We may also include here, the direct effect of programs by which the government supports productive investments for expansion and modernization.

The other is through the purchasing power effect of the budget. "Budget policy in association with monetary policy can exercise a powerful effect on the flow of incomes and funds through the economy, bolstering or restraining active purchasing powers"²⁰. In a country like ours for example, incentives such as export compensation are used by the government in order to stimulate increased production and export of certain commodities and thus boost foreign exchange earnings. On the contrary, heavy taxes may be imposed on certain commodities, such as

19. Smithes, op. cit., p. 4.

20. Colm, G.: "Budgetary Projections in the Framework of Economic Projections and Adaptations", Public Finance, Vol. 17, 1962, p. 19.

cigarettes, which the government considers harmful to the health of its citizens, in a bid to restrain their consumption. Used in this manner the budget can be seen to be an important tool of shaping and communicating government policy.

A government budget also acts as a catalyst for increased economic activity since there always exists a symbiotic relationship between the public and the private sectors in any economy. "The revenues of the public sector will have specific effects on levels of income and economic activity in the private sector, the expenditures of the public sector will influence the kind of economic activity in the private sector and will partially determine the level of total economic activity"²¹. Thus, a well thought out and well planned budget can be effectively used to boost economic activity in any country.

It is not always however, that governments make proper use of budgeting, and it is the developing world, especially sub-Saharan Africa, that is the biggest culprit of budgetary mismanagement. As Green notes, "It is certainly true that in sub-Saharan Africa today, public finance - as viewed from the perspective of almost any model - is a disaster area"²². As symptoms of this mismanagement he cites, among other things, the presence of massive recurrent deficits even where they did not exist

21. Burkhead, op. cit., p. 57.

22. Green, R.H.: "Budget Management as Economic Management: Some Key concerns" In Ndegwa, P., L.P. Mureithi, R.G. Green Management for Development Priority Themes in Africa Today. Oxford University Press in Association with the Society for International Development Kenya Chapter, Nairobi, 1987, p. 43.

before, he also cites what he calls "day-to-day crisis management expedients overwhelming longer term, subtler, more analytical management efforts and instruments"²³. Further, he points out that where greater balance has been won, it has been at the expense of drastic cuts in services and in revenue. As a result, most countries in this region continue to be "gripped by a set of interlocking exogenous and endogenous economic malaises and the majority of their economies are far from achieving stabilization, let alone recovery and reconstruction"²⁴. We would therefore do well to heed Smithes' caveat that budget mismanagement "can start an inflation or a depression or can impede the process of economic growth"²⁵.

From a management point of view, the budget may be seen as an instrument of policy formulation, planning, controlling and enforcing accountability.

The first step of any decision making process should be determination of policy objectives. By adopting a particular policy objective, a given institution, inevitably implies a decision on the urgency or importance of that objective in relation to the competing objectives in that set. Similarly, by choosing that objective the institution forms a 'notion' of how far it is prepared to sacrifice the attainment of other objectives in pursuit of the chosen one. Such a notion is however, vague and imprecise at the policy formulation stage.

23. Ibid.

24. Ibid

25. Smithes, op. cit., p. 4.

As a planning tool, the budgetary process introduces an element of precision into the policy objectives, for it is during the planning phase of the decision making process that a "unified program that will achieve the most satisfactory compromise among the various objectives of the policy"²⁶ is formulated. Furthermore, a good budget system requires that program levels be projected several years into the future and, further, that an annual examination of the costs and benefits of alternatives to present programs be undertaken in order to plan changes in the programs where necessary. Thus, "budgeting should be an annual means for agency heads to re-examine the objectives of their programs and the effectiveness of the means used to accomplish these objectives"²⁷.

Controlling has been said to be the most important single reason for a budget system. In the absence of an adequate means of controlling their spending, state agencies would "spend the state bankrupt" in a short spell of time. Through budgeting, each item of expenditure is planned for in advance and a certain amount of money set aside for it. This guards against overspending. Furthermore, such expenditures have to be approved by certain position holders depending on their magnitude in such a way that the higher the expenditure the higher the rank of the approving official in the managerial hierarchy. These approving procedures also act as control defences and guard against misappropriation of funds. The budget system has, in fact, been used as a major

26. Smithes, op. cit., p. 23.

27. Lynch, op. cit., p. 4.

instrument of control from as early as the 1860s. At that time, Gladstone, one of the main architects of the budgetary system of his time argued that expenditure beyond "... the legitimate wants of the country is not only a pecuniary waste, but a great political and, above all, a great moral evil"²⁸. Although it may be difficult to operationalise such concepts as 'moral evil', this quotation goes to show that it is important to have a control tool in any setting where public funds are put to use and more importantly, that budgeting has, for a century now, fulfilled that role.

The budget also serves as a means of enforcing accountability. This is particularly true in developed democracies like the United States where, as Lynch says, "The people hold the legislature accountable through the electoral process. The Legislature holds the agencies accountable by reviewing their budgets, setting the appropriation levels the people want and letting state agencies know how the people want their money spent through statements of legislative intent"²⁹. This accountability is of particular importance in government and public institution where the usual measures of performance, such as the profit measure, which are available in the private sector are lacking. In public institutions, we find that the citizens, whether financially knowledgeable or not, must contribute to an organization which, as

28. Burkhead, op. cit., p. 6 Quoting D.H. MacGregor Public Aspects of Finance, Claventon Press, Oxford 1939, p. 46.

29. Lynch, op. cit., p. 4.

Lawrence says, "regards the spending of the full amount of citizen dollars available as its measure of success"³⁰. Whether however, the countries in the developing world have been able to use budgeting effectively as a tool of enforcing accountability is a debatable matter. Our contention is that most of them have not been able to. In a country like ours for example, one often reads in the newspapers of large sums of money that have simply "vanished" or equipment worth colossal sums of money which are lying idle for one reason or another. The point we wish to make here, is that more often than not, in all these cases, no one gets to know the people behind the misdeeds and no one seems to be held accountable and hence to take responsibility for the loss or misuse of public funds. Of course, the ignorance of most of the tax payers here also makes the situation worse.

Although we have shown that public budgeting can be broadly used as a tool for shaping and communicating economic policy and also used at a management level as a tool for policy formulation, planning, controlling and enforcing accountability, we wish to point out here that Wildafsky considers the purposes of a budget to be "as varied as the purposes of men"³¹. In this context, he points out that a budget can be "an expectation, an aspiration, a strategy, a communication network or a precedent"³².

30. Lawrence, C.: "A Study of a Program Budget for a Small City"
Journal of Accountancy, Nov. 1972, p. 52.

31. Wildafsky, op. cit., p. 4.

32. Ibid., p. 3-4.

2.3.2 THE ROLE OF BUDGETING IN PRIVATE INSTITUTIONS

From a corporate standpoint, financial budgets represent the firm's plans for the coming year summarised in projected financial statements. Being plans, financial budgets normally become the criteria by which managerial performance is measured and therefore form the basis of the control system. In fact, "--- whereas budgets have the dual role of being plans and performance criteria, they are generally viewed as synonymous with control and not with planning"³³. Anthony et. al. have however, argued that a budget, in most cases, has limitations in helping management exercise the control function since in practice, two conditions necessary for adequate control are not easy to achieve. First, it must be possible to set financial objectives that represent "a fair standard" against which to measure and secondly, it must be possible to measure output in financial terms"³⁴. These therefore, are issues that should be seriously addressed by all those organizations hoping to use budgets as effective control tools.

As a yardstick of managerial performance, the budget is sometimes used as a basis for compensation. Such is the case for example, where machine operators are compensated on a piece rate basis. Indeed as Demski and Feltham say "-- we have budget based contracts in which worker compensation depends, at least in part, on the relationship

33. Schiff, M. and A.Y. Lewin, "The Impact of people on Budgets" The Accounting Review, April, 1970, p. 259.

34. See Anthony, R.N., J. Dearden and R.F. Vancil: Management Control Systems: Text Cases and Readings. Richard D. Irwin Inc., 1965 and 1972, p. 557.

between actual and budgeted performance, where performance is expressed in terms of some observable attribute of outcome of worker action"³⁵. Thus, in certain situations the budget becomes the basis of worker compensation.

As a planning tool, budgeting forces management to seek sufficient insight into the conditions and forces surrounding the organization's operations and this prepares them, not only to plan ahead but also to anticipate any problems and to be prepared to face them. "Budgets formulate expected performance. They express managerial targets. Without such targets, operations lack direction, problems are not foreseen, results lack meaning and the implications for future policies are dwarfed by the pressure of the present"³⁶. Budgets therefore serve to guide the day to day operations of the various executives and departmental heads. Budgets have also been said to have an effect on the formulation and implementation of corporate strategies, in that the thinking that evolves during budgeting imparts a great influence on strategic planning also called long range planning.

Finally, a budget acts as a tool for coordination and communication. Coordination which refers to "the meshing and balancing of all factors of production and of all the departments and functions of the

35. Demski, J.S. and G.A. Feltham: "Economic Incentives in Budgetary Control Systems". The Accounting Review, Vol. LIII April 1978. p. 337.

36. Horngren, C.T.: Cost Accounting A Managerial Emphasis. 5th Edition. Prentice-Hall, Inc., 1983, p. 132.

organization so that its objectives are attained"³⁷, is achieved during the planning phase. While trying to work out a well laid plan which maximizes the company's benefits in light of it's objectives and within its available resources, company executives are forced to think of the various relationships and inter-relationships among individual operations and the company as a whole. The result is a well coordinated plan of action for the achievement of a unified organizational purpose.

A budget once approved and circulated to all the relevant members of the organization, acts as a communication tool. It communicates the company policy, targets, operating levels and standards to be adhered to. In this regard, it is an important channel of communication for any organization.

All in all then, it can be seen that budgets, whether they are used in the public sector or in the private sector, are important tools of management.

2.4 BUDGET PREPARATION IN PUBLIC INSTITUTIONS:

Budgeting in public institutions, as we said earlier, is normally a hierarchical process which starts at the subunit level, say a division, and ends up at the "apex" of the hierarchy, which in the Kenyan case is the Treasury. The term 'budget cycle' is often used to describe the procedural character of budgetary systems of governments which are usually marked by specific phases of a cyclical character. The nature

37. Ibid.

of the budget cycle however, varies from country to country depending, to some extent, on the form of government.

According to Burkhead³⁸, the budget system in any government should be characterised by a flow up and a flow back of information on decisions made at the various levels of the budgetary hierarchy. In this context, certain kinds of decisions will be made at the operating levels and their effects communicated up the organization hierarchy to influence decisions there. At the same time, policy and program decisions will be made at the higher levels and communicated down to the operating levels.

In any budgetary process, the people at the subunit level are usually expected to be the "advocates of increased appropriations". This means that they are always expected to put up a good case for the allocation of more funds to those projects and programmes under their jurisdiction. Wildafsky illustrates this point by quoting General Douglas MacArthur who in 1935 said, "You may blame the war department for a great many things ---- but you cannot blame us for not asking for money. That is one fault to which we plead not guilty"³⁹. In poor countries, for example, where there are normally predictable cuts in what a department requests, departments normally respond by asking for more than they can get, which in the context of rational expectations, is the right thing to do under the circumstances. It is however said that, this happens so much so that the whole budgetary

38. See Burkhead, op. cit., p. 89.

39. Wildafsky, op. cit., p. 18.

exercise "has become a time consuming game of an adult trying to catch the lies of a boy who never learns"⁴⁰ and, one might add, and of a parent who never learns either!

The people in the rest of the tiers, normally operate in an environment that imposes severe constraints on what they can do. According to Wildafsky, all participants face the usual overt political factors involving group pressures, executive legislative cooperation and rivalry, inter-agency disputes and so on. As they get to learn the budgetary game, they undergo a socialization process in the kind of roles they are expected to play. Ultimately, they get to learn what they can and cannot do. However, even after undergoing this socialization process there still remains the arduous task of trying to make comparisons among different projects and programs that have different values for different people. Usually, therefore, officials in a place like the Treasury discover that no matter how hard they try, they cannot find any objective method of judging priorities among projects and programs. They therefore have to devise their own ways of solving this problem.

One way of solving the problem is to make budgeting an incremental process. In fact, in most of the literature reviewed, it is argued that budgeting, especially governmental budgeting, is an incremental exercise in which the largest determining factor of the size and content of a given year's budget is the preceding year's budget. In a way, therefore,

40. Caiden, N. and A. Wildafsky: Planning and Budgeting in Poor Countries. John Wiley & Sons, 1974, p. 137.

The first thing to note here, is that being a governmental agency, the UON would be expected to adhere to all governmental requirements and deadlines governing the budget preparation exercise. This is because, in the final analysis, the UON budgetary process may be considered as one aspect, albeit small, of the total governmental budgetary process.

The UON budgetary process would be expected to start at the departmental level, since the departments may be considered the smallest functional units of the university. Thus, each department would be called upon to prepare its requests for funds giving justification for such requests. These requests would then be compiled into faculty requests and forwarded to the relevant colleges.

One can then envisage a situation where these requests would be discussed at the College level and amended as need be. Following whatever amendments are considered necessary, the requests from the various faculties within a college would then be aggregated and forwarded to a central budgetary office within the university where the various requests would be further discussed and revised as may be considered necessary, before using them to compile one document containing all the university budgetary requests to be forwarded to the Ministry of Education.

At the Ministry of Education Level, the UON budgetary requests would be further discussed and amended if it is found necessary to do so. Ultimately, the UON budget would be incorporated into the ministerial budget and forwarded to the Treasury.

The Treasury would then consider the ministerial budget in light of the guidelines earlier issued, the financial resources available and the requests from the other ministries. If it is found necessary to make any revisions on the budgetary requests, the same will be done, after which the total government budget will be compiled and forwarded to Parliament for approval.

Ultimately then, the approved estimates are communicated back to the various Ministries. In this regard, the Ministry of Education will then communicate back to the UON on the subject of the approved estimates.

2.5 CONCLUSION

In this Chapter, we have shown that, although budgeting evolved initially as a tool for use in government, it has, over the years found it's use in other spheres of human endeavour, notably business.

In the public sector, the budget can be broadly used to shape economic policy and boost the economic activity of a nation. It can also be used in the management of the public sector as a tool of policy formulation, planning, controlling and enforcing accountability.

In the private sector, the budget does find its use as a tool of planning, controlling, coordination and communication. It is also often used as a criterion of managerial performance and also as a basis of compensating certain workers.

CHAPTER 3

RESEARCH DESIGN

3.1 THE POPULATION

The population of interest for this study comprised all the one hundred and eleven (111) "Departments" of the University of Nairobi as they are listed in the "1986-87 University of Nairobi Calendar" and the 1986/87 University "ESTIMATES" book. In the context of budgeting, these departments may be considered as cost centers since they are not all regular departments in the administrative sense.

3.2 THE SAMPLE

A sample of forty (40) departments was drawn from this set using the stratified random sampling technique. This sample was considered adequate since, according to the literature, where the population has certain desirable characteristics such as homogeneity, any sample that is greater than thirty is considered large enough to closely approximate the population parameters. (See Kane (1968: 196) and Daniel and Terrel (1983:128)).

In drawing this sample, the University's colleges and the central administration formed the strata. Stratifying in this way was found necessary in order to ensure that all colleges were represented in the sample. From each of these strata, a proportional sample was drawn using the lottery method of random sampling. In this regard, small pieces of paper containing the names of the departments in a given

college were placed in a box, mixed thoroughly and the requisite number drawn from the box. (See appendices A and B).

3.3 DATA COLLECTION METHOD

This study relied mainly on secondary data and covered the period 1983/84 to 1987/88 (from the time the university was restructured into colleges to-date).

The main source of the data was the "University of Nairobi: ESTIMATES" book for each of the years that were studied. This book gave data on:

- i) The actual expenditure for the preceding year (Y_{t-1}).
- ii) The estimates (allocations) for the current year (Y_t), and
- iii) The estimates (allocations) for the preceding year (Y_{t-1}).

Although it had been hoped that information on the actual requests by each department would be obtained from the college bursars, it was found that this information was not available from them. Most of the bursars informed the researcher that although the colleges were established in the financial year 1983/84, they (the bursars) did not start serious work until sometime in 1986. The bursars also informed the researcher that some departmental chairmen do not submit requests because they (the Chairmen) believe that it is a futile exercise since, "in their experience, such requests do not receive any consideration at higher levels of the budgetary process".

Finally, although the data on the actual requests by most of the departments was available for the financial year 1987/88 we decided to use data on University requests to the Treasury through the Ministry of Education. This data was available in the University's finance office. It was felt that these requests, in a way, represent the "collective wisdom" of the University. Furthermore, it was felt that by using these data, uniformity would be maintained in that the same set of data would be used across all the departments. This would eliminate the differences among the requests from those departmental chairmen who actually work out estimates, those who simply ask for a certain percentage over the last year's allocations and those who do not bother to make any requests at all. For the latter, the Finance Office usually makes an estimate.

The study was restricted to a group of items of recurrent expenditure, namely those under "Other Charges" which is a subheading covering the following votes:

<u>Vote No</u>	<u>Description</u>
306 ⁴³	Office Expenses and Uniforms
316	Travelling and Transport
960	Equipment and Furniture

The other expenditures mainly relate to personnel remuneration (Personal Emoluments) and were not deemed, for this study, to vary

43. In a non-teaching department, we would normally have office expenses which would be classified under vote 301 instead of 306.

CHAPTER 4

DATA ANALYSIS AND RESEARCH FINDINGS

4.1 THE BUDGETARY PROCESS OF THE UNIVERSITY OF NAIROBI (UON)

The University of Nairobi relies almost entirely on the Government of Kenya for its financial resources. For this reason, its budgetary process closely conforms to those of other governmental institutions.

In any given year, the UON budgetary process starts at the end of July with the receipt of a circular from the Treasury outlining guidelines governing the preparation of the estimates for the ensuing financial year. The guidelines usually cover such aspects as the budget calendar for the preparation of programme reviews and forward budgets from the spending departments right upto the Treasury, and the expenditure ceilings that will apply. Currently, the expenditure growth rate is set at 4% for recurrent expenditure and 15% for capital expenditure. It should be noted here that some authors have argued against the setting of fixed ceilings, pointing out that in setting the ceilings in advance one cannot be sure that the ceiling for one function is not set too high while that of another function set too low. Lewis in fact argues that "prescribing a single fixed ceiling in advance for subordinate levels of the executive branch involves the danger of judging a case before the evidence is heard"⁴⁴. This however is beside the point as the UON has to try and adhere to the ceilings as prescribed by the Treasury.

44. Lewis, op. cit., p. 238.

On receipt of the guidelines governing the budget preparation process, the Finance Officer issues a circular to all the departments through their respective College Principals instructing them to commence the preparation of a programme review and forward budget for their respective departments. In that circular, the Finance Officer outlines the guidelines from the Treasury.

On receipt of the circular from the Finance Officer, each departmental head may hold a meeting with his members of staff in order to work out the departmental requirements for the following:

<u>Vote</u>	<u>Description</u>
306	Office and Teaching Expenses
316	Travelling and Transport Expenses
960	Furniture and Equipment

After preparing these departmental estimates, the departmental heads forward the same to their respective College Principals. They normally forward the estimates together with covering notes giving the necessary explanations and justifications for the requests.

The College Principal, after receiving the departmental estimates, convenes a College Management Board meeting to discuss them. In the process of such discussions, the College Management Board may adjust the estimates as they may consider necessary. Ultimately, the College prepares one document consisting of the requests from all the departments in that College. This then, is the document that is forwarded to the Department of Finance for further action.

When the Finance Officer receives the College requests, he compiles a single documents consisting of all the requests from the various Colleges and forwards it to the Development Planning and Establishment Committee of the UON. This is a committee established by the University Council and Charged with, inter alia, the budgetary responsibility. The committee therefore has the power to revise the estimates if in their opinion such revisions are justified. Once the estimates have passed through the committee, the Finance Officer compiles a final draft of the University estimates (requests) to be forwarded to the Treasury through the Ministry of Education.

At the Ministry of Education, the University estimates may also be adjusted if, in the opinion of the Ministry such adjustments are warranted. The university budget is then incorporated into the Ministerial budget and forwarded to the Treasury for consideration along with other ministerial estimates.

When the estimates finally get to the Treasury, they will be examined for conformity with the guidelines and in light of the available funds and requests from all the other Ministries. Whatever necessary adjustments will then be made before forwarding the estimates to the National Assembly for approval. In certain cases, the Treasury may ask the University Officers to "justify" or "defend" their requests.

Once approved the budget estimates will be communicated to the Ministry of Education who will then communicate with UON on the same.

When the University receives this communication from the Ministry of Education regarding the approved estimates, it will convene another meeting of the Development Planning and Establishment Committee whose duty it will be to reallocate the available funds to the various departments. The reallocated amounts will then be printed in the University Estimates book which, once approved, becomes an operating document.

4.2 THE PROBLEM: THE COLLEGE BURSARS' VIEW

In the process of data collection and in a bid to gain more insight into the UON budgetary process, we had the opportunity to talk to the various College bursars regarding their experiences with the UON budgetary system.

The bursars were unanimous in their assertion that the UON budgetary process does not take into account departmental needs as reflected in their budgetary requests. They felt that although some departmental chairmen normally put up genuine cases for increased funding in order to enable them to run their departments effectively, these requests usually meet with "sudden death" somewhere along the budgetary hierarchy. In fact, one of the bursars concluded by saying that he considered the UON budgetary system, not as a genuine case of budgeting in the sense of the word, but as "an allocation system whereby the available funds are allocated to various departments according to some a priori basis, which is currently a 4% incremental basis".

This problem, it was felt, has the worst effect in those departments teaching technical subjects and those teaching health, biological and physical sciences. By their very nature, these subjects require a practical teaching approach which necessitates the purchase of certain equipment, chemicals, reagents, live animals and so on, to be used during the practical classes. Where the funds allocated under the teaching vote are not adequate to purchase these teaching aids, as is usually the case, the departments have to devise means of living within the available resources. One bursar gave an example of one department where, because of this problem, there is a shortage of certain basic equipment and students have to sit examinations in shifts.

To aggravate the problem, these departments have experienced a situation where, over the last few years, the prices of some of these teaching aids have been increasing at much higher rates than the 4% prescribed by the Treasury as the expenditure growth rate. Obviously, this has the effect of ever diminishing the number or the quantity, and sometimes quality, of these teaching aids that can be purchased each succeeding year. When this is considered in light of the ever increasing student population in each of these departments, one begins to get the feel of the seriousness of this problem.

Just as an indication of the magnitude of this problem, we wish to cite the fact that when the university took on the "double intake" in the academic year 1987/88, Treasury promised to provide additional funds to the tune of one third of the approved estimates for the same financial year, in order to defray some of the variable costs of taking on an extra class. As of the middle of May 1988, these funds had not

been received, and the first year students, who were the subject of the double intake, had already completed their first year of education at the university! The question that arises then is: How did the university finance the extra class? Were some academic standards sacrificed? In fact, is it possible for the university to shoulder the burden of an extra class without additional funds and yet not sacrifice on the "quality of the final product"?

But just as an indication of what the situation really is, one College bursar informed us that as of 18th of April, 1988, the beginning of the third term for all classes except the first years, some departments in his College had already exhausted their allocations and that they had already requested for additional funds without much success. It would be interesting to know how these departments have been fairing without funds.

Usually, the teaching departments would like to ensure that there are funds in the Teaching and Office Expense vote to enable the teaching exercise to go on uninterrupted throughout the academic year. The practice, therefore, is to defer expenditure on the other two votes until towards the end of the financial year when the state of the Teaching and Office Expense vote can be ascertained. In most cases, there is virement of funds from the other two votes, especially the Furniture and Equipment vote, to the Teaching and Office expense vote. It is not uncommon therefore to find departments which have not bought equipment and/or furniture for the last decade or so.

Finally, it should be noted that although at a first glance the problem, as highlighted here, seems to be that of the UON budgetary system, the more fundamental problem is the limited nature of the financial resources available to the government for funding the numerous public projects and programmes. The problem is therefore bound to continue for a long time to come, given the present economic order. One College bursar concluded his remarks by saying that, in his opinion, "the only possible end to this problem would be the discovery of oil of commercial quantities by Kenya". Yet, even as we write this project, the Kenyan public universities are in the process of admitting a record of 7,000 plus students, the 'lion's share' of whom, by simple logic, will be absorbed by the UON. Earlier on before this decision was taken, the Vice Chancellor of Kenyatta University had attributed the low intake to "congestion in hostels, lecture rooms, laboratories and a general lack of funds for recurrent expenditure"⁴⁵. It will be interesting to see how the universities, particularly the UON in concert with the government, will solve these problems.

4.3 DATA ANALYSIS

As stated earlier, the main research objective for this project was to find out the relationship existing between the budget allocation in any year t (Y_t) on the one hand, and each of the following variables on the other hand:

- (i) Request for year t (Y_t)
- (ii) Actual expenditure in the preceding year (Y_{t-1})

45. As quoted by the Daily Nation Newspaper of 6th May, 1988, p. 32.

(iii) Budget allocation in the preceding year (Y_{t-1})

Ultimately, it was hoped that from the study we could find out which of the three variables is the best determinant of the budget allocation in a given year. Therefore, from the onset, we were interested in assessing the strength of the relationship between the budget allocation in each of the years studied and each of the variables (i) to (iii).

To analyze the data obtained, a series of simple regression analysis were run with the aid of the Stragraphics Statistical Computer package. For each vote head, a regression analysis was run using the budget allocation for year t (Y_t) as the criterion variable and each of the following as predictor variables:

- (i) Request for year t (Y_t)
- (ii) Actual expenditure in the preceding year (Y_{t-1})
- (iii) Budget allocation in the preceding year (Y_{t-1})

For each regression, relevant data from all the sampled departments was utilized, so that there were forty observations per variable. A fourth regression analysis was similarly performed using the totals of the three vote heads under study.

The Statistic of interest for this study was considered to be the correlation coefficient (R), which measures the strength of the linear relationship between the criterion variable and the predictor variable, together with its corresponding coefficient of determination (R^2),

which gives the percentage of variance explained by the regression.

Table 4.1 below, presents in summary, the correlation coefficients and the respective coefficients of determination for the various regression analysis runs. We have omitted from this table and from any further analyses, the regression results pertaining to financial year 1983/84. This is because of the following reasons:

- (a) The data on the budget requests for that year were not available.
- (b) In almost all cases (cost centres), the actual expenditures in the preceding year pertaining to vote 960 - Equipment and Furniture, were not available.

A glance at table 4.1, indicates that in general, there is a very high correlation between the budget allocation in any of the years studied and each of the three predictor variables under study. In the majority of cases (39/48 or 81.25%), the correlation coefficient exceeds 0.7 ($R^2 = 49\%$), which in general, implies a very strong relationship. In fact in a number of them (29/48 or 61.42%), the correlation coefficients are greater than 0.9 ($R^2 = 81\%$).

Most of the low correlation coefficients fall under vote 960. This is not surprising since, from a conceptual point of view, the fact that this vote finances equipment and furniture which are items of a capital nature, indicates that the only factor which should determine the budget allocation for any given year should be the request for that year. In other words, there should be no relationship between

Table 4.1: A summary presentation of the correlation coefficients (R) and the Coefficients of determination (R^2) for the various regression analyses run

FINANCIAL YEAR	VOTE	BA_t / RE_t		BA_t / ACT_{t-1}		BA_t / BA_{t-1}	
		R	R^2	R	R^2	R	R^2
1987/88	306	0.9856	0.9714	0.8554	0.7317	0.9514	0.9052
	316	0.8141	0.6627	0.8280	0.6855	0.9914	0.9829
	960	0.7168	0.5138	0.7429	0.5519	0.9799	0.9602
	Totals	0.8995	0.8091	0.8177	0.6686	0.9209	0.8481
1986/87	306	0.9796	0.9596	0.7936	0.6298	0.9453	0.8936
	316	0.9800	0.9604	0.9324	0.8694	0.9895	0.9791
	960	0.0643*	0.0041*	0.4388*	0.1925*	0.4465	0.1994*
	Totals	0.6985	0.4879	0.8372	0.7010	0.9045	0.8181
1985/86	306	0.9443	0.8917	0.9010	0.8118	0.9620	0.9254
	316	0.9434	0.8900	0.9363	0.8767	0.9416	0.8866
	960	0.9988	0.9976	0.0439*	0.0019*	0.5557	0.3088
	Totals	0.9449	0.8928	0.9603	0.9222	0.9207	0.8477
1984/85	306	0.9281	0.8614	0.9888	0.9777	0.9838	0.9679
	316	0.9939	0.9878	0.5057	0.2557*	0.9338	0.8720
	960	0.7618	0.5803	0.0891*	0.0079*	0.4341*	0.1884*
	Totals	0.9292	0.8634	0.9661	0.9333	0.9550	0.9120

Where: BA_t = Budget allocation in year t

BA_{t-1} = Budget allocation in year $t-1$

RE_t = Budget request for year t

ACT_{t-1} = Actual expenditure in year $t-1$

*Exceptionally low correlation coefficients.

the budget allocation in any given year and either the actual expenditure in the previous year or the budget allocation in the previous year. As it turns out, for the relationship between BA_t and ACT_{t-1} , only the coefficient for 1987/88 seems to be significant at 0.74 ($R^2=55\%$) while those of 1984/85 to 1986/87 are small as expected, that is, R^2 of 0.8%, 0.2% and 19.25% respectively. Similarly, for the relationship between BA_t and BA_{t-1} , only the coefficient for 1987/88 seems to be significant at 0.98 ($R^2=96.02$), while those of 1984/85 to 1986/87 are small with R^2 of 19%, 30% and 19% respectively. It is not clear why, in both cases, the R^2 for 1987/88 is so high! Again as expected under this vote, the relationship between BA_t and RE_t is significant in all cases except in 1986/87 when the correlation coefficient was 0.06 ($R^2=.4\%$). In this case it is not clear why the R^2 for 1986/87 is so low.

In a bid to make more inferences from the correlation coefficients presented in table 4.1, we undertook an Analysis of Variance (ANOVA) of the correlation coefficients using the randomized complete block design. In this regard, we cross-classified the correlation coefficients in the following manner.

BLOCKS	TREATMENTS		
	BA_t/RE_t	BA_t/ACT_{t-1}	BA_t/BA_{t-1}
Vote 360			
Vote 316			
Vote 960			
Total			

The primary objective of the randomized complete block design is to "isolate and remove from the error variation the variation attributable to the blocks while at the same time ensuring that treatment means are free from block effects"⁴⁶. It tests the null hypothesis that the treatment means are equal or, equivalently, that there are no differences in treatment effects. This null hypothesis is tested against the alternate hypothesis that at least one equality does not hold.

We present in Tables 4.2 through 4.5 the results of these ANOVAS.

Table 4.2: ANOVA FOR FINANCIAL YEAR 1987/88

Source	SS	df	Ms	F
Treatments	0.4765	2	0.0238	4.955
Blocks	0.0208	3	0.0069	1.447
Error	0.0288	6	0.0048	
Total	0.0973823	11		

46. Daniel, W.W. and J.C. Terrell: Business Statistics Basic Concepts and Methodology, Third Edition. Houghton Mifflin Company Boston, 1983, p. 267.

Table 4.3: ANOVA table, 1986/87, Financial Year

Source	SS	df	Ms	F
Treatments	0.0141	2	0.0070	0.758
Blocks	0.3715	3	0.1238	13.225*
Error	<u>0.0561</u>	<u>6</u>	0.0093	
Total	0.4419	11		

Table 4.4: ANOVA table, 1985/86 Financial Year

Source	SS	df	Ms	F
Treatment	0.1228	2	0.0614	1.0943
Blocks	0.3720	3	0.1240	2.2101
Error	<u>0.3366</u>	<u>6</u>	0.0561	
Total	0.8314	11		

Table 4.5: ANOVA table, 1984/85 Financial Year

Source	SS	df	Ms	F
Treatment	0.1497	2	0.0748	2.030
Blocks	0.5644	3	0.1881	5.100*
Errors	<u>0.2213</u>	<u>6</u>	0.0368	
Total	0.9355	11		

*Significant at $\alpha = 0.05$.

The critical value of F for $\alpha=0.05$ (95% confidence level), and 2 and 6 degrees of freedom is 5.14. The computed values of F for the four financial years are 4.95, 0.76, 1.09 and 2.03. Since in all cases these computed values of F are less than the critical value of F, we fail to reject the null hypothesis that the treatment means, the various relationships between the criterion variable and the predictor variables, as represented by the correlation coefficients are all equal. This leads us to conclude that in each of the financial years studied, there seems to be some strong relationship between the budget allocation and each of the following variables:

- (i) Budget request for that year
- (ii) Actual expenditure in the preceding year
- (iii) Budget allocation in the preceding year.

As regards block (vote) effects, the critical value of F for $\alpha=0.05$ and 3 and 6 degrees of freedom is 4.76. The computed values of F for the four financial years are 1.447, 13.225, 2.2101 and 5.100 respectively. In two of these financial years, 1987/88 and 1985/86, the computed values of F are less than the critical value of F. We, therefore fail to reject the null hypothesis of no block effects and conclude that in these two years the vote heads do not seem to have an effect on the strength of the relationship between the budget allocation and each of the predictor variables. In the other two financial years 1986/87 and 1984/85 however, the computed values of F exceed the critical value of F and lead us to reject the null hypothesis of no block effects. In this case we conclude that in each of the two years the vote head does appear to have an effect on the strength of the relationship between the budget

allocation (BA_t) and each of the predictor variables. This finding seems to agree with our earlier observation that most of the low correlation coefficients fall under vote 960.

In order to take into account the simultaneous effect of the various relationships between the criterion and the predictor variables (treatments) and the vote heads (blocks), a further analysis of variance was done using a two factor analysis of variance⁴⁷, commonly called the factorial experiment. In this case, we utilized all the correlation coefficients in table 4.1 to work out only one ANOVA.

Data for this analysis were as follows:

Table 4.6: Data for the Calculation of a two-factor Analysis of Variance (Factorial Experiment)

	BA_t/RE_t	BA_t/ACT_{t-1}	$BA_t BA_{t-1}$
306	0.9855 0.9786 0.9443 0.9280	0.8554 0.7936 0.9010 0.9888	0.9513 0.9452 0.9837 0.9837
316	0.8141 0.9800 0.9434 0.9939	0.8280 0.9323 0.5056 0.5056	0.9913 0.9894 0.9416 0.9338
960	0.7168 0.6431 0.9987 0.7618	0.7428 0.4388 0.0439 0.8907	0.9799 0.4463 0.5557 0.4341
Total	0.8995 0.6985 0.9449 0.9291	0.8177 0.8371 0.9602 0.9661	0.9209 0.9045 0.9206 0.9549

47. See Winkler R.L. and W.L. Hays: Statistics Probability, Inference and Decision, Second Edition, Holt Rinehart and Winston, 1975, pp. 783-785.

Table 4.7 gives the resultant ANOVA table.

Table 4.7: ANOVA table for the Factorial Experiment

Source	SS	df	Ms	F
Rows (votes)	1.3600	3	0.4533	13.07
Columns (Regressions)	0.1781	2	0.0890	2.57
Interaction	0.1309	6	0.0218	0.63
Error (within cells)	<u>1.2483</u>	<u>36</u>	0.0346	
Total	2.9174	47		

From table 4.7, we can observe that the hypothesis of no row (vote) effects has to be rejected since the calculated F value of 13.07 far exceeds the critical value of 2.87 for $\alpha = 0.05$ and 3 and 36 degrees of freedom. However, the hypothesis of no column effect cannot be rejected since the calculated F of 2.57 is less than the critical F value of 3.27 for $\alpha=0.05$ and 2 and 36 degrees of freedom. Similarly, since the calculated F for an interaction effect, of 0.63 is less than the critical F value of 2.37, we fail to reject the null hypothesis of no interaction effect.

Our conclusions from this ANOVA suggests that:

- (a) The vote head does appear to have an effect on the strength of the relationship between the budget allocation in any year and each of the three predictor variables under study. This agrees with our earlier finding of a vote effect in the financial years 1986/87 and 1983/84.

(b) There is apparently no difference in the strength of the relationship between the budget allocation in any of the years under study, and either of the three predictor variables namely, the budget request for that year, the actual expenditure in the preceding year and the budget allocation in the preceding year. Again this finding does seem to lend credence to our earlier conclusion that, in each of the years studied there seems to be some strong relationship between the budget allocation as the criterion variable and each of the three predictor variables mentioned above.

(c) There is apparently no interaction⁴⁸ between the vote heads on the one hand and the relationship between the budget allocation and each of the predictor variables on the other hand.

48. "There is interaction between two factors if a change in one of the factors produces a change in response at one level of the other factor different from that produced at other levels of this second factor, where a level is one of the treatments within a factor" Daniel & Terrel (1983: 281).

CHAPTER 5

CONCLUSION

5.1 DISCUSSION AND IMPLICATIONS OF RESEARCH FINDINGS

The strong relationship found to exist between the budget allocation in any year t (Y_t) and the budget allocation in the preceding year (Y_{t-1}), can be explained by the fact that the Treasury guidelines stipulate incremental budgeting, where the budget allocation in any year is deemed to be a function of the budget allocation in the previous year. Currently, the recurrent expenditure growth rate is set at 4%, so that, ideally, the budget allocation in any year can be explained by the following function:

$$BA_t = BA_{t-1} (1+0.04)$$

where BA_t = Budget allocation in year t (Y_t)
 BA_{t-1} = Budget allocation in year $t-1$ (Y_{t-1})

The strong relationship between the budget allocation in a given year and the actual expenditure in the previous year is, in a way, a derivative of the above relationship, in the sense that the budget allocation in the previous year acted as the biggest constraint and therefore imparted the greatest influence on the actual expenditure in that year. Given that a strong relationship was found to exist between BA_t and BA_{t-1} , and further, that BA_{t-1} bears the greatest influence on actual expenditure in year $t-1$ (ACT_{t-1}), it would only be logical to infer a strong relationship between BA_t and ACT_{t-1} , which has, in fact, been found to exist. (Budgetary control effect)

Finally, the strong relationship found to exist between BA_t and the budgetary requests for the year t (RE_t), seems to present sufficient evidence to suggest that the budgetary requests that are sent by the UON to the Treasury through the Ministry of Education conform, to a large extent, to the guidelines stipulated by the Treasury for their preparation. This would tend to support the contention that whatever revisions (amendments) are made on these requests at the Ministry and Treasury levels are minimal, if any. We may therefore conclude that, by the time the departmental budgetary requests are approved by the Development Planning and Establishment Committee of the UON, they are good indicators of what the budget allocations will be.

At the beginning of this paper we quoted a complaint by departmental chairmen of the UON to the effect that departmental requests are not given any consideration at higher levels of the estimates process. In the course of this study, we talked to college bursars who were unanimous in their assertion that the UON budgetary process does not take into account departmental needs as reflected in their budgetary requests. If there is any merit in these complaints, then the findings of this study would seem to imply that the "damage" to the departmental requests is done within the University budgetary hierarchy. These findings, would therefore seem to exonerate the Ministry of Education and the Treasury from any blame regarding any variance between departmental requests and final budget allocations, except of course, for the fact that Treasury sets the expenditure growth rate in the first place!

5.2 LIMITATIONS OF THE STUDY

This study had several limitations which the reader ought to be aware of in considering it's implications for public sector budgeting or further research.

The research limited itself to three predictor variables for the budget allocation in any year. It is, of course, true that these are not the only variable which have an effect on the budget allocation, There are, for example, other variables such as the "political influence" of a departmental Chairman which, though difficult to measure, have an influence, sometimes quite significant, on the amount of funds that will be allocated to a particular department. It is hoped that some of these variables will be identified and controlled for in future research.

Another limitation was that of cases of missing data. This, in fact, was so serious that it changed our research design slightly, in the sense that, although we had earlier hoped to use actual departmental requests, we ended up having to use final university requests. Even after making this compromise, we still encountered instances of missing figures, represented in the Estimates book by a dash. These were assigned zero values for computational purposes.

Finally, it should be understood that the use of the ANOVA technique in the data analysis stage of this research, was an attempt to isolate the effects of the various regression relationships (Treatments) and the vote heads (blocks). It was therefore, not a true ANOVA in the sense of being an experimental design.

5.3 RECOMMENDATIONS AND DIRECTIONS FOR FUTURE RESEARCH

We are fully aware that it would be naive on our part to make specific recommendations touching on the UON budgetary process without considering the fact that the UON is, but, a part of the total public sector in Kenya, and therefore considering the seriousness of the UON budgetary problem in the light of the total public sector budgeting problem.

We, however, feel that the recurrent expenditure problem currently facing the University is a serious one and merits serious consideration if the UON has to continue making its impact in the economy in the production of its final products, notably, skilled manpower which the country so badly needs.

We feel that the estimates process should consider departments on individual merit. In this case, it is felt that all the notes covering budget requests should be seriously considered with a bid to establishing genuine departmental needs and priorities. Where requests far exceed the growth rate stipulated by the Treasury, the UON officers should be ready to "defend" them.

Further, it is felt that, since the Treasury proposes incremental budgeting, the UON should initiate discussions with the Treasury with the aim of revising the "bases" on which the increments apply. Such revisions should, in fact, be done regularly in order to reflect current economic reality.

Finally, we feel that the proposed "cost sharing" arrangement, though it has attracted a lot of criticism in the daily newspapers, will go a long way in alleviating the recurrent expenditure problem in the university and indeed wherever else it will be applied.

Directions for Future Research

Subject to the availability of data, this study should be replicated taking the departmental requests at the various levels of the UON budgetary hierarchy in order (i) to establish the truth regarding the complaint by the UON departmental chairmen to the effect that their budgetary requests are not given any consideration at higher levels of the budgetary process, and (ii) to find out where, in the hierarchy, the departmental requests are revised the most, that is, to find out where the most 'damage' is done.

APPENDIX A:

SAMPLING: FROM THE 1986/87 UNIVERSITY OF NAIROBI ESTIMATES BOOK

STRATUM	NO. OF DEPARTMENTS (COST CENTRES)	PROPORTIONAL SAMPLE TO BE DRAWN
1. College of Agriculture and Veterinary Sciences	16	6
2. College of Architecture and Engineering	14	5
3. College of Biological and Physical Sciences	17	6
4. College of Humanities and Social Sciences	24	9
5. College of Health Sciences	15	5
6. College of Adult and Distance Education	5	2
7. Central Administration	20	7
TOTAL	111	40

APPENDIX B: THE SAMPLE

1. COLLEGE OF AGRICULTURE AND VETERINARY SCIENCES

- (i) Agriculture Economics
- (ii) Clinical Studies
- (iii) Animal Production
- (iv) Faculty Office - Veterinary
- (v) Veterinary Farm
- (vi) Field Station.

2. COLLEGE OF ARCHITECTURE AND ENGINEERING

- (i) Design
- (ii) Office of the Principal
- (iii) Faculty Office - A.D.D.
- (iv) Civil Engineering
- (v) Architecture

3. COLLEGE OF BIOLOGICAL AND PHYSICAL SCIENCES

- (i) Botany
- (ii) Zoology
- (iii) Geology
- (iv) Veterinary Physiology
- (v) Human Anatomy
- (vi) Physics

4. COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

- (i) History
- (ii) Faculty Office - Arts
- (iii) School of Journalism
- (iv) Commercial Law
- (v) Linguistics and African Languages

- (vi) Population Studies and Research Institute
- (vii) Office of the Principal
- (viii) Religious Studies
- (ix) Faculty Office - Commerce.

5. COLLEGE OF HEALTH SCIENCES

- (i) Medical Microbiology
- (ii) Advanced Nursing
- (iii) Dental Surgery
- (iv) Pathology
- (v) Surgery

6. COLLEGE OF ADULT AND DISTANCE EDUCATION

- (i) Extra Mural Division
- (ii) Office of the Principal

7. CENTRAL ADMINISTRATION

- (i) Games
- (ii) Internal Audit
- (iii) Finance
- (iv) Deputy Vice Chancellor (A&F)
- (v) Personnel Division
- (vi) Deputy Vice Chancellor (Academic)
- (vii) Estates

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