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PUBLIC SPENDING AND ECONOMIC PERFORMANCE IN TANZIA

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PUBLIC SPENDING AND ECONOMIC PERFORMANCE IN TANZANIA

An Empirical Investigation for the period 1970-1993.

By

Josaphat P. Kweka

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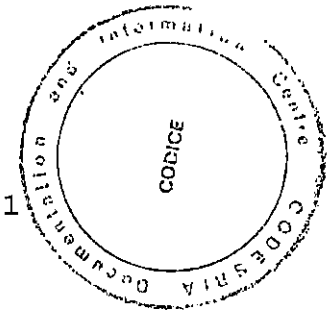

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DECLARATION

I, JOSAPHAT PAUL KWEKA, do hereby declare that this dissertation is the product of my own work and has not been submitted for the award of a similar degree in any other University.

Signature.....

(KWEKA, J.P.)

Date...15 July 1995

SUPERVISORS APPROVAL

I, JOSEPH J. SEMBOJA, been the supervisor of J. P. Kweka, have read and approved this dissertation and it should be tendered for examination.

Supervisor's signature.....

(Prof. JOSEPH J. SEMBOJA)

Date.....July 20, 1995

DEDICATION

I dedicate this work to my loving parents: PAUL NGOIA KWEKA and THERESIA PAUL. To them is an urge fulfilled.

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ABSTRACT

It has been widely accepted by researchers that, no common conclusion exists as to whether increased public spending results to more economic growth. In particular though, some expenditure items may be productive while others are not depending on the specific time period or circumstances typical to a particular country case and how they are actually spent.

This study is thus based on this assertion. The study sets out to examine and measure the magnitude of the empirical relationship between real public expenditure (both in terms of the aggregate level and specific components) and economic growth.

To carry out this investigation, an econometric model has been formulated in two equation. Equation

(1) examined the influence of total investment and recurrent expenditure on economic growth while equation

(2) disintegrated this influence further to capture the influence of expenditure of the selected specific sectors on economic growth. In particular, this relationship was measured indirectly via the impact on private investment as a share of real GDP.

The result indicated that, both investment and recurrent expenditures had positive impact on economic growth though recurrent expenditure registered greater impact than investment expenditure. However, further examination of the impact of public expenditure in the specific sectors showed that expenditures on health, defence, education and other services are more productive while those on the general and economic services less productive.

While this was true for the real total expenditure on these sectors, the results indicated that it may not be the case upon the disintegration of this influence into capital and recurrent components.

Except for the case of defence and health sectors, capital expenditures were more productive on education, economic and general services. On the other hand, current expenditure was shown to be more productive on education, defence and other services sectors than on the other sectors, especially defence in which it was rendered less productive.

While these results compare well to those done in other studies, their interpretation for policy purposes should be made with caution due to the limitation of the methodology and data employed.

However these results are useful and shed more light to government in its pursuit of sound fiscal restraints and determination of proper expenditure priorities and mix to enhance rather than impair economic growth in Tanzania.

CHAPTER ONE : INTRODUCTION

1.1 Background to the Study

Tanzania like many developing countries, has experienced drastic expansion in the size of the public sector. Measured as a percentage share of nominal GDP, public expenditure increased from 20 percent in 1966/67 to 36.1 percent in 1976/77 slowing down to 30.6 percent in 1986/87 before rising to over 50 percent in 1991/92[1]. Semboja (1994) observed that, recurrent expenditures grew at an annual rate of 7 percent during 1979/80-1985/86 period, and at 14 percent during 1986/87 - 1990/91 period. This trend was also reflected in the specific sectors such as health, education, water and energy, to mention a few.

The composition of public expenditures on the other hand shows that, the share of current expenditures in the total expenditure increased at the expense of investment. The share of investment expenditure declined from the average of 34.5 percent during 1970-1979 to 22 percent during 1979-1985 and to 19.1 percent during 1986-1993.

Public sector investment grew at 20.7 percent per annum during the 1960-1970 but declined at an average rate of 12.16 percent per annum during 1971-1975. It further declined at an average rate of 9.3 percent per annum during 1975-1980, before picking up at an average of 25.1 percent per annum in the first half of the 1980s. The highest public investment growth rates were reached during the post economic reforms (1986-1990) period at an average rate of 54.5 percent per annum.

The share of private investment in total investment averaged 14.8 percent in 1960-1970 period, but during 1971-75 period, this share declined to 8.7 percent. It rose to 37.1 percent during the 1976-1980, and to 54.9 percent during 1981-1985. During the post economic reform period of 1986-1990,

[1] GOT, various years

this share rose to 58.9 percent[2]. What has been the impact of these investments on economic performance?

Economic growth declined sharply from 6.7 percent in 1972 to 3.1 percent in 1973 and to 2.5 percent in 1974. It improved to an average annual growth of 5 percent between 1976-1979, but declined to an average of 0.8 percent during the early 1980s when some years recorded negative rates (see Table 2.1).

During the Economic Recovery Programme (ERP), there have been signs of recovery including the reversal of output decline of the early 1980's. Real GDP grew at an average of 3.3 percent during 1987-1990.

1.2 Statement of the problem

The size of public spending has been increasing particularly since the late 1970's. Government spending is aimed at enhancing economic prosperity and stability (Mpango 1994). However, growth in public spending during 1970-1993 has not always been accompanied by adequate economic growth.

In recognition of the fact that all expenditures are not productive, the Structural Adjustment Programmes (SAPs) and Economic Recovery Programmes (ERPs) measures included the aim to cut down the level of public spending. The assumed positive relationship between public expenditure and economic growth has not found support in the growth of the economy. This may raise questions about the validity of the assumption or the composition of public spending.

This in turn, raises the need to investigate the empirical relationship between the size and composition of public spending and economic growth in Tanzania.

[2] See Moshi and Kilindo (1994)

1.3. Objective and Significance of the study

1.3.1 Objectives

The specific objective of the study is;

To examine the empirical relationship between changes in the size and composition of public spending and economic growth in Tanzania for the 1970-1993 period.

1.3.2 Significance

An empirical analysis of the contribution of public spending to economic growth is important in assessing the role of government spending in the growth experience of a particular country (Ekpo, 1994). To the best of my knowledge, this particular relationship has not been examined in Tanzania. In addition, one of the agenda in the current SAPs and ERPs in Tanzania has been the need to cut down public spending to a sustainable level. Thus, the results of this study will assist policy makers in their effort to put together growth oriented fiscal adjustment programmes and in designing expenditure preferences in Tanzania.

Moreover, a need for investigating the relationship between public spending and economic performance is also emphasized in the literature (see, among others: Diamond, 1989; Landauer and Valenchik, 1992). In this respect, the proposed study will add to the existing literature on the subject.

1.4 Hypotheses

The following hypotheses will be tested.

(1) Public investment expenditures are more productive than public recurrent expenditures.

(2) The elasticities of output with respect to public expenditure differ significantly among sectors. Expenditure on economic services, health and education are more elastic than those on the general service, defence and other services.

1.5 Scope of the study

First, the study is based on the data for the period 1970-1993. This period is chosen for two basic reasons:

(i) it takes into account the genesis and dimension of the economic crisis that faced the economy during late 1970's and early 1980's,

(ii) it covers sufficient number of years for the period before and after economic reforms.

Secondly, the study confines to the data on public expenditures made by the central government. Central government expenditures made through the local government have also been taken into account.[3].

1.6 Organization of the study

The study is been organized into six chapters. Chapter one presents the introduction, covering the background to the study, statement of the problem, significance and objectives of the study. In addition, it encompasses hypotheses, scope of the study and organization of the study. Chapter two presents an overview of the economic performance in Tanzania, while chapter three deals with literature review. Chapter four covers methodology and the model. Chapter five focuses on the empirical findings and finally chapter six concludes and makes policy recommendation.

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[3] Local government is responsible for primary education, primary health care, rural water supply and rural roads. Expenditures in these sectors made through local government constitute about 50% of their total expenditure.

CHAPTER TWO : THE MAJOR FEATURES AND TRENDS OF TANZANIAN ECONOMY

This chapter presents the profile of the major features and trends of the Tanzanian economy. The chapter is organized into three sections. Section 2.1 outlines the basic characteristics of the economy. Section 2.2 highlights the major trends and performance of the economy. Section 2.3 presents concluding remarks.

2.1 The basic characteristics of the economy

Tanzania is a United Republic (URT) of two former separate countries: Tanganyika and Zanzibar.[4] Tanganyika and Zanzibar gained political independence in December 1961 and January 1963, respectively and the union between the two countries was effected in April 1964.

The economy is characterized by two dominant features. These are: a large traditional rural sector and a small modern urban sector. The traditional rural sector is primarily involved in food and cash crops. The modern urban sector is engaged in manufacturing and service activities. Population grows at a rate of 2.8 percent and the majority of people live in the rural areas. Over 80 percent of the labour force consists of small holder farmers each estimated to occupy about 2.2 acres of land. The labour force in the wage earning sector is about 5 percent of the total labour force.[5]

Agriculture is the primary economic activity. The sector accounts for about 50 percent of the GDP and about 80 percent of the export earnings. Small holder farmers are a significant source of production, as they contribute over 75 percent of the agricultural export earnings. The major cash crops are coffee, cotton, cashewnuts, tobacco and pyrethrum. Some of these crops are used as raw

[4] The study however, covers only mainland Tanzania.

[5] See Bukuku (1989).

materials in the domestic industries, and significant portion of it is exported. The major food crops are maize, rice, bananas, legumes, sorghum, potatoes, cassava and vegetables.

Production in the mining sector comprises mainly of diamond which contributes about 0.5 percent of the GDP and 7 percent of the foreign exchange earnings. The manufacturing sector is still infant. The share of the sector to GDP declined from 12 percent in the late 1970's to less than 5 percent in the mid 1980's. Similarly, infrastructure particularly, the transport sector is still underdeveloped.

The export sector is largely dependent on agricultural production. Relative to this sector, the import sector is disproportionately pronounced. Most of the imports include petroleum products, estimated to account for 50 percent of the total imports. Other imports include spare parts, machinery and equipments particularly to the manufacturing, mining, transport, construction and mechanized farming activities. Recurrent expenditure accounts for a larger share (about 60 percent) of the total expenditure. The share of development expenditure has been low and declining (see appendix 1.1). The development expenditure is highly foreign donor driven. Recurrent budget relies heavily on indirect taxes, particularly sales tax on domestic goods, custom duties and excise tax on beer and cigarettes. Income tax particularly personal income tax is low and responds little to increases in incomes.[6] In general, expenditure have grown faster than revenue, such that persistent budget deficit has become a notable feature of the fiscal stance in Tanzania[7] (see Table 2.1)

The size and the role of public sector in the economy has changed over time. Until the mid 1980's, the role of the public sector in the economy was dominant as parastatals were involved in direct production. The government through its institution determined prices of goods and services, allocation of resources and output levels, until in 1984 when the roles of the private sector and the market were projected.

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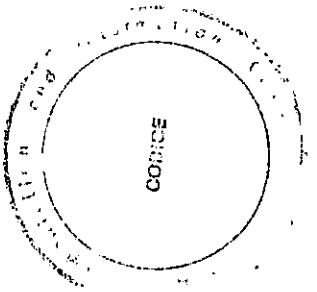
6 For details, see Osoro (1993).

7 In recent years however, particularly during the ERP the recurrent budget has also been donor dependent, and that revenues have also grown faster than expenditures.



2.2 Significant trends and the performance of the economy

The basis for the major economic trends and their implications on public expenditure can be categorized into two; Policy developments and the specific non policy events.

(i) Policy developments

Tanzania has adopted a series of development policies aimed at increasing the standard of living of majority of the population since her independence in 1961. All of them had fiscal implications.

In 1967, Arusha declaration was enacted. Its major focus was the increased provision of social services on equal basis. As a result the social sectors particularly education, health, and rural water received high priority. To enhance equity, these services were offered freely to all people. This led to significant growth of public expenditure.

Alongside with the Arusha Declaration, was the massive nationalization of the commanding heights of the economy. This implied expansion of the public sector and equally a suppression of the private sector. The expansion of the public sector followed the adoption of Party Supremacy in 1965/66. Together, they led to an expanded government bureaucracy, minimized role of the private sector and self help initiatives. All these implied growth in government expenditure.

In 1972, the government launched a decentralization policy aimed at enhancing effective implementation of the Arusha Declaration from the basic local levels of administration. This followed the abolition of local Governments. The decentralization exercise expanded the government administrative machinery and staffing, that implied increased public expenditure (Max, 1991).

Other policy developments during the late 1970s included: Safe Water for rural populace of 1976, the Universal Primary Education (UPE) of 1978, and Villagization programmes of 1979. All these

heightened the already overstretched public expenditure.

From 1980s onwards, the economic policies mostly focussed on measures to redress the economy owing to the economic crisis of the late 1970s and early 1980s.

In 1981, the government launched the first National Economic Survival Plan (NESP) followed by SAP in 1982. The objectives of the two programmes was to boost up production particularly in the agricultural sector, reduce inflation through control over money supply and reduction of foreign exchange constraints by measures to boost exports. Other objectives included a need to improve and foster equitable distribution of incomes and social services such as education, health and safe water. In 1984 the government instituted partial liberalization followed by the Economic Recovery Programme (ERP) in mid 1986. These reforms focussed on efforts to remove price distortions raises economic efficiency, and the need for market liberalization.

Later, the ERP led to the Economic and Social Action Programme (ESAP) in 1989, which intended to give more emphasis to the social sectors.

(ii) Specific Non Policy Events

A series of external shocks occurred all of which had implications on public spending. Firstly, the 1973 and 1974 drought brought in famine, necessitating massive importation of food stuffs to supplement the domestic supply.

Secondly, The 1973/74 and 1979/80 oil price rises led to sharp increase in the oil import bill.

Thirdly, the coffee boom of 1976, boosted the country's foreign exchange earnings to finance its expenditures and improve her balance of payments.

Fourthly, the East African Community broke up in 1977. Despite disrupting trade among partner members, it necessitated the use of investable resources towards developing own infrastructure.

Fifthly, the costly 1978/79 Kagera War with Uganda exacerbated the problem of foreign exchange constraint and public spending. Financing the war shifted resources from productive activities and increased public expenditure and money supply. Finally, other natural calamities, particularly floods in addition to draught seriously affected cash and food crop production.

2.2.1 Trends in the fiscal sector

Development expenditure rose from (values in T.Shs) 829.0 million in 1970 to over 4800 million in 1980 and to 5990 millions in 1985. It rose further to 8858.6 million in 1986 and to 133923.6 million in 1993.

The current expenditure has risen even faster, from 1623.4 million in 1970 to 10136 million in 1980 and to 33773.7 million in 1985. It rose further to 292826.7 million in 1993. The larger part of these expenditures were directed at supporting social services particularly, education, health and debt servicing.

While expenditure has been growing at a fast rate, the growth of revenue has been dismal. For instance, measured as a share of current expenditure, current revenue declined from 103.7 percent in 1970 to 85.5 percent in 1980, and to 66 percent in 1985. In 1993, this share had reached 66.9 percent. Apart from the decline in real income, import decline caused the share of customs and excise duty to decline thereby affecting the total tax revenue (Mans, 1994).

The trends in public expenditure and tax revenue, implied a rise in budget deficit. Measured as a share of real GDP, budget deficit increased from 0.3 percent in 1970 to 2.9 percent in 1980 and rose further to 20.9 and to over 50 percent in 1985 and 1993 respectfully.

TABLE 2.1: *Trends in Government Finance (1970-1993)

Year	Nominal Development Expenditure	Real Development Expenditure	Nominal Recurrent Expenditure	Real Recurrent Expenditure	Nominal Total Expenditure	Real Total Expenditure
1970	829.0	829.0	631.4	1631.0	2460.4	2460.4
1971	738.6	710.0	780.4	1712.0	2579.0	2422.1
1972	744.0	658.0	2226.0	1971.6	2227.0	2630.0
1973	1642.0	1319.0	2786.0	2339.6	4427.8	3558.5
1974	2225.0	1493.3	3961.0	2457.0	6186.0	3950.4
1975	2253.0	1198.4	3716.0	1981.0	5969.0	3179.0
1976	3244.3	1618.0	4703.0	2345.4	7946.8	3964.5
1977	3303.6	1651.8	5563.3	2486.0	8867.0	4137.6
1978	4740.0	2118.0	8295.0	3303.5	13035.0	5421.4
1979	5430.0	1915.3	9442.0	2560.0	14872.0	4475.5
1980	5600.0	1519.7	1023.0	2776.0	15830.0	4295.8
1981	5185.4	1118.5	13214.0	2850.0	18390.0	3968.8
1982	4404.0	736.9	14871.5	2489.0	19275.5	2565.4
1983	5047.0	1664.5	18182.0	1759.0	23229.0	2423.5
1984	6560.5	635.0	18120.0	1752.0	24680.0	2387.0
1985	5817.4	422.0	24402.3	1989.0	33220.0	2411.0
1986	15091.0	827.0	40390.0	2214.0	55481.0	3041.4
1987	17255.0	734.0	60071.0	2555.0	77326.0	3288.5
1988	17847.5	615.4	101413.3	3497.0	119260.8	4112.4
1989	17264.7	595.3	128634.1	4435.6	145898.8	5030.9
1990	46999.3	1620.6	175467.5	6050.6	222466.8	7671.2
1991	35516.4	1224.7	206890.4	7134.1	242406.8	8358.8
1992	103875.9	3581.9	269213.4	9283.2	373089.3	12865.1
1993	135436.4	4669.8	329240.1	11353.1	464666.5	16022.9

Note: *Figures are for Central Government Expenditure only.

Sources: Bank of Tanzania, URT Economic Surveys (relevant years) and Kilindo (1992).

2.2.2 Trends in Economic Performance

Trends in economic performance can conveniently be grouped into five major phases. First, is the period of rapid economic growth and price stability between the early 1960's to early 1970's. The average growth rate of the economy was 5.6 percent per annum with a rate of inflation at single digit.

Second, is the period of mini-recession of the years 1973-1975. The economy grew at an average rate of 3.1 percent per annum in 1973 and 2.5 percent per annum in 1974. Inflation rate increased to double digit.

Third, is the period of transitory restoration of economic growth and price stability between 1976 and 1978. The rate of economic growth had increased to 5.7 percent per annum in average. The second highest economic growth ever recorded was registered in this period at a rate of 6.6 percent per annum in 1976. The highest rate was recorded in 1972 at 6.7 percent per annum. Inflation rate in this period averaged 26.5 percent.

Forth, is the period of economic stagnation and decline. The period is referred to in the literature as the crisis period, starting from the late 1970's to the first half of 1980's. The rate of economic growth averaged 0.8 percent with some years recording negative real GDP growth rates (see Table 2.1). Inflation was recorded at 36.1 percent per annum in 1984, the highest ever recorded.

Finally is the period of economic recovery from 1986 onwards. The recovery period involved the reversal of output decline, with GDP growth rate averaging 3.0 percent per annum.

TABLE 2.2: Some Basic Economic Indicators of Macroeconomic Performance 1967 - 1986[8]

Year	Real GDP growth rate	Per capita GDP growth rate	Savings as percent of GDP	Capital formation as percent of GDP	Budget deficit as percent of GDP	Capital Inflow as percent of Development Expenditure	Price Index	Export import ratio	Growth rate of money supply
1967	4.0	1.5	18.1	18.3	4.3	0.8	89.9	101.8	2.1
1968	5.2	1.9	15.2	18.1	4.1	0.5	94.8	93.7	11.5
1969	4.3	1.1	15.8	16.3	5.3	0.6	96.8	104.2	9.3
1970	5.8	2.6	20.5	22.9	4.3	0.6	100.0	79.0	12.0
1971	4.2	1.0	21.7	26.8	7.4	0.4	104.7	70.2	17.6
1972	6.7	3.3	18.3	23.6	5.3	6.6	112.7	80.2	16.8
1973	3.1	0.1	14.9	22.6	6.2	9.5	124.5	74.2	16.7
1974	2.5	-0.9	7.3	21.6	6.3	13.0	148.4	53.5	22.2
1975	5.9	2.6	8.6	20.8	10.3	25.9	187.7	48.4	24.3
1976	6.4	3.2	20.7	21.6	6.8	41.9	200.6	76.8	23.7
1977	6.6	3.4	22.7	19.7	6.5	30.8	223.8	72.5	20.2
1978	5.8	2.6	10.0	25.6	6.6	33.7	249.3	41.7	12.6
1979	-0.2	-3.4	13.3	26.6	19.1	34.7	283.6	49.4	46.9
1980	3.1	-0.1	9.8	23.0	17.8	85.7	269.4	40.4	26.9
1981	-2.6	-5.8	12.1	19.7	13.8	68.0	464.1	47.8	18.1
1982	1.1	-2.1	10.1	20.6	14.1	38.7	597.3	49.2	19.5
1983	-2.5	-5.7	8.5	12.4	15.5	61.2	760.3	48.1	17.8
1984	2.0	-1.2	5.5	15.3	11.2	93.6	1034.0	45.1	21.8
1985	2.6	-0.6	6.8	15.6	11.5	94.6	1378.3	27.9	29.0
1986	3.6	0.3	2.2	20.5	16.8	89.3	1824.9	39.5	29.0

Source: Maje, (1992), National accounts statistics (various issues).

[8] Some information were missing to extend the table to the year 1993.

TABLE 2.3: Selected Indicators of Achievements of The Economic Recovery Programme (ERP) in Percentages.[9]

INDICATOR	PRE CRISIS PERIOD 1970-1980	CRISIS PERIOD 1981-1985	RECOVERY PERIOD 1986-1991
Average annual real GDP growth rate	4.6	0.1	4.0
Average annual real export growth rate	0.1	-10.4	5.6
Investment as a percentage of GDP	20.1	14.3	31.6
Average annual inflation rate	14.0	31.0	25.7
Fiscal deficit as percentage of GDP	12.1	9.4	7.0
Agricultural producer prices as a percentage of international prices	64.5	72.5	59.0
Average annual appreciation of the real exchange rate	0.2	16.1	-24.3
Central Government deficit as percentage of GDP	12.1	9.4	7.0
Current account deficit as a percentage of GDP	10.1	5.8	8.5

Source: World Bank, IMF and Bank of Tanzania (1990).

2.3 Conclusion

This chapter has reviewed the historical trends in the economy of Tanzania in terms of the policy developments and specific non policy events. Generally, the economy performed better prior to the 1979 period, while during the late 1970s and early 1980s, the country was befell by economic crisis characterized by low rate of economic growth and significant macroeconomic imbalances. From the

[9] Some information are missing to capture the 1992-1993 period.

mid 1980s the economy began to experience good signs, possibly due to the economic reforms adopted in that period.

Significant developments and trends in the fiscal sector were also reviewed. It was observed that, recurrent expenditure grew at the expense of investment expenditure. The sluggish growth of the tax revenue relative to the faster expansion in public expenditure, resulted to persistent rise in recurrent budget deficit.

CHAPTER THREE : LITERATURE REVIEW

3.1 Introduction

This chapter presents a review of literature on the subject. The review covers both theoretical and empirical studies. The theoretical studies reviewed cover the general nature and role of the public sector, analysis of public expenditure growth, impact of the public spending on economic growth, and the crowding in/out effects of the public investment.

The empirical studies reviewed focus on the relationship between public expenditure and growth.

3.2 Theoretical studies

A great deal of body of theories on public spending focus more on the nature, objectives and role of public expenditure. They lack adequate treatment on the relationship between public spending and economic growth (Devarajan, 1993).

3.2.1 Nature, Objective and Role of Public Expenditure

Public expenditure can be defined narrowly to include in addition to transfer payments, government purchases of goods and services as stipulated in national accounts. When defined broadly it would additionally involve the opportunity cost incurred by the private sector as a result of government policies, laws and actions. According to Goode (1984), economists have tended to view the nature and role of public expenditure either in relation to market failure and public goods arguments or empirically observing what governments do.

Lindauer and Velenchik (1992), put forward four reasons for growth in the size of government. Firstly, demographic changes lead to growth of government spending on social sectors (Lindauer

and Valenchick, 1992 p.67).

Secondly, the unit cost of producing a public good is likely to rise overtime due to price changes. Furthermore, the costs of government output are likely to rise due to differences in productivity growth between services and non-services activities. Government production is service intensive. Increase in the cost of production in the non service activity, is likely to cause an increase in the cost of production in the service activity.

Thirdly, the role of ideology also account for growth in public spending. A change of ideology in favour of non market economy is likely to relatively encourage higher levels of public expenditure (Ekpo, 1994). The urge by the newly independent states (for instance in the case of Tanzania) to provide basic amenities to her people results into enlarged government expenditure.

Fourthly, models of development in the late 1940's up to early 1970's stressed the extent of market failure in developing countries, suggesting a need for more government.

Furthermore, the demonstration effect of successful capitalist and socialist countries that have large and growing state sector render credence for enlarged government in the now developing countries. In short, Ekpo (1994) concludes;

> "it is rather clear that, ideology, bureaucratic controls, demographic changes, the income elasticity of public goods, the increasing cost of government production, foreign aid and advice have been significant factors in explaining the growth in public expenditures" (p. 16).

3.2.2 The impact of public expenditure on economic growth

Theories about the influence of public spending on economic growth have tended to focus on the distributional effect of public expenditures, (Nagarajan, 1987; Danielson, 1991; Ekpo, 1994).

In the traditional Keynessian macroeconomics, the general growth theory maintains that, many kinds of public expenditures particularly of the recurrent nature contribute positively to economic growth. High level of government consumption is likely to increase employment, profitability and investment via multiplier effect on aggregate demand. Thus, government spending raises aggregate demand, leading to increased output depending on the size and effectiveness of expenditure multiplier (Branson, 1979).

The opposite view maintains that, government consumption crowds out private investment, dampens economic stimulus in the short run and reduces capital accumulation in the long-run (Ekpo, 1994).

Diamond (1989), concludes that;

> ".... any increase in government expenditure, by increasing the share of productive resources used by the government, would slow economic growth in the economy as a whole and may impede the accumulation of human and physical capital and the pace of innovation in the private sector" (p. 5).

Ekpo (1994), reports that scholars who maintain that, government spending weather current or capital, has a retarding effect on economic growth, have based their perception on the contention that, government investment with its inherent elements of centralized decision making, an absence of profit motive and the lack of competition are inefficient compared with the private sector. However, the view that government expenditure always crowds out private activity ignores government purchases of privately produced output.

Other scholars emphasize that, the market system is not always efficient. The oligopolistic nature characterizing most firms enables them to insulate themselves from market forces. When the social returns exceed private returns the market system fails and the private sector may thus under invest in vital areas necessary for growth. Thus, structuralists have argued, to realize a desirable level of economic growth, government has to intervene to remove the impediments to economic growth. Some public goods such as national defence and merit goods such as education and safe water are a necessity to growth.

In analysing the empirical relationship between public spending and economic growth, Ekpo (1994), used the modified Denison-style growth accounting methodology for guidance. In this respect, the growth of real output is decomposed into four sources where the significance of government expenditure (an important focus of this study) is shown.

(i) Government capital spending influences physical capital where the effect will be positive if there will be a net increase in physical capital. However, an increase in public expenditure could slow down economic growth if revenue raising measures decrease the investable surplus of the private sector.

(ii) Government expenditure influences human capital formation through investment in education and health. Thus, both current and capital expenditures in the social sector are important in explaining growth in human capital formation and thus long run economic growth (Otani and Villanueva, 1990).

(iii) Technological change through expenditure on research and development, has spill over effects on the wider economy.

(iv) There is the issue of intermediate imports which are now viewed as a factor of production especially when an economy (such as Tanzania's) is foreign exchange constrained. Other more generalized growth models have tended to include exports as a determining factor. The increased output of exports will result into development of infrastructure (physical and social) and increased importation of capital goods together enhancing growth. The demand side of the economy suggests that, an increase in income results to demand pressure that will be reflected in domestic supply hence investment expansion (Khan and Villanueva, 1991).

While public expenditures have been regarded as complementary to private investment for growth (see Chhibber, 1990) their net effect on output growth is checked by the "crowding out" effect. This has depended on the ways in which such expenditures are financed (Barro, 1990; Rutayisire 1993).

In theory however, it has been noted by Willner (1993), that economists are becoming increasingly more favourable towards an expansionary fiscal policy in order to fight recession, but this study suggests that not all public expenditures are productive.

3.2.3 Link between public expenditure and private investment

There is a significant link between public expenditure and private investment. This study considers this link to be the main transmission channel from expenditure to growth. Blejer and Khan (1984), defines private investment as total fixed capital formation less gross investment of the public sector. In this case, public and private investment are related. Economists are uncertain about whether on balance, public expenditure raises or lowers private investment.

Those who emphasize the financing side of expenditure argue that private investment crowds out public expenditure (Blejer and Khan 1984, Ekpo, 1994). When it is assumed that private investment has higher productivity than public investment, a negative effect on growth is deduced. The crowd-out effect then arises from two main sources, i.e. when public sector investments utilizes scarce resources that would otherwise be utilized by private investment, and, when public sector produces marketable output that competes with private sector output. Both cases apply to Tanzania. Until the mid 1980s the public sector dominated the economy and engaged in the direct production of activities that would effectively be carried on by the private sector. As a result, lending to the private sector was marginal relative to the public sector.

On the other hand, the expenditure side argument tends to emphasize the crowd-in effects of public expenditure. In this case, public expenditures will tend to enhance the absorptive capacity of the economy and the profitability of private investment (Ekpo, 1994). In addition, public investment related to infrastructure and provision of public goods can be complementary to private investment. Such investment raises productivity of private capital, increase demand for private output, raise savings levels and enhance provision of ancillary services (Moshi and Kilindo, 1994).

In recent times, an attempt has been made to separate the independent effects of private and public sector investment on growth. Khan and Reinhert (1990) study, indicates that, private investment has a larger direct effect on growth than that of public investment. Furthermore, it was shown in the same study that public sector is particularly important in the process of private capital formation.

3.3 Empirical studies

These are divided into two main categories. Those referring to Tanzania and other countries. Such studies on the later are mostly cross sectional. They investigate the relationship between expenditure and economic growth either directly or indirectly by use of proxies or transmission channel (such as private investment).

3.3.1 Studies on other countries

Studies that delve on the relationship between public spending and economic growth took place mostly since 1960's. Most of them assumed implicitly that all government investment spending was productive (Barro, 1990). However, Barro (1981), emphasizes the distinction between the various components and categories of public expenditure.

Various scholars have thus arrived at different results. Landau (1983), using a sample of 96 developing countries concluded that, big government size reduce growth of per capita incomes. However when expenditure is distinguished between productive and non-productive, an increase in the share of productive expenditure leads to a higher GDP growth rate. The later result was supported by Aschauer (1989). Ram (1986), and Grossman (1988), on the other hand found a positive relationship between government spending and economic growth regardless of the distinction between productive and unproductive public spending.

Diamond (1989), conducted a study using group of 42 developing countries and observed that social expenditure does exhibit a significant impact on growth in the short-run while infrastructural

expenditure showed a less influence. In addition, capital expenditure was found to exert a negative influence on the growth process. He attributed this negative relationship to the long gestation period involved before expenditure can be productive in the economy, and inefficiency associated to the use of public funds. Similar results by Devarajan's (1993) showed a negative and insignificant relationship between productive expenditure items and economic growth. This approach of disintegrating expenditure into capital and current component, is similarly employed in this study.

Some common features are, however, notable from the afore mentioned studies. One is that they are cross-sectional and hence their findings may not be generalized to a particular country case. Second, is the fact that, not much efforts were made to examine rigorously the composition and structure of government expenditures in specific countries.

Thirdly, is the widely accepted fact that there has been controversy amongst researchers regarding the empirical relationship between government expenditures and economic growth (Nagarajan, 1987; Devarajan, 1993; Ekpo, 1994). These controversies arises from the lack of consistent and clear cut demarcation on which items of public spending should be characterized as having positive effects on growth (complements private sector initiatives) and hence productive, against those that are not. For instance, Kormendi and Megure (1985), classified expenditures on defence and education as non-productive while Barro (1990), consider them as being productive. Furthermore, there has not been common agreement regarding the direction of causality between public spending and economic growth. This has led to problems associated with either misspecification of the model or categorization of public spending. Ekpo (1994), attribute the controversies to incomplete knowledge of the growth process and determinants of economic expansion.

Some specific country cases have also been conducted. Nagarajan (1987), examined the case of Kenya. Regression results showed that, public expenditure has positive influence on per capita GDP. Danielson (1991), conducted a similar study for Jamaica during 1962-1984, but could not find evidence on the direction of causality between size and composition of public spending and economic growth.

The study by Ekpo (1994), analysed the contribution of government expenditure on the growth process in Nigeria for the period 1960-1990. In his study, the link between private and public sector investments were also investigated since private investment was considered to be the main transmission channel between expenditure and growth. Econometric results indicated that public sector investment on transport, communication and agriculture crowd in private investment while public spending on manufacturing and construction crowd out private investment. Expenditures on education and health had positive influence on private sector initiatives.

However, studies from industrialized countries do not show a remarkable difference. Willner's study (1993) on Sweden, indicated that cuts in wages and public spending in general might not have such positive effects on the economy as it is generally considered.

Writing on the impact of government policies on output and investments in Netherlands, Westernhout and Vansideren (1994), estimated a macroeconomic model, and showed that, restrictive fiscal policies in the 1980's have had adverse short term effects on output and employment. The results also indicated that, a shift in public expenditure from investment to consumption has exerted a negative impact on these variables.

Building on Barro's (1990) endogenous growth model, Hi and Lai (1994) study on the group of seven (G-7) countries, suggested that the relationship between public spending and economic growth can vary significantly across time and countries that belong to the same "growth club". However, no evidence to signify the relationship between public spending and economic growth.

3.3.2 Studies done on Tanzania

Studies done so far on Tanzania have mostly concentrated on the growth of public spending and not the impact of public spending on economic growth.

In his review of Tanzania's central Government expenditure in the post independence era, Roe (1967), concluded that, the increase in recurrent expenditure can precede rather than follow an increase in capital expenditure. Furthermore, growth of wage rate and employment, among other things, explained the increasing public spending in the 1960's. Semboja (1984), has suggested that there existed activities which are not immediately commensurate with the requirements of productivity. In this case, he further distinguished public spending into directly and indirectly productive expenditures.

Although Mpatila (1985), has argued that a larger part of fiscal deficit financing was not used for productive investment in Tanzania, empirical results by Makaranga (1992), and Kilindo (1992), showed deficit financing policies contribute positively to capital formation and economic growth.

An overt treatment of the trends in central government recurrent expenditures in Tanzania was attempted by Semboja (1994). He grouped recurrent expenditure into social, economic and others services, and observed that, recurrent expenditure grew faster than expected during the ERP, attributing it to manoeuvre on the side of government not to implement, postpone or slowdown implementation of policies which aim at fiscal restraints. In addition, committed expenditure items such as debt servicing and personal emoluments are politically sensitive and thus rigid downwards. He further observed that expenditure on education and health expenditure grew by 17 percent and 28 percent per annum during 1986-1991 compared to 10 percent and 9 percent during 1980-1985, respectively. Debt servicing grew by 25 percent during post-economic reforms period compared to 9 percent prior to the reforms. However, this trend was not born out by expenditure on defence and national service that grew at -1.5 percent during the reforms period compared to 8 percent prior to the reforms.

The general observation is that total expenditure increased faster than total GDP.

Moshi and Kilindo's (1994) study, focussed on the impact of Government policy on private investment, and shed more light on the impact of government expenditure on economic growth.

Using a simple model of private investment, the study was able to establish a direct empirical link between government policy variables and private capital formation. It was shown that, public investment crowds out private investment. Complementarily between infrastructural investment and private investment was also evident.

3.4 Conclusion

The chapter has presented the review of literature on the public expenditure and its relationship with growth. It was observed that, most studies are cross sectional. Inspite of their limitations, they provide a useful reference (particularly the methodological issues) to more particularized (time series) studies.

While Moshi and Kilindo's (1994) study, gave more attention to various government policies' impact on private investment, the thrust of this study focuses directly on the influence of the size and components of public expenditure on economic growth. The main transmission mechanism between the two, is the private investment, which makes their study relevant for our study.

Apart from Moshi and Kilindo's 1994 study, other studies on Tanzania have mostly focussed on the growth of public expenditure, without relating it to economic growth. This study therefore enriches the literature on impact of government expenditure (both level and sectoral components) on economic growth.

The next chapter will deal with methodology and the model.

CHAPTER FOUR : METHODOLOGY AND THE MODEL

This chapter presents the methodology and the model used in this study. To do this, the chapter is organized into four major sections. Section 4.1 presents the framework of analysis, section 4.2 deals with data, and section 4.3 deals with estimation techniques employed. Finally section 4.4 concludes the chapter.

4.1 The Framework of Analysis

4.1.1 The Model

The impact of public spending on economic growth can be examined through two approaches. Direct and indirect approach.

a) The Direct approach

The direct approach examines the impact of public spending on economic growth directly by expressing economic growth as a function of public expenditure[10].

b) The Indirect approach

The indirect approach is based on the observation made by many researchers that, the direct relationship may not lead to satisfactory results. Instead, the process appears to have been more linked through the private sector response. In this case the impact of public spending on economic growth is transmitted through its influence on the private investment, since public spending provides an enabling environment for private sector development. Thus private investment is expressed as

[10] The public expenditures referred to in this and subsequent analysis are real expenditures obtained by deflating nominal expenditures by GDP deflator.

a function of the size of government.

In this study, public expenditure is distinguished in two ways. First, expenditure in terms of its aggregate components, that is total investment (capital) and current expenditure; and second, expenditure in terms of its sectoral breakdown. This disaggregation is based on the observation made in many studies that, the impact of expenditure on economic growth differ among sectors. In this case, public expenditure is disaggregated into six sectors. These are public expenditures on general services, economic services, defence, Health, education and other services. These sectors have been chosen for convenience purposes.

The two approaches are used in this study to examine the impact of public spending on economic growth as follows:

Using the direct approach, it is postulated that, real GDP growth rate is a function of government expenditure disaggregated into investment and current expenditure. Furthermore the private sector is included as a partner in development so that, economic growth is also a function of private investment. Therefore, the relationship is formulated as follows:

$$RGDP = f(INE, CUE, PI) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where:

RGDP = real GDP growth rate

INE = Real Investment Expenditure

CUE = Real Current expenditure

PI = Real Private Investment

Using the Indirect approach, this relationship is formulated as follows:

$$PI = f(INE, CUE) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1.1)$$

Where;

PI = Private Investment as a percentage of real GDP.

Other variables are as defined above.

To examine the impact of different sectors' real expenditure on economic growth, the relationship using the direct approach, is formulated as follows:

RGDP = f(Gs, Es, Df, Ht, Ed, Os) ..... (2a)

where,

Gs = Expenditure on general services

Es = Expenditure on economic services

Df = Expenditure on defence

Ht = Expenditure on health

Ed = Expenditure on education

Os = Expenditure on other services

other variable are as defined earlier.

Furthermore, to distinguish between the influence of capital component in those sectors from that of current component on economic growth, equation (2) above is categorized further as follows:

RGDP = f(CAGs, CAEs, CADf, CAHt, CAEd) ..... (2b)

RGDP = f(CUGs, CUEs, CUDf, CUHt, CUEd, CUOs) ....(2c)

where:

Notation CA indicates capital component, while notation CU indicates recurrent component.

The other variables are as defined earlier.

Using the indirect approach, the above relationship is expressed as follows:

PI = f(Gs, Es, Df, Ht, Ed, Os) .....2.1(a)

PI = f(CAGs, CAEs, CADf, CAHt, CAEd) .....2.1(b)

PI = f(CUGs, CUEs, CUDf, CUHt, CUEd, CUOs) ....2.1(c)

where,

all variables are as defined earlier.

4.1.2 Functional relationship

The log linear form has been adopted due to its greater simplicity and convenience in estimation and interpretation[11]. Furthermore, the log linear form is relatively more useful to this study since it can provide elasticities directly from the coefficients of explanatory variables. In addition, many researchers have used it with satisfactory results.

Thus the specific log linear form of the model is specified consistent to the two sets of equations as follows.

Using the direct approach, equation (1) is specified as follows;

(1) $\ln RGDP = a_0 + a_1 \ln INE + a_2 \ln CUE + a_3 \ln PI + \mu$

where;

$a_0, a_1, \ldots a_3$ = coefficients

μ = error term

ln = natural logarithmic notation

The expected results are; $a_1 > 0$, $a_2 > 0$, $a_3 > 0$.

---

11 Other forms which could be used includes; linear, double log, inverse semi logarithmic, log reciprocal and hyperbolic forms (Gujarati, 1978, pp. 53-56).

Using the indirect approach, equation (1.1) is specified as follows;

(1.1) $\ln PI = a_0 + a_1 \ln INE + a_2 \ln CUE + \mu$

All variables/notations are as defined earlier.

It is expected that, $a_1 > 0$, $a_2 > 0$.

Using the direct approach, equation (2) is specified as follows;

2(a) $\ln RGDP = b_0 + b_1 \ln Gs + b_2 \ln Es + b_3 \ln Df + b_4 \ln Ht + b_5 \ln Ed + b_6 \ln Os + \mu$

Where;

$b_0, b_1 \ldots b_6$ = coefficients

μ = error term

Other variables are as defined earlier

Expected results are such that; $b_1 < 0$, $b_2 > 0$, $b_3 < 0$,

$b_4 > 0$, $b_5 > 0$, $b_6 < 0$.

2(b) $\ln RGDP = b_0 + b_1 \ln CAGs + b_2 \ln CAEs + b_3 \ln CADf + b_4 \ln CAHt + b_5 \ln CAEd + \mu$

Where; all the variables are as defined earlier.

It is expected that; $b_1 > 0$, $b_2 > 0$, $b_3 < 0$, $b_4 > 0$, $b_5 > 0$.

2(c) $\ln RGDP = b_0 + b_1 \ln CUGs + b_2 \ln CUEs + b_3 \ln CUDf + b_4 \ln CUHt + b_5 \ln CUEd + b_6 \ln CUOs + \mu$

Where; all the variables are as defined earlier

The expected results are; $b_1 < 0$, $b_2 > 0$, $b_3 < 0$,

$b_4 > 0$, $b_5 > 0$, $b_6 < 0$.

Using the indirect approach the set of equation (2) is specified as follows;

2.1(a) $\ln PI = b_0 + b_1 \ln Gs + b_2 \ln Es + b_3 \ln Df + b_4 \ln Ht + b_5 \ln Ed + b_6 \ln Os + \mu$

Where; all the variables are as defined earlier

The expected results are; $b_1 < 0$, $b_2 > 0$, $b_3 < 0$,
$b_4 > 0$, $b_5 > 0$, $b_6 < 0$.

2.1(b) $\ln PI = b_0 + b_1 \ln CAGs + b_2 \ln CAEs + b_3 \ln CADf + b_4 \ln CAHt + b_5 \ln CAEd + \mu$

Where; all the variables are as defined earlier.

It is expected that; $b_1 > 0$, $b_2 > 0$, $b_3 > 0$, $b_4 > 0$, $b_5 > 0$.

2.1(c) $\ln PI = b_0 + b_1 \ln CUGs + b_2 \ln CUEs + b_3 \ln CUDf + b_4 \ln CUHt + b_5 \ln CUEd + b_6 \ln CUOs + \mu$

Where; all the variables are as defined earlier

The expected results are; $b_1 < 0$, $b_2 > 0$, $b_3 < 0$,
$b_4 > 0$, $b_5 > 0$, $b_6 < 0$.

4.2 The data

The study employs secondary time series data for the period 1970-1993. The variables on which data was collected includes: real and nominal gross domestic product (GDP), growth rates of real GDP, private investment and the set of real public expenditure all expressed as a percentage of real GDP. The public expenditure set included; total public expenditure, total investment/capital expenditure and total recurrent expenditure, Others included public expenditure on specific sectors. These sectors are; general services, economic services, defence, health, education and others services, each subdivided into; total, capital and current components. Local government expenditure (also in real terms) essentially included expenditure on four sectors; education, health, water and roads.

These data were obtained from government published documents from the Ministry of Finance (Treasury), Bureau of Statistics, Central Bank, Planning Commission, Ministry responsible for Local Government, Parliament Office and Prime Ministers Office.

In particular, the data on GDP (figures and growth rates) were obtained from the National Accounts statistics published by the Bureau of Statistics. It is the same source also for data on private investment. Public expenditure data were obtained from two major sources: Economic Surveys published by the Planning Commission, and, Estimates of Public Expenditure, volumes I, II and IV (various issues) published by the Treasury and the Planning Commission. The former had readily compiled data, while the later involved tedious work of compiling votes and sub-votes to suit the detailed needs of this study.

Data on local government expenditure[12] was obtained from the budget speeches of the minister responsible for Local Government. These documents were obtained from the Parliament Office, Ministry of Local Government and Prime Ministers Office.

The main problem of these data is inconsistent record keeping. In addition to this, public spending data are considered to lack systematic and consistent classification, (World Bank, 1988). In the case of Tanzania, frequent changes in the number and function of ministries significantly affect consistency in the classification of public expenditure. Data from different sources report different values. Efforts were made to countercheck one source with another to ensure consistency and, hopefully, accuracy.

12 Local government expenditure were collected for years beginning 1986-1993. The first budget speech was made in 1986 after re-establishment of the ministry in 1984.

4.3 Estimation techniques

The above model was formulated for multiple regression analysis and estimated using the conventionally used Ordinary Least Squares (OLS) econometric technique. In applying the OLS technique, the model was specified by adding the error term (μ). The usual assumptions about the error term was made, i.e.,

(i) μ is a real variable

(ii) Expected value of μ is zero i.e. $E(\mu) = 0$

(iii) It has a constant variance i.e. $E(\mu^2) = \delta$

(iv) μ's are not serially correlated with the independent variables, i.e. $E(\mu_j X_j) = 0$ and

(v) The error terms are not serially correlated i.e. $E(\mu_i \mu_j) = 0$.

Three reasons serve to justify the choice of OLS as an estimation technique. First, the implied computation is relatively simple and convenient. Second, its parameter estimates possess the following dissolvable properties: best, linear and unbiased (BLU). Finally, other studies have successfully used the technique.

4.5 Conclusion

This chapter has discussed the important aspects of research design, involving the framework of analysis (model), data, and estimation techniques. One issue need to be noted in the framework of analysis is that, the influence of public expenditure on economic growth can be traced either directly or indirectly through transmission channel to growth. The two approaches are employed in this study to identify which explains better the postulated relationship between public expenditure and economic growth.

The next chapter presents the empirical findings of the study.

CHAPTER FIVE : EMPIRICAL FINDINGS

This chapter presents and discusses the empirical findings of the study. It is important to note here that, the two approaches in investigating the impact of public spending on economic growth did not lead to similar results. When expenditure was expressed in terms of its aggregate components (total investment and current expenditure), the impact of expenditure on growth was better explained by the direct approach relative to the indirect approach. However, when expenditure was expressed in terms of its sectoral breakdown, the model performed better with the indirect approach than the direct one. Thus the chapter presents and discusses only the results associated with the approach that performed relatively better. The chapter is organized into four sections. Section 5.1 discusses the major problems encountered during the estimation process. Section 5.2 presents the results of the model. Section 5.3 deals with explanation of the results and, two final sections (5.3 and 5.4) presents the comparison of the findings with those in other studies and conclusion of the chapter respectively.

5.1 Problems encountered during estimation process

Three major problems are common in most econometric studies. These are multcollinearity, autocorrelation and heteroscedasticity.[13] Multicollinearity is a situation whereby some explanatory variables exhibit high perfect linear relationship (Gujarati, 1988, p. 283). Autocorrelation is a tendency for the error term to be highly correlated, while heteroskedasticity occurs when there exist unequal variances (more than one variance) of the error term.

In this study, Multicollinearity was the most serious problem encountered. In particular, the problem was serious in equations 2.1(a), 2.1(b) and 2.1(c). This was detected by examining the correlation coefficient matrix. The problem would lead to a rejection of significant explanatory variables.

[13] Other econometric problems include for instance, the problem of simultaneous equation bias.

However, after identifying the problem, an attempt was made to circumvent it. A method of step-wise regression was conducted, whereby one or some of the correlated variables were dropped from the regression analysis. The guiding factor as to which variable to be dropped was the correlation coefficient. Whenever the correlation coefficient was found to be greater than 80 percent, one of the two variables was dropped; usually the insignificant variable was retained for trial. Significant improvements were made using this procedure. Nonetheless, this technique of dropping some variable from regression analysis brings about another econometric problems i.e misspecification bias on the coefficients.[14]

The problem of autocorrelation was not very serious in this study. The standard measure of Durbin Watson statistics (DW) suggests that, for better results, the D.W. statistics should lie between 1.5 to 2.4.[15] In this particular study, all equation had the D.W. statistic within this range.

Heteroscedasticity is a problem commonly experienced in cross sectional studies.[16] Thus, this problem was not experienced in this study.

Furthermore, the functional relationship in chapter four adopted a log linear form. This is, but to facilitate interpretation of the estimates into direct elasticities. However the list of the regression data shows that one of the variable i.e real GDP had a negative value for the year 1981 and 1983, making it impossible to take its log. To tackle this problem, a constant number was added throughout to eliminate the offending negative number.

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14 See Koutsyonniasis (1977) p. 252.

15 However for almost perfect results the coefficient is to be 2.0

16 See Gujarati (1988), p. 196.

5.2 Regression results of the model

Having circumvented some of the econometric problems discussed in section 5.1 above, the results presented in Table 5.2 below were obtained. It should be noted that, these are only key results of the basic model. Other results are presented in Appendix 2

Table 5.2: Regression results

1. RGDP = 6.65 + 0.01INE - 0.57CUE + 0.39PI
(2.84)** (0.07) (-1.76)* (2.11)**

$R^{-2} = 0.39$
DW = 2.2
F = 2.98

2.1(a) PI = 1.45 - 0.49Gs - 0.54Es + 0.41Df
(1.74)* (-1.60) (-2.55)** (2.25)**

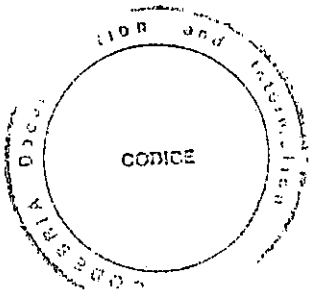
+ 1.30Ht + 0.10Ed + 0.81Os
(3.65)*** (0.09) (6.54)***

$R^{-2} = 0.88$
DW = 2.1
F = 22.35

2.1(b) PI = 2.18 + 0.73 CAGS + 0.03 CAES
(4.34)*** (4.21)*** (0.18)

- 0.32 CADf + 0.02 CAHt + 0.33 CAEd
(-1.90)* (0.10) (3.81)***

$R^{-2} = 0.87$
DW = 2.0
F = 134.4



2.1(c) PI = 0.76 - 0.09 CUGs + 0.49 CUEs
(1.13) (-0.41) (1.96)*

- 0.77 CUDf - 0.01 CUHt + 0.92 CUEd
(-3.24)*** (-0.04) (1.94)*

+ 0.69 CUOs
(2.77)**

R^{-2} = 0.78
DW = 1.88
F = 15.4

Note: (1) Figures in brackets are t-statistics
(2) *** = significant at 1 percent level
(3) ** = significant at 5 percent level
(4) * = significant at 10 percent level

5.3 Explanation of the results

The results in table 5.2 are discussed by examining the findings in each equation. In equation 1 of table 5.2, both variables INE and CUE had their signs right in that INE and CUE had positive and negative signs respectively. INE was shown to be insignificant factor in influencing the rate of growth of real GDP, while CUE was significant at 10 percent level of significance.

The influence of investment expenditure on the growth rate of real GDP is indeterminate as shown by insignificance of the variable. Thus, its sign is not important for this study. Private investment as a share of real GDP was significant at the conventional 5 percent level, and had the correct positive sign.

Nevertheless, the fit of the line (ie equation 1 above) is not very significant. This is shown by lower R^{-2} (0.39) and F-statistics (2.98). The lower R^{-2} and F-statistics implies that, there are other factors that explain variation in real GDP growth rate other than those mentioned in the equation. Autocorrelation seemed not to be a problem as shown by favourable DW (2.12). Examination of

correlation coefficients show that Multicollinearity existed between INE and CUE on one hand, and between INE and PI on the other[17].

The stepwise method of curbing Multicollinearity was accordingly applied. Result show that, INE did not become significant n either when CUE nor PI was dropped, each at a time. These results were thus not reported.

In equation (2.1a), the influence of total public expenditure on specific sectors was investigated. The results indicated that, all variables (except Gs and Es) have positive impact on private investment (private capital formation). However, Df was expected to have negative and Es a positive impact instead. Examination of significance of independent variables showed that; Es, Df, Ht and Os were significant factors in influencing changes in private investment. The first two factors were significant at 5 percent level of significance, and the last two at 1 percent level of significance. The fit of the line was good as shown by a very high R^{-2} (0.88) and F-statistic (23.35). Autocorrelation was virtually not a problem for D.W. was 2.1. However, two variables Gs and Ed were statistically insignificant. Detection of Multicollinearity indicated that, high correlation existed between Gs and Df, Es and Os on one hand; and between Ed and Os on the other.

When Os was dropped from equation 2.1(a), both Gs and Ed became significant at 10 and 5 percent level respectively, but the former with positive sign contrary to the expected negative sign (see equation 2.1.1(a) in appendix 2).

However, some reasons can be advanced to explain the unexpected signs of Df, Es and Os. The result that, expenditure on General services (Gs) registered a positive impact can be explained by the fact that, diverse number of activities under general services may involve some catering for conducive environment for the effective private sector operations[18]. Along side with these

[17] Multicollinearity may be detected by examining the correlation matrix. If the magnitude is greater than 0.80, Multicollinearity exist.

arguments, one can be tempted to allude the Keynessian argument regarding the efficacy of aggregate demand in enhancing growth particularly in the short-run.

The unexpected positive impact of defence expenditure on private investment may explain the role of defence in augmenting and maintaining law and order as important prerequisites for a successful deployment of growth related private sector resources. In addition, the multiplier effect of current expenditure on defence, the production oriented activities in the national service camps might have more than offset the hypothesized negative influence of defence expenditure in equipping and maintaining military camps.

Expenditure on other services registered unexpected positive sign. This could arise from the fact that, debt expenditure had a positive payoff in the economic growth.

In equation 2.1(b), the impact of capital expenditure of the selected sectors on private investment was examined.[19] All independent variables had correct signs (positive) as expected and were also significant at conventional levels except for CAEs and CADf. Multicollinearity was found to be a major problem still. Application of step wise regression showed that, when CAEd was dropped, CAEs became significant at 5 percent level of significance (see equation 2.1.1(b) in Appendix 2). Effort to drop one or combination of the explanatory variables could not make CAHt significant. The R^{-2} was high (0.79) and so was F-statistics (23.03). With favourable D.W. (1.5), this indicated that, the fit of the line was good.

The impact of recurrent component of public expenditure on the specific sectors was captured in equation 2.1(c). The findings are as follows: all the independent variables bore the hypothesized signs except for CUHt only. CUHt was also insignificant and thus its sign is not worth been

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18 See appendix 3 for composition of expenditure on economic services.

19 The sectors involve: General services (administration), economic services, defence, Health, education and other services.

discussed here. With an exception of CUGs and CUHt, all other explanatory variables were significant at conventional levels. CUEs, CUEd and CUOs were significant at 5 percent and CUDf at 1 percent level.

A check of the correlation matrix revealed that, Multicollinearity existed between CUGs and CUDf, CUEs on one hand, and between CUHt and CUDf, CUGs on the other. When CUEs was dropped from the equation, CUGs became significant at 10 percent level bearing the expected negative sign (see equation 2.1.1(c) in Appendix 2). CUHt could not become significant after dropping CUDf and CUGs successfully from the equation, and this suggests that, CUGs was significant in the absence of multicollinearity. The fit of the equation was good judging from high R^{-2} (0.78) and F-statistics (15.4). Autocorrelation was not a problem since the DW (1.9) was favourable.

5.3.1 Analysis of Elasticity multipliers and Hypothesis verification

Table 5.2 below presents the coefficients of the independent (explanatory) variables of the model[20]. It should be remembered at this juncture that, the use of log linear model allows for direct translations of the coefficients of the explanatory variables into elasticities[21].

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20 The coefficient examined here are only those in the basic model.

21 Elasticity multipliers implied throughout this and previous chapters are derived by a method of using the logarithms of endogenous variables of the model with respect to the relevant logarithms of the exogenous variables.

Table 5.3: Elasticity Multipliers

Equation	Independent Variable	Elasticity Multiplier	Expected Sign	Significance S/NS/SM
(1)	INE	0.01	Positive	NS
	CUE	0.57	Positive	S
2.1(a)	Gs	-0.50	Negative	SM
	Es	-0.54	Positive	S
	Df	0.41	Negative	S
	Ht	1.30	Positive	S
	Ed	0.10	Positive	SM
	Os	0.81	Negative	S
2.1(b)	CAGs	0.73	Positive	S
	CAEs	0.03	Positive	SM
	CADf	-0.32	Negative	S
	CAHt	0.02	Positive	NS
	CAEd	0.33	Positive	S
2.1(c)	CUGs	-0.09	Negative	SM
	CUEs	0.49	Positive	S
	CUDf	-0.77	Negative	S
	CUHt	-0.01	Positive	NS
	CUEd	0.92	Positive	S
	CUOs	0.73	Negative	S

Source: Extracted from table 5.2 of this study.

NB: S = significant

NS = Not significant

SM = Significant in the absence of multicollinearity.

Other variables are as defined earlier.

From equation (1) in table 5.3, it is evident that, real GDP growth rate responds positively to increase in investment and recurrent expenditure. This verifies the hypothesis (1) of the study. Nevertheless, it is evident from the same equation that, Current expenditure had greater elasticity multiplier (0.75) than Investment expenditure (0.14). This also, negates a part of hypothesis (1) that, investment spending has a greater rate of payoff to the growth rate of real GDP than recurrent spending. Both INE and CUE proved to bear inelastic elasticity (less than unity).

From equation 2.1(a) of table 5.3, public expenditure on specific sectors influenced differently the growth of private capital formation. This is as hypothesized in chapter one. The equation showed different magnitude of elasticities amongst the sectors, implying that economic growth responded differently to expenditure on different sectors. For instance, private investment responded highest to expenditure on Health (elasticity multiplier 1.30) and lowest to expenditure on education (elasticity multiplier 0.1).

Comparing elasticity multipliers of equation 2.1(b) and 2.1(c) in table 5.3, it is evident that, almost all sectors except economic services had their current expenditure component's elasticity multiplier greater than those of recurrent expenditure components.

In equation 2.1(c), current expenditure on the specific sectors had their signs correct as stipulated in the previous chapter, except for CUHt which registered negative sign. Few observations from the above results regarding the allocation of public expenditure by types or functions ought been mentioned here.

Taking all sectors together, Table 5.3 indicates that, Health and other services expenditure have greater contribution to growth than others. This is shown by higher elasticity multipliers associated with these sectors.

Examination of each sector separately indicates that, in the case of expenditure on general services, it is the capital component that has a quicker payoff to growth followed by current component. It

is shown however that, current component may deter growth since the sector's total expenditure effect was negative.

In the case of economic services, it is the current component that makes it productive, than the capital component, and so is the case with the Defence and Health sectors. Education sector has high and favourable influences on private capital formation and invariably on economic growth, with the recurrent part of it been more elastic than the capital part of it. Expenditure on other services has a negative influence obviously arising from the recurrent component.

Analysis by type of expenditure shows that, of all capital components, those under general services were more productively placed than the rest. In the case of current component, those under education and other services registered a greater payoff on growth than others. In part, this explains the widely held view that expenditure on maintenance and repair significantly enhance growth.

5.4 Comparison of the findings with those in other studies

In reference to the literature review in chapter three of the study, it is rather evident that, the findings of this study compares significantly with those in other studies.

This study has established that, both recurrent and capital expenditures have positive effect on real GDP growth. This finding differs with that established by Landau (1983), Aschauer (1989), Diamonds (1989), Devarajan (1993), where total recurrent expenditure was found to have negative influence on growth. Like in this study, both Devarajan (1993) and Diamond (1989), found that current expenditure in economic services had positive and significant impact on growth. This differed however, with the Castles and Dowrick (1988) study, which found a negative relationship between the two.

Ekpo (1994), found out that, an increase in capital expenditure on education and health will stimulate private investment. This is partly born out by result of this study, that capital expenditure on

education bore a significantly positive impact on private investment. The positive relationship between private investment and real GDP growth rate in this study compares with Landau (1983), and Nagarajan (1987) studies.

Conclusively therefore, the influence of public expenditure of economic growth is not as correct as generally postulated by theory. Nevertheless, some deviations exists. Thus, studies on this subject are highly empirical in that the results will be borne by specific conditions of a country under investigation, the quality of particular public expenditures, quality and reliability of data and methodology employed. This assertion has tempted many scholars in this subject to conclude that, the influence of public expenditure as promoting or depressing economic growth is inconclusive.

5.5 Conclusion

This chapter has presented and consequently discussed the empirical results of the study. The findings seems to compare sufficiently with those done elsewhere. Hypothesis postulated in chapter one were verified in a reasonable extent.

The next chapter deals with conclusion and suggests some policy recommendations.

CHAPTER SIX : CONCLUSION AND POLICY RECOMMENDATION

This chapter summarizes the study and attempt to offer some policy recommendations in the light of the major findings of the study and their implications. This task is carried out in three sections. Section 6.1 gives the conclusion covering the overall summary of the study, major findings of the study and their implications for policy. Section 6.2 presents some policy recommendations and finally section 6.3 deals with the limitations of the study.

6.1 Conclusion

6.1.1 Summary

The objective of this study was to investigate the impact of the level and components of public spending on economic growth in Tanzania for the 1970-1993 period. The study was thus organized into six chapters.

Chapter one provides an introduction to the study. In this chapter, the problem investigated is specified, justified and hypotheses to be tested spelt out. Chapter two offered understanding to the major trends in economic performance in Tanzania where trends in the major macroeconomic variables were surveyed and conveniently categorized into three distinct periods of significant episodes in the economy of Tanzania. These are: pre crisis period of late 1960's to the early 1970's, the crisis period of late 1970's to the early 1980's, and, the economic reform period of the mid 1980's to date.

Chapter three surveyed a body of literature on the subject. It was observed that, studies on public expenditure cum growth nexus lack strong and rigorous theoretical framework. Furthermore, the empirical studies lack common conclusion regarding the impact of public spending on economic growth.

Chapter four outlined the methodology to be used. Included therefore, is the framework of analysis (the model), specification of the data and estimation techniques to be used.

Chapter five presented and discussed the empirical results of the study, after discussing the econometric problems encountered during the estimation process and their solutions. Finally, chapter six provides conclusion and policy recommendation.

6.1.2 Major findings of the study and their policy implications

The results on the impact of public expenditure and it's components on economic growth shows that the economy responds differently to various types and functions of expenditure. However, the following findings are of importance for policy formulation.

First, observation made from equation one of table 5.2 in the previous chapter is that, current expenditure was likely to contribute more and quicker to the growth rate of real GDP than the investment expenditure. By implications therefore, a change in the quality of public expenditure in favour of more recurrent expenditure may enhance growth more effectively than investment spending.

Second, the influence of specific sectors' expenditure on growth differed from one sector to another and from one type (current or capital) to another in terms of productivity and responsiveness[22].

In terms of total expenditure on the sectors; health, defence and other services appeared to be more productive while expenditure on general services and economic services were less productive.

Private investment seemed to have highest response to expenditure on Health and other services than others. This implies that, a unit increase in public spending in those sectors led to more than

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22 Expenditures are considered more productive when they bear positive coefficients otherwise they are regarded as being less productive or unproductive.

proportional payoff to the economic growth. This responsiveness was little in the case of Education and Defence, and was negative in the case of General and Economic services expenditure.

Observation of the capital components alone reveals that, capital expenditure on defence and health resulted to lower private capital formation, while those on education and general services showed relatively highest degree of payoff to the private capital formation. This implies that, policy in favour of increased expenditure in these sectors would be more effective to enhance economic growth.

Productivity of current expenditure implied that, more recurrent expenditure channelled to education and other services were productive and led to more than proportional increase to the private capital formation. Other sectors, like defence and general services, seemed productive but quite inelastic. Like its capital components, current expenditure on defence was rendered unproductive.

Third, regarding the performance of the model, most of the explanatory variables proved to be statistically significant in influencing the dependent variables in the basic model. However, some independent variables proved to be insignificant even after circumventing the problem of multicollinearity. These are: total investment expenditure, recurrent and capital expenditure on Health. Their effect on growth of the economy is thus indeterminate.

Finally, some of the coefficients bore different signs to those expected. Implications for this is that, productivity of a particular expenditure category cannot be determined a priori.

6.2 Policy recommendations

Given the empirical findings of the study and the underlying hypotheses, the following recommendations are in order.

First, in setting targets for aggregate government spending and their ultimate influence on the economic growth, the composition of public expenditure in terms of types (current or capital) or functions cannot be overemphasized. Furthermore, the decision to carry expansionary or contractionary expenditure policy should be based on the merit of productivity of each expenditure category. Current fiscal adjustment measures to cut the size of public expenditure should thus be guided by how and the extent in which each expenditure category influences growth.

Secondly, in view of the findings of this study, government should encourage expenditure in those sectors which essentially promote growth. Caution should be made however, that, not all expenditure items bearing positive relationship with growth should be considered absolutely productive, and thus woe government to favour it. Positive sign may be necessary condition but not sufficient. For instance defence expenditure was shown by the results to be productive; but common sense would not support this. The vice versa is equally true for those expenditure items bearing a negative sign, that they should not be taken as been absolutely unproductive. The unexpected results may be a result of model misspecification (Diamond, 1989) or data inconsistency. Despite these controversies, this, both theory in the literature and empirical findings of this study strongly support and encourage increased expenditure in Health and Education. This purports the widely advocated view that investment in human capital formation is of importance to economic growth.

Certainly, from the policy perspective, the emphasis on capital spending is only partly vindicated by the results of this study. Indeed, capital expenditure seems to have exerted its influence through human capital formation than through direct investment channel. For instance, the importance of capital expenditure on Health, is not conclusively demonstrated by this study. The negative relationship between growth and capital expenditure on economic services points to the need for better screaming of projects to ensure their productivity before implementing them.

Finally, the sources of inefficiency in the use and efficacy of public expenditure to enhance growth should be traced in the light of the empirical results of this study. However, limitations imposed by the poor quality of data in developing countries, misspecification of a model and categorization of

public expenditure may limit the extent to which these results will be used for prediction purposes.

6.3 Limitations of the study

To investigate the influences of public expenditures on economic growth, this study disintegrated the public expenditure into various sectors and types. The sector used were only chosen for convenience purposes. It is apparent thus, that an inclusion of other sectors or change in the mix of these sectors would give different results from those in this study.

Given time and financial constraints, this study did not attempt to examine a separate influence of these sectors.

In addition, some expenditure categories such as those on general services, economic services and other services are too broad to examine their influence on economic growth in their aggregate form[23]. Nevertheless, a separate study to allow for more disaggregated form of analysis in future studies is highly called for.

It is a common knowledge that, data problems is widespread in LDC's, Tanzania included. Specifically data on public expenditure are relatively hard to get in the dissagregative form. The exercise of adding votes and sub votes to arrive at a given expenditure category is not only tedious but may lead to unavoidable errors. The findings of this study should thus be used within the inherent data deficiencies.

Finally, some categories of public expenditure have long gestation period before registering their significant payoff in the economic growth. The use of lagged models is suggested for use in future studies in order to capture the significant impact of public expenditure on economic growth.

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[23] See Appendix 3.1 for detailed composition.

Despite the limitation cited above, the findings of this study may be of use as a contribution to the literature available in Tanzania and elsewhere. They may also be resourceful for policy formulation particularly in the wake of government's urge to determine expenditure priorities and mix, which may promote rather than impair economic growth and invariably, economic development.

SELECTED BIBLIOGRAPHY

-----, (1991), World Development Report, 1981 Oxford University Press.

-----, (1992), World Development Report, 1987, Oxford University Press.

-------, (1993), "Issues in Public Expenditure Policy in Africa: Evidence from Tanzania's experience; in Chhibber A and Fischers, Economic Reforms in Sub-Saharan Africa, The World Bank, Washington D.C.

-------, (1994), "Trends in Government Recurrent Expenditure and Lessons for the Future" in Msambichaka L, Moshi, H.P.B. et al; Development Challenges and Strategies for Tanzania. An agenda for the 21st century: Economic Research Bureau, University of Dar es Salaam.

_____, (various years); Estimates of Public Expenditure Supply Votes Vol, (I) (II) (III) & (IV), Government Printer.

Artus, P. and Kaabi, M. (1993), "Public Expenditure, Technical progress and Growth", Revenue Economique, Vol. 44 ISS 2, 287-318.

Aschauer, D. (1989), "Is Government Spending Productive?" Journal of Monetary Economics, 23, pp. 177-200

Aschauer, D. and Greenwood, J. (1985), "Macroeconomic Effects of Fiscal Policy", Carnegie Rochester Conference Series on Public Policy, 23, pp. 91-138.

Atkinson, A. and Stiglitz, J. (1980), Lectures on Public Economics, McGraw-Hill.

Barro, R. J. (1991), "Economic growth in a cross section of countries Quarterly Journal of Economics 106, pp. 407- 444.

Blejer, M. and M. S. Khan (1984), "Government Policy and Private Investment in Developing Countries", IMF Staff Paper.

Barro, R. J. (1990), "Government Spending in a Simple model of Endogenous Growth", Journal of Political Economy, 98, 5 103-5125.

Barro, R. J. (1981), "Output Effects of Government Purchases", Journal of Political Economy, 89, pp. 1086-1121.

Brnason, W. H (1976), Macroeconomic Theory and Policy, 2nd ed; Universal Book Stall, New Delhi.

Brown, C.V. and Jackson, P. M. (1978), Public Sector Economics 4th ed, Basil Blackwel.

Bukuku, E. (1989), Income Distribution and Economic Growth in Tanzania, PhD.Thesis, University of Dar es Salaam.

Chhibber A. and Dailami, M. (1990), "Fiscal Policy and Private Investment in Developing Countries: Recent evidence on Key selected issues": A paper to be published in Recerche Economiche; The World Bank.

Danielson, A (1991), "Public Sector Expansion and Economic Development: Sources and Consequences of Development Finance in Jamaica, 1962-1984, University of Lund, Sweden.

Devarajan, S. and Vinaya, S. et al (1993), "What do Governments Buy? The composition of Public Spending and Economic Performance", Policy Research Working Paper, The World Bank, WPS 1082.

Diamond, J. (1989), "Government Expenditure and Economic Growth: An Empirical Investigation" IMF Working Paper No. 89/45, Washington D.C.

Ebel, B. (1991), "Patterns of Government Expenditure in Developing Countries during the 1980's: The Impact on the Social Services", Economic Policy Series, UNICEF, No. 18 Italy.

Ekpo, A. (1994), "Public Expenditure and Economic Growth in Nigeria, 1960-1992", A final report submitted to the AERC, Nairobi, Kenya, December.

Goode, R. (1984), Government Finance in Developing Countries, Brookings Institution, Washington D.C.

Government of Tanzania (GOT), (Various years); Economic Survey, Government Printer Dar es Salaam.

Grossman, P.J. (1983), "Government and Economic Growth. A non-linear Relationship", Public Choice, vol 56, no.2 February pp 193-200.

Gujarati, (1988), Econometrics, MacGraw hill.

Holtz-Eakin, D (1991), Public Sector Capital and the Productivity puzzle, Mimeograph, Syracuse University.

Hsieh, E. and Lai, K.S. (1994), "Government Spending and Economic Growth: The G-7 Experience", Applied Economics Vol. 26, ISS 51, pp. 535-542.

Khan and Reinhart, (1990), " Private Investment and Economic Growth in Developing Countries," World development, vol. 18, no.1, 1990.

Kilindo, A. (1992), "Inflationary Finance and the Dynamics of Inflation in Tanzania", Unpublished PhD. Thesis, University of Dar es Salaam.

Kormendi, R. and Meguire, P. (1985), Macroeconomic Determinants of Growth: Cross country evidence, Journal of Monetary Economics, 16, 141-164.

Koutsyonniasis, A. (1977), Theory of Econometrics 4th ed., London, Macmillan Education Limited.

Landau, D. (1983), "Government Expenditure and Economic Growth: Across - Country Study", Southern Economic Journal 49, (3) pp. 783-92 January.

Lindauer, D and Velenchik, A. D. (1992), "Government Spending in Developing Countries: Trends, Causes and Determinants" World Bank Research Observer, 7(1) 59-78.

Lipumba, N. (1984), " The Economic crisis in Tanzania" in Lipumba, N, Msambichaka L, et al, Economic crisis in Tanzania, Economic Research Bureau, Dar es Salaam.

Maje, E.H. (1992), Monetization, Financial Development and Demand for Money: The case of Tanzania. Unpublished PhD. Thesis, Lund Economic Studies, Lund, Sweden.

Makaranga, A.Z. (1994), Deficit Financing and Capital Formation in Tanzania, M.A. Dissertation (Unpublished) University of Dar es Salaam.

Mans, D. (1994), "Tanzania: Resolute Action" Adjustment in Africa World Bank.

Max, J.A. (1991), The development of Local Government in Tanzania, Educational publishers, Dar es Salaam, Tanzania.

Moshi, H.P.B. (1994), The limits of privatization in Africa:Some Preliminary Observations, Paper presented at an ERB Seminar, ERB, University of Dar es Salaam.

Moshi, H.P.B. and Kilindo, A. (1994), The impact of Government Policy on macroeconomic variables: The case of Private investment in Tanzania, Paper submitted to the AERC, Nairobi, Kenya, December.

Mpango, P.I.N. (1994), "The role of Taxation in Structural Adjustment and Economic Stabilization: The Experience of Tanzania 1980/81-1992/93", A paper presented at an ERB seminar, University of Dar es Salaam.

Mpatila, F (1985), Impact of Inflation on Domestic Savings The case of Tanzania, M.A. Thesis, University of Dar es Salaam.

Nagarajan, P. (1987), "Kenya's Fiscal Stance in The Course of Development", 1965-1983, Paper presented at the Twenty-Third International Atlantic Economic Conference; Munich, West Germany.

Osoro, N.E. (1994), Public Spending, Taxation and Deficit:What is the Tanzanian evidence?, Final Report Presented at AERC Workshop, Nairobi, Kenya.

Osoro, N.E. (1994), "Taxation in Tanzania: Motivations, Directions and Future Prospects", In Msambichaka, L.A. Development Challenges and Strategies for Tanzania: An agenda for the 21st Century, Economic Research Bureau, Dar es Salaam.

Otani and Villaneueva, (1990), "Long-term Growth in Developing Countries and its Determinants: An Empirical Analysis" World Development, 18, June pp. 769-83.

Pindyck and Rubinfeld, D. (1991), Econometric models and Economic Forecasts, McGrawHill, International Editions.

Ram, (1986), " Government size and Economic Growth: A new Framework and some Empirical evidence from cross-sectional and Time series Data" American Economic Review, vol 76, no.1 March, pp 191-203.

Roe (1967), "A review of Tanzania's Central Government Expenditures in the Post Independence era" An ERB paper No. 67.7, ERB University of Dar es Salaam.

Rutayisire, W.L. (1988), Ways and Means of Improving the quality and effectiveness of public expenditure programming: A case of Tanzania in Ways and Means of Improving the Quality of Public Expenditure Programming, ECA/PHSB/BUD 188/7 (2.1) (a) Addis Ababa, University Nations Economic Commission for Africa, October.).

Semboja, J.J. (1984), "Tanzania, Government activity and Price Inflation in Tanzania" in Lipumba H, Msambichaka L. et al, Economic Stabilization Policies in Tanzania pp. 68-95 Dar es Salaam.

Spector, L.C. and Vancott, T.N. (1992), "Deficit Coefficient - A mixed signal", Public Finances Vol. 47 ISS 3, pp. 487-490.

Westerhout, E. and Vansinderen J. (1994), "The Influence of Tax and Expenditure Policies on Economic Growth in the Netherlands; An Empirical Analysis", Economist Vol. 142, ISS 1, pp. 43-61.

Willner, J. (1993), "Cuts in Public Spending will not same the finishing economy", Ekononiska Samfundets Tidskrift, Vol. 46, ISS 1, pp. 3-8.

Wolf, (1975), Distributional Impact of Government Expenditures in Developing Countries, IMF Staff paper.

World Bank (1988), World Development Report, 1988, Oxford University Press.

APPENDIX 1: DATA ON/AND RELATED VARIABLES USED IN THE REGRESSION ANALYSIS[24]

1.1. Trends in selected macroeconomic variables; 1970-1993 (In millions T.Shs except*)

Year	Real GDP	Real GDP growth rate(percent)*	Private capital formation	Budget deficit	Inflation rate (percent)*	Public debt expenditure	Total Investment expenditure	Total current expenditure
1970	17044	5.8	472	50.2	3.4	161.3	829.2	1623.4
1971	17785	4.2	525	51.6	3.8	238.8	884.4	1854.2
1972	18407	6.7	469	78.6	8.6	296	956	2356.6
1973	19311	3.1	556	130.4	10.5	248.3	1635.3	2975.6
1974	19732	2.5	735	237.9	19.5	288.8	2224.6	3946
1975	20768	5.7	1070	-15.1	26.1	434.3	2252.7	3918.5
1976	21652	6.6	1980	203	6.9	434	2763.4	5250.3
1977	21739	6.4	2428	609.2	11.6	693	3570.3	6082.1
1978	22202	5.8	3250	600.1	12.2	1140.6	4896.1	8295
1979	22849	3.4	3768	-2357.8	12.9	1085.5	5184	9229
1980	23414	2.9	3757	-1471.7	30.3	1682.5	4759	10136
1981	22301	-0.5	4885	-1264	25.7	3300.1	5185.4	13214.1
1982	23439	0.6	4851	-2254.1	28.9	4537.3	4404	14871.5
1983	22882	-2.4	4011	-1136.5	27.1	3881.5	4834.3	16626.6
1984	23656	3.4	7376	-2193.5	36.1	5031.8	5912.3	21526.1
1985	24278	2.6	10082	-5081.3	32.3	6851.8	5990.7	33773.7
1986	25070	3.3	16888	-5891	32.4	12391.5	9128.9	44821.1
1987	26345	5.1	41154	-4821.9	29.9	22975.7	11442.6	68049.4
1988	27460	4.2	56263	-20773.4	31.2	33766.7	17847.5	101413.3
1989	28558	4.0	80651	-21328	25.8	61784.2	17264.7	128634.1
1990	29921	4.8	101718	-24973.2	19.7	54523.3	46999.3	175467.6
1991	31623	5.7	163924	-22139	22.3	57369.4	35516.4	206890.4
1992	32727	3.5	223481	-35936	22.1	68277.3	103875.9	269213.4
1993	33925	3.7	278259	-34638	23.5	101389.7	135426.4	329240.1

Source: Economic surveys, National accounts statistics, Budget speeches (various issues).

[24] The Data on Public expenditures listed in Appendix 1.1 - 1.4 are all in Nominal terms. They were thus deflated by GDP deflator to make them real Expenditures for use in the regression accordingly.

1.2. Total Public Expenditure on the selected sectors:1970-1993 (In Millions T.Shs.)

Year	General services	Economic services	Defence	Health	Education	Others
1970	498.0	1050.6	169.0	142.2	381.1	240.9
1971	450.4	1019.7	260.1	159.0	378.8	300.8
1972	603.0	1170.6	287.9	207.2	428.0	372.6
1973	838.9	1860.2	494.2	293.7	538.3	304.1
1974	994.0	2630.0	729.5	425.6	756.6	399.2
1975	945.0	2203.9	726.1	424.7	842.0	549.7
1976	1290.2	2818.7	910.0	522.5	1006.7	582.8
1977	1314.2	3364.3	1349.2	668.9	1327.0	814.5
1978	1990.8	4593.8	3297.7	750.3	1574.5	1388.6
1979	2124.0	5196.5	1109.7	720.6	1612.8	3175.7
1980	2680.8	5380.1	1612.3	789.2	1738.0	2284.2
1981	3168.9	6101.6	2308.4	981.0	2440.4	3427.2
1982	3198.1	5341.8	1555.1	1019.8	2524.0	4717.1
1983	4727.4	5573.3	2743.7	1170.8	2502.6	4028.9
1984	8002.6	6463.3	3658.8	1328.7	1795.1	5219.0
1985	14712.8	6904.3	4949.2	2446.3	2321.2	7203.1
1986	13598.3	18904.9	7200.0	2833.6	6504.8	12631.0
1987	20359.0	12731.3	7636.4	4722.8	7918.7	23345.0
1988	29467.3	14810.4	10074.2	6879.0	11917.9	37452.6
1989	42115.2	22353.6	11571.9	9189.2	16725.5	40190.1
1990	48527.3	30086.1	12819.5	11212.6	14383.1	68813.2
1991	54068.0	37818.8	15456.2	17871.2	29981.6	65640.3
1992	97004.2	88163.1	22089.3	25937.6	42304.6	90551.2
1993	93202.1	118250.9	22752.1	42158.2	60605.1	122044.7

Source: Same as 1.1 in appendix (1) above.

1.3. Capital Expenditure on the selected sectors:1970-1993. (In Millions T.Shs.)

Year	General services	Economic services	Defence	Health	Education
1970	73.2	585.8	83.1	16.7	50.7
1971	85.9	629.1	122.6	3.8	56.9
1972	118.9	728.3	116.6	5.4	67.9
1973	248.3	1132.0	143.2	30.5	86.0
1974	410.6	941.5	240.2	46.7	71.9
1975	421.9	1521.6	332.9	33.9	150.3
1976	485.8	1621.6	397.0	96.3	194.4
1977	438.4	2322.2	410.4	118.1	2744.4
1978	401.3	3632.3	510.4	122.5	289.5
1979	307.5	3786.5	329.3	80.2	271.0
1980	356.4	3675.2	324.1	77.4	272.2
1981	423.6	3837.0	482.4	79.4	271.0
1982	311.5	3394.5	353.8	55.6	212.5
1983	421.7	3528.0	424.4	78.3	299.2
1984	877.3	4028.7	457.1	58.3	313.2
1985	809.9	3917.3	551.2	64.8	420.5
1986	1484.7	5526.3	865.2	202.2	773.0
1987	1951.0	6976.3	927.9	305.3	756.0
1988	2796.8	11349.6	965.6	585.4	1166.6
1989	2657.4	11413.7	1530.0	462.9	1025.0
1990	6142.2	31246.7	2259.0	2629.7	2929.8
1991	4641.3	21149.6	2818.9	2181.4	2801.1
1992	14313.9	69216.3	3197.8	5599.5	5541.7
1993	10114.9	94703.8	3206.1	13363.7	14265.2

Source: Same as 1.1 in appendix (1) above.

1.4. Current expenditure on the selected sectors: 1970-1993 (In Millions T.Shs)

Year	General services	Economic services	Defence	Health	Education	Others
1970	424.9	464.8	85.9	125.5	330.4	247.4
1971	365.0	390.6	137.5	155.2	321.9	300.8
1972	484.1	942.3	171.3	201.8	360.1	372.5
1973	590.6	728.2	351.0	263.2	452.3	303.9
1974	583.4	688.5	489.3	378.9	684.7	399.2
1975	523.1	682.3	393.2	390.8	699.5	549.8
1976	804.4	1194.5	513.0	426.2	812.5	582.9
1977	875.8	1042.1	934.8	550.8	1052.6	814.5
1978	1589.5	961.5	2787.3	627.8	1285.0	1388.7
1979	1833.6	1435.1	780.4	659.2	2026.9	1195.4
1980	2074.1	1679.3	1538.2	735.9	1509.6	1801.5
1981	2885.5	1658.0	1826.0	912.7	2026.9	3406.3
1982	2985.7	1818.1	2202.9	927.1	2330.7	4042.0
1983	4373.2	2045.3	2319.3	1092.5	2203.4	4028.9
1984	7125.3	2434.6	3201.7	1270.4	1481.9	5219.0
1985	13902.9	2987.0	4398.0	2381.3	1900.7	7203.1
1986	12113.6	4095.0	6334.9	2631.3	5731.8	12631.0
1987	18408.0	5754.9	6708.5	4472.7	7162.7	23345.4
1988	26670.5	8460.7	9108.6	6294.3	10749.3	37452.6
1989	39457.8	10939.7	11418.9	8626.3	15700.2	40190.1
1990	42385.1	15860.9	10560.5	11610.9	21898.7	68813.2
1991	49426.7	16669.1	15401.1	13592.1	26222.8	65640.3
1992	82690.2	13920.7	18891.5	20337.6	36763.0	90551.2
1993	83087.0	23546.9	19545.9	28794.5	46339.3	122044.7

Source: Same as 1.1 in appendix (1) above.

APPENDIX 2: OTHER REGRESSION RESULTS.

2.1.1(a) PI = 0.79 + 0.70 GS - 0.91 Es + 0.06 Df + 0.76 Ht
(0.64) (1.88)* (2.94)** (0.23) (1.56)
+ 1.05 Ed
(2.16)**

R^{-2} = 0.98
DW = 2.07
F = 451.49

2.1.1(b) PI = 0.62 + 0.94 CAGs + 0.43 CAEs - 0.02 CADf - 0.08 CAHt
(1.63) (4.39)*** (2.53)** (-0.12) (0.28)

R^{-2} = 0.79
DW = 1.5
F = 23.03

2.1.1(a) PI = 1.58 - 0.32 CUGs - 1.07 CUDf - 0.02 CUHt + 1.54 CUEd + 0.68 CUOs
(2.88)** (-1.72)* (-5.52)*** (0.14) (4.13)*** (2.41)**
R^{-2} = 0.76
DW = 2.0
F = 15.40

APPENDIX 3: TANZANIA: COMPOSITION AND STRUCTURE OF PUBLIC EXPENDITURES

3.1 CLASSIFICATION OF CENTRAL GOVERNMENT EXPENDITURE BY PURPOSE

1. GENERAL PUBLIC SERVICES
   - 1.1. General Administration
   - 1.2. External Affairs
   - 1.3. Public Order and Safety

2. DEFENCE

3. EDUCATION

4. HEALTH

5. SOCIAL SECURITY AND WELFARE SERVICES

6. HOUSING AND COMMUNITY AMENITIES
   - 6.1. Housing
   - 6.2. Community Development
   - 6.3. Sanitary Services

7. OTHER COMMUNITY AND SOCIAL SERVICES

8. ECONOMIC SERVICES
   - 8.1. General Administration
   - 8.2. Agriculture, Forestry, Hunting and Fishing
   - 8.3. Mining, Manufacturing, and Construction
   - 8.4. Water Supply and Electricity
   - 8.5. Roads and Bridges
   - 8.6. Inland and Coastal Waterways
   - 8.7. Other Transport and Communication
   - 8.8. Other Economic Services (Tourism)

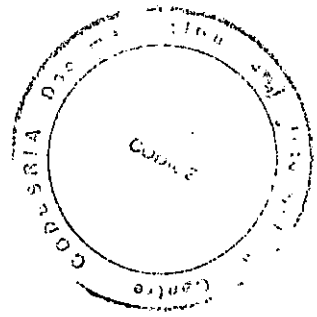
9. OTHER SERVICES
   - 9.1. Public Debt
   - 9.2. Financial and Capital Subscription
   - 9.3. Pensions and Gratuities

Source: Economic surveys (various issues)

Note: Figures for a particular item is classified into three categories; capital/development expenditure, recurrent and total expenditure categories: capital/development expenditure, recurrent and total expenditure.

3.2. TANZANIA: CLASSIFICATION OF GOVERNMENT REVENUE AND EXPENDITURE ACCOUNT

REVENUE	EXPENDITURE
Recurrent Revenue	**Recurrent Expenditure**
1. Income Tax	1. Economic Services
2. Customs and Excise Duty	2. Social Services
3. Property Income Tax	3. General Administration
4. Revenue and Capital Transfers	4. Others
5. Others	
Development Revenue	**Development Expenditure**
1. External sources:	1. Economic Services
i) Loans	2. Social Services
ii) Grants	3. General Administration
2. Internal sources:	
i) Loans	
ii) Surplus from Recurrent Budget	
iii) Others	



Sources: Ministry of Finance, Tanzania; Economic survey (various issues).

3.3 COMPOSITION OF GOVERNMENT BUDGET[25]

1. RECURRENT EXPENDITURE

1.1. Consolidated Funds Service
1.2. Ministerial Supply Votes
1.3. Special Expenditure
1.4. Local Government
  1.4.1. Town Councils
  1.4.2. District Councils
1.5. Regional Supply Votes

2. DEVELOPMENT EXPENDITURE

2.1. Ministry and Parastatals
2.2. Regions

Source: Economic surveys (various issues), Planning Commission.

[25] The revenue part is excluded here.