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RESOURCE GAPS AND SUSTAINABLE ECONOMIC GROWTH IN.NIGERIA, 1970 -1997

2001

RESOURCE GAPS AND SUSTAINABLE ECONOMIC
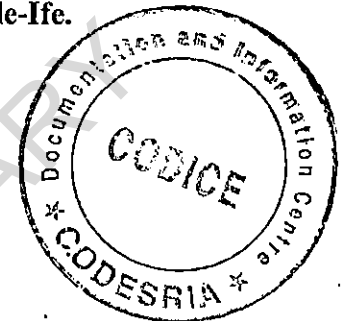
GROWTH IN NIGERIA, 1970 -1997

BY

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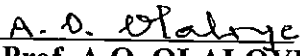## THE DEGREE OF DOCTOR OF PHILOSOPHY IN ECONOMICS

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2001

CERTIFICATION

This research study by **ABIOLA, Asimiyu Gbolagade** has been read and approved as meeting part of the requirements for the award of the degree of Doctor of Philosophy in Economics of the Obafemi Awolowo University, Ile-Ife, Nigeria.

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DEDICATION

This study is dedicated first to God Almighty the Most Beneficent, the Most Merciful, who has been exceedingly merciful to me in all my entire human endeavours.

Second, to my parents: Late Sheik Mohammadu-Tiamiyu Akanni Abiola (R.T.A.) and Alhaja Sariyu Odunola Abiola, and to my nuclear family, comprising my inestimable half –Alhaja Fatimat Funmilola Abiola and my wonderful and promising sons – Masters Taofiki Akinola Abiola and Abubakar Ayoola Abiola.

Third and finally, to the entire people of this country with the solid hope that God willing, I shall continue to use the acquired knowledge to their benefits.

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ABSTRACT

The study examined the effects of resource gaps (Investment-Savings, Export-Import and Budgetary gaps) on sustainable economic growth in Nigeria between 1970 and 1997. The study aimed at determining the existence of output gaps; examining causal relationships among the resource gaps; determining the effects of the gaps on economic growth; identifying the most significant and binding resource gap on economic growth; examining how the gaps had been financed as well as assessing the relative merits of each source of financing.

The study made use of secondary data. Descriptive and econometric analyses were employed. The descriptive analysis was based on ratios and percentages of key variables. The econometric analysis involved specifying models to estimate the effects of various resource gaps on sustainable economic growth in Nigeria. The models adopted error correction modeling (ECM) technique. Some equations were estimated using the Ordinary Least Squares (OLS), while some other equations were estimated simultaneously using the Two Stage Least Squares (2SLS) techniques.

It was found that output gaps existed throughout the review period in Nigeria. Granger causality test shows that the three resource gaps combined together to cause output gap. Also Investment-Savings gap causes the Export-Import gap and Budgetary gap. However, Export-Import gap causes Investment-Savings gap, while Budgetary gap causes Investment-Savings gap and Export-Import gap. A unit increase in the Investment-Savings gap worsened the output gap by 1.5 units. A unit increase in the Export-Import gap worsened the output gap by 0.04unit. However, a unit increase in the Budgetary gap worsened the output gap by 2.5units. Thus, the three resource gaps combined together to limit economic growth in Nigeria.

The estimated indices of the relative strengths of the resource gaps were - 0.000030039, -0.000001362 and −0.000000031 for Budgetary, Investment-Savings and Export-Import gaps, respectively. Thus, Budgetary gap was the most significant and binding constraint on economic growth in Nigeria, while Investment-Savings gap and Export-Import gap followed in that order. The result validated the original Chenery hypothesis to the effect that countries in their pre-take-off stage of development usually have Investment-Savings gap predominance, as the Nigerian economy was found not to be suffering from low monetised savings. Furthermore, the results showed that Investment-Savings gap and Export-Import gap were not of the same magnitude as reported by some other studies. In financing the gaps, internal and external debts were contracted, but the latter was contracted more. The external debts as a source of financing the gaps imposed more severe burdens on the Nigerian economy, by impairing capital accumulation, economic growth and fiscal stability.

The study concluded that economic management authorities should pursue policy to reduce output gap, as this is an important way to ensure sustainability of economic growth. This could be pursued through a frequent reassessment of the relationships between potential and actual output as well as the desired resources to fill the gap.

CHAPTER ONE

INTRODUCTION

1.1 PREAMBLE

The need to achieve sustainable economic growth in Nigeria, especially by

Nigerians, could be traced back to the First National Development Plan (1962-1969).

According to the plan:

"The basic objective of planning in Nigeria is not merely to accelerate the rate of economic growth and the rate at which the level of living of the population can be raised; it is also to give her an increasing measure of control over her own destiny...Nigeria should be in a position to generate from a diversified economy, sufficient income and savings of its own to finance a steady rate of growth with no more dependence on external sources for capital or manpower than is usual to obtain through the natural incentives of international commerce, (FNDP, 1962 pp. 3)."

The above plan brought into focus the problem of resource shortages in Nigeria.

This was because as much as 50.0 per cent of the planned expenditure to execute the plan

was to emanate from foreign sources. The1962-1968 plan had not run its full course

when, in 1967, the civil war dealt a devastating blow to the nation and its economy.

During the civil war a substantial part of the country's resources was directed at

prosecuting the war. The Third National Development Plan (1975-80) recorded some

level of success largely because of the increased revenue from oil. The Second and

Fourth National Development Plans, 1970-1974 and 1981-1985 respectively, like the

First National Development Plan (1962-68), suffered similar fate of resource shortages.

For example, the Fourth National Development Plan was frustrated by the collapse of the

oil prices in the world market beginning from 1981, leading to an abandonment of the

plan. The tempo of the resource shortages forced the country to go on a planning recess

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during 1986-1989. The resource shortages also led to the replacement of the National Development Plans with National Rolling Plans in 1990. The rolling plans provided for carrying forward of uncompleted projects in one particular year to the following year. Thus, as uncompleted projects were rolled over, the economic problem of resource shortages not only persisted it was piled up.

During the period covered by this study (1970-1997) resource shortages were persistent, inspite of huge resources from oil. The main interest of this study is to provide more information on the problem of resource shortages and the effects of the shortages on sustainable economic growth in Nigeria.

1.2   STATEMENT OF THE RESEARCH PROBLEM

One of the main goals of every economy is the pursuit of sustainable economic growth. Economic growth is defined as sustained increase in real Gross Domestic Product over a given period of time through continuing increase of productivity per capita. The growth rate of a country's economy largely determines the growth rate of the inhabitants' per capita income. In comparing standard of living between economies, it is obviously more relevant to take per capita income than total income.

Achieving economic growth is one thing, while sustaining it is another. Economic growth sustainability could be best perceived as a production process that satisfies the present level of consumption without compromising future needs. Thus, sustainable growth suggests the growth that optimises the use of natural capital with intergenerational dimensions, (Khan, 1995). To realise both, that is, the achievement and sustainability economic growth requires the manipulation of some resources. A resource is defined as an agent or factor of production used in an economy or firm to produce and distribute goods

and services or as the purchasing power to effectively demand for investment goods. The resources are economic goods and therefore are relatively scarce. If the economy were to achieve sustainable growth, it would require that the quantities and qualities of the resources should be in a desired state. A resource is in desired state if it is adequate relative to its functions. However, if dis-equilibrium exists between the actual and desired state of a resource, we would have resource gap, which could be positive or negative.

To fill the resource gaps and return the resources to desired equilibrium would require specific activities. Equilibrium is defined as that position that is characterised by lack of tendency to change such that once it is achieved, it tends to perpetuate itself. In other words, it is a state in which forces making for change in opposing directions are perfectly in balance. The equilibrium will be achieved and sustained if the resources grow at a steady state. The concept steady state refers to a state in which the rates of growth of the variables in an economy remain relatively constant over-time.

Immediately after the end of the civil war in 1970, the Nigerian economy witnessed perhaps the most significant changes. The hitherto fairly broad-based agricultural economy became considerably less diversified as oil dominated the production and trade structures. It should be noted that before 1970, although crude oil had been found in commercial quantities, oil receipts were neither a major source of revenue to the Nigerian government nor a major earner of foreign exchange. However, economic growth in the early 1970s was largely dependent on both the oil sector and public sector dominated investment. Despite the oil boom (1974-1978) the country recorded overall deficit throughout 1970-80. The average growth rate of GDP stood at 6.03 per cent for the period 1971 to 1980.

In the 1980s, the Nigerian economy underwent considerable strains, stresses and a deep recession. Many reasons have been put forward for the situation. The reasons

included the instability in crude oil prices, collapse of commodity prices, protracted declining of the world oil market since 1980-81 leading to significant decline in foreign exchange earnings and pressure on balance of payments. As a consequence, the GDP average growth rate fell drastically to 1.69 per cent between 1981 and 1990.

During 1991-1997, Nigerian economy faced unimpressive economic growth problems. There was the problem of managing the huge public debt arising from accumulation of large fiscal deficits. Also, there were the problems of restoring sustainable economic growth, population growth reduction to enhance increased per capita income, reducing the high rate of unemployment, increasing capacity utilisation and promoting price stability. Furthermore, there was need to change the monocultural nature of the economy and diversify it away from the heavy reliance on oil, (Oyejide and Raheem, 1993; and Obadan and Odusola, 1999). The myriad of problems that faced the economy between 1991 and 1997 manifested in unimpressive economic performance, as the GDP average growth rate stood at 1.49 per cent between 1991 and 1997.

Meier (1961), Jhingan (1986), and Handler and Steinherr (1993) have argued that steadily rising capital financed largely through domestic savings is a necessary though not a sufficient condition for sustainable economic growth. Domestic saving is defined as investment minus foreign capital inflow, (Thirwall, 1983). However, the inadequacy of domestic savings to support required investment to raise economic growth to a satisfactory level has been a serious constraint facing economic growth in Less Developed Countries (LDCs). The above explanation has the tendency to generate dis-equilibrium of Investment-Savings relationship.

All developing economies, especially the Nigerian economy, require imported capital goods and raw materials as input to enhance sustainable production. These

commodities require foreign exchange to purchase them. Foreign exchange could be better mobilised through increased exports, compressed imports as well as foreign assistance. The structural rigidities confronting both demand and supply of exports and imports as well as the unfavourable political climate, in Nigeria, have made foreign resource inflow difficult. In some cases the above problems have exacerbated capital flight, (Ajayi, 1991).

Budgetary constraints could open a gap between desired and actual growth rates through public sector accounts. In most LDCs, and indeed Nigeria, the public sector is an important factor driving economic growth. For example, in Nigeria the large receipts from petroleum products under the control of the public sector, as represented by the government, have made the sector to venture into nearly all aspects of economic activities. As a consequence, the public sector has become dominant relative to the private sector. However, investment by the public sector also strains its finances, (Taylor, 1994). In carrying out the public sector activities, private sector investment is strongly crowded-out, (Bacha, 1990), (Abiola, 1996) and (Olomola and Abiola, 1997).

Public sector investments in infrastructures, public utility and even manufacturing are supposed to crowd-in private sector investment. This is by making the private sector investment more profitable instead of crowding it out through the mechanism of higher government borrowing putting pressure on financial markets. Public sector in Nigeria has been facing serious problems with the collapse of the oil market in 1980-81, which reduced the federally collected revenue and consequently the federal government retained revenue. The reduced revenue has been a constraint on government expenditure and consequently the multiplier effect it should have on the economy. Thus, the budgetary constraint would have limited economic growth, (Bacha, 1990) and (Taylor, 1994).

From the explanations above, one important issue has become clear. The issue is

that an economy will enjoy sustainable economic growth only in the absence of resource gaps. The identified resource gaps of interest are Investment-Saving gap, Export-Import gap and Budgetary gap. The purpose of studying the above three resource-gaps arises; therefore, from the limit they could impose on sustainable economic growth.

It may not be very easy for an economy to be able to fill all the three resource gaps simultaneously. Also, it is not very likely that the three resource gaps will impose equal constraint on the economy. Thus, it becomes reasonable to find out the extent to which the constraints imposed by other resource gaps can be removed by filling the most binding gap. Furthermore, it is necessary to examine the plausibility of substitution of one gap for another. In fact, it has been argued that a model incorporating the interaction of the limits which these resource gaps pose to potential economic growth is a natural tool for evaluating possibilities for economic recovery based on feasible capital inflows in LDCs, (Taylor, 1994).

1.2.1 Key Research Questions

The above explanations raise some key research questions. Did output gap exist in Nigeria? Was output gap caused by resource gaps? Did resource gaps have causal relationships among them (interdependence)? What had been the effects of the resource gaps on economic growth in Nigeria? Which gap had been the most binding constraint on economic growth? How had the gaps been financed? Did the Nigerian evidence corroborate the original Chenery hypothesis, (Chenery and Bruno, 1962), (Adelman and Chenery, 1966), and (Chenery and Eckstein, 1970)? In the hypothesis, it was argued that in the early stage of development Investment-Saving gap predominates. This study provides answers to the above questions.

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1.3   JUSTIFICATION FOR THE STUDY

The concern to examine the effects of resource gaps on economic growth in Nigeria was informed by many factors. Some of the factors are discussed below.

One, we recognise the fact that a few past studies have adopted gap analysis to investigate effects of resource constraints on economic growth. For example, Chenery and Bruno (1962) for Israel, Adelman and Chenery (1966) for Greece, Chenery and Eckstein (1970) for Latin America, El-Shibly and Thirlwall (1981) for Sudan, Oyejide and Raheem (1990) for Nigeria, and Mwega et al (1994) for Kenya. Nevertheless, the prevailing economic predicaments of each of the above countries as at the time of the studies not only differ, they have also been changing. This has two implications; the first is a problem while the second is a prospect. The problem is that the differences could frustrate cross-country generalisation of the results. The prospect is that the changing profile has made it imperative to ensure a rather frequent re-assessment of effects of resource constraints on economic growth. The argument we are putting across is that fresh studies will be difficult to do without.

Two, very few studies have carried out quantitative estimates of resource gaps and their effects on sustainable economic growth in Nigeria. In this regard, Oyejide and Raheem (1990) used time series data from 1970 up to1988 and projected a minimum average growth rate of 4.5 per cent for the period 1990-1995. They based their projections on some assumptions, notably, that the public sector would provide the bulk of the required investment; that the agricultural sector would grow more rapidly than the rest of the economy, such that by 1995, it would contribute about 34.0 per cent of GDP; that the Structural Adjustment Programme (SAP) would continue to be implemented appropriately; and that the domestic environment would be conducive enough to promote economic

growth.

However, things have changed since the study was carried out. It should be noted that one of the policy thrusts of SAP was to reduce the size of the public sector. This has been implemented through the commercialisation and privatisation of some public enterprises and a consequent reduction in public sector investment. Secondly, agricultural sector failed to perform as projected. Instead of the projected 34.0 per cent, the sector contributed about 30.0 per cent to GDP during the period 1990-1995. Finally, the collapse of the transition to usher in a democratically elected regime in October 1993 and the continued stay in government of the military have combined together to deprive the country of the required favourable domestic environment and hence foreign assistance. As a consequence, the projections of Oyejide and Raheem (1990) have become invalidated, with GDP growth rate recording an average of 3.07 per cent as against the projected 4.5 per cent per annum for the period 1990-1995. The invalidation has no doubt justified fresh studies.

Thirdly, all the past studies that we are aware of identified different resource gaps. They also attempt to estimate the gaps separately, as if the gaps have no relationships with one another. In other words, none of the past studies used simultaneous equation approach to investigate the resource gaps. We consider this as a major methodological flaw. Some of the contributions of this study are in the use of error correction modelling technique to test for the long run stationarity of the variables and using simultaneous equation approach to determine the impacts of the resource gaps on economic growth.

Finally, resource constraints became a major economic problem in Nigeria in the early 1970s, (Oyejide and Raheem, 1993). Large fiscal deficit financing, in the form of internal and external borrowings, was resorted to in a bid to address the impact of resource constraints on economic growth, (Abiola, 1996) notwithstanding dearth of any valid

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quantitative estimates of the required resources. Thus, both the policy makers and politicians have been filling some gaps of whose depth and magnitude they do not have any quantitative measure. The need to ameliorate the above policy problem cannot be overemphasised. Therefore, we hope that this study would provide quantitative estimates of the effects of resource gaps on economic growth in Nigeria as well as provide an insightful and objective determination of the most binding resource gap. This is with a view to ascertaining the possibility that if government fills the dominant gap the other gaps will reduce. Also, the study will serve as input into any programme of economic recovery, to enhance better performance. The above explanations underscore the need to frequently study the changing profile of the above resource gaps and their effects on economic growth.

1.4   OBJECTIVES OF THE STUDY

The broad objective of the study is to examine the effects of resource gaps (Investment-Savings gap, Export-Import gap and Budgetary gap) on sustainable economic growth in Nigeria between 1970 and1997. The specific objectives are:

    i.   to investigate the existence of output gap in Nigeria;

    ii.   to examine the existence of causal relationships among the resource gaps;

    iii.   to estimate the effects of the resource gaps on economic growth;

    iv.   to identify the most significant and binding resource gap; and

    v.   to examine how the resource gaps had been financed as well as assess the relative merits of each source of financing.

1.5   SCOPE OF THE STUDY

The study covers the period between 1970 and 1997. The rationale for this choice

lies in the fact that before 1970, although resource constraints as an economic problem existed in Nigeria, they were very mild. However, since the end of the civil war in 1970, the problem of resource gaps has persisted. Even during the oil boom, the objective of the Nigerian government was to convert receipts from petroleum products into investments in infrastructural facilities and to develop other sectors. However, not much progress was recorded, in terms of net benefits to the economy, (Bevan et al, 1992). As a consequence, there has been persistent deficit in the balance of payments, low external reserves, large fiscal deficits in government finances as well as mounting external and internal debts, (Abiola, 1996).

Ideally, resource gaps exist at all levels of the three tiers of government in Nigeria, notably federal, state and local governments. Thus, one will normally expect the study to cover the three tiers of government. However, the unavailability of sufficient time series data at both state and local government levels in the country, poses serious limitations to this. In other words, this study is limited to the federal government level alone. We, however, believe that the exclusion of both state and local government levels will not have serious adverse effects on the results of the study. This, indeed, may look very simplified but a cursory look at it will show that it is not unrealistic. In fact, the assertion is both reasonable and logical, if one realises the dominance of federal government's budgetary efforts on the entire national economy.

1.6   ORGANISATION OF THE STUDY

The study is designed to have six chapters. In chapter one, we introduce the study, by stating the research problem, the justification, the objectives as well as the scope of the study. In chapter two, we provide a background to resource gaps in Nigeria for the period, 1970-1997. The chapter is sub-divided into three: 1970-1980, 1981-1990 and 1991-1997. It

also emphasises the main characteristics of the economy during the sub-periods.

Chapter three provides the review of literature and analytical framework of the study. The latter is also sub-divided into different sections. In section one, we clarify some key concepts. In section two, we discuss the theory of Economic Growth as well as its importance. The theoretical link between investment and economic growth is provided in section three, while the theoretical link between Resource Gaps and Sustainable Economic Growth is addressed in section four.

In chapter four, we discuss the methodology for the study. We also sub-divide the chapter into three sections. Section one, discusses model specification. Section two discusses techniques of data analysis. In section three, we indicate the sources of data for the study.

Chapter five provides empirical analysis of results. There are five sections under this chapter. Section one examines the investigation of the existence of output gap. Section two contains the determination of the existence of causal relationships among the resource gaps. Section three presents the estimation of the effects of the resource gaps on economic growth. Section four discusses the determination of the most binding resource gap. Finally sources of financing the gaps including the assessment of their relative merits are discussed in section five.

Chapter six provides a summary of the major findings. We also made some recommendations and concluded the study. The limitations of the study as well as areas for further research are indicated under this chapter.

CHAPTER TWO

BACKGROUND TO RESOURCE GAPS IN NIGERIA: 1970-1997

2.1 INTRODUCTION

The Nigerian economy has been facing the problem of resource shortages before the 1970s. For example, during the pre-colonial period (before 1860) the Nigerian economy was basically agrarian. Thus, subsistence economy was prevalent. Under a subsistence economy there is usually little for surplus (domestic savings or export) as the households consume almost whatever is produced. There were also slavery and inter-tribal wars. These disrupted economic activities because of the massive transfer of resources, especially, labour from one place to another. This suggests the existence of resource shortages.

During the colonial period, 1861-1960, modern economic growth was possible. This was because there was relative peace, social amenities, and transfer of resources from abroad into the country. However, nationalists saw this as rather defective describing it as a sort of systematic exploitation of available resources. The situation also increased the external dependence of the country.

During 1960-1997 (independence till date), the urge for economic growth was high but the unavailability of required resources, in desired quantity and quality, was a major constraint. For example, capital accumulation was weak. It should be noted that the capital required was not produced in Nigeria. The capital had to be imported. In a situation where they were produced locally, two problems were encountered. The first was their higher cost of production making prices exorbitant. The second was their relative poor quality. Also, financing the required investment was made weaker. With

independence, the colonial governments were not favourably disposed to giving grants as much as before independence. By implication, to finance the required investment, therefore, necessitated borrowing, which have to be paid back including the interests.

Furthermore, technology became much more expensive. This gave birth to further technological dependence and the elusive transfer of technology syndrome. The above was coupled with the problem of technical skills. When the foreign experts were leaving there was no immediate replacement for them. Where Nigerians replaced them, there was the problem of an initial low productivity arising from little experience. The constraints have resulted in significant imbalance (resource shortages) and poor economic performance.

However, this study did not cover the period 1960-1969. It should be noted that the decade was noted for pronounced internal hostilities. For example, the political crises of 1964 in the western part of the country; the first and the second military coups, both which plunged the country into a civil war (1967-1970). During the war, a substantial part of the country's resources was directed at prosecuting the war, most especially to purchase arms and armaments. The above may no doubt gives rise to resource shortages and unimpressive economic performance. In fact, what arouse our interest for the period 1970 to1997 was the persistence of the resource shortages, despite there was no war. To clearly bring into focus the imbalances and the consequent poor economic performance, we sub-divided the study period into three; namely 1970-1980, 1981-1990 and 1991-1997.

2.2   The Oil Boom and Glut Period (1970-1980)

A number of factors contributed to the imbalances and poor performance of the

Nigerian economy during the 1970-1980 period. For example, during the war some economic resources were destroyed. The need to reconstruct and rehabilitate the war-affected areas could therefore, not be over-emphasised. Thus, and expectedly, government expenditure increased. Also, during the period, especially during 1973-1977, Nigeria received an enormous but temporary oil revenue. The oil boom was followed by a severe slump especially in 1978. The slump was caused by a fall in oil prices, (Bevan et al, 1992).

Certain policy measures by the Nigerian government, notably the austerity measures, introduced distortions into the allocation of the economy's resources and hampered the growth of the economy. The aim of the austerity measures was to reduce the high-powered money base. As a consequence, the purchasing power of the people reduced, thereby generating imbalances in aggregate demand and aggregate supply. Olaloye (1988) reported that capital equipment were allowed into the country with little duties paid on them and some establishments were granted tax exemptions during the early years of their operations, while more attention was directed towards the manufacturing sector at the neglect of the agricultural sector. He argued further that the incomes that should have been used for investment in agriculture and in strengthening the comparative advantage in the export-producing industries were diverted to uneconomic and highly capital intensive, often inefficient manufacturing sector. The illusion then was that agricultural sector could naturally grow unaided while the sector that needed support was the manufacturing sector. The above suggests that the manufacturing sector was highly subsidized. Nevertheless, Fabayo (1981) pointed to the fact that substantial unused capacity exists in the Nigerian manufacturing sector. All these measures induced imbalance situations and a distortion in the allocation of the

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resources of the economy.

The above imbalances manifested in the form of unimpressive economic performance. For example the growth rate of the economy which stood at 21.4 per cent in 1971 fell to a negative 7.4 per cent in 1978. The unimpressive economic performance was accompanied by many implications. Among these was the effect on the Investment-Savings gap (divergence between investment and saving) as percentage share of GDP, which stood at 9.2 per cent in 1970 only to fall to a negative 7.9 per cent in 1978. Also, overall deficit (divergence between total public expenditure and total public revenue) as percentage of GDP which stood at a negative 8.7 per cent in 1970showed no significant improvement as it stood at a negative 7.8 per cent in 1978. Furthermore, the balance of trade as percentage of GDP, which stood at 2.5 per cent in 1970 fell sharply to a negative 6.2 per cent in 1978, (Table 1 refers).

TABLE 1

RESOURCE GAPS AND ECONOMIC PERFORMANCE IN NIGERIA, 1970-1997

YEAR	GDP AT 1984 FACTOR COST (₦' M)	Real GDP growth rate %	Invest.-Saving-Gap at C.M.P. (N'billion)	I-S Gap as % of GDP	Overall Deficit/Surplus (N' million)	Overall Deficit/Surplus as% of GDP	Balance Of Trade (Export-Import) (N'million)	Balance Trade as % GDP
1970	54,148.9	-	4.43	9.18	-455.1	-8.7	129.0	2.48
1971	65,570.0	21.35	4.43	9.18	171.6	2.6	214.5	3.27
1972	69,310.6	5.5	4.43	9.18	-58.8	-0.8	444.1	6.16
1973	73,763.1	6.4	4.43	9.18	166.1	1.5	1053.6	0.10
1974	82,424.8	11.7	4.43	9.18	1796.4	9.8	4057.5	22.18
1975	79,988.0	-3.0	0.34	1.58	-427.9	-2.0	1204.0	5.75
1976	88,854.3	11.1	1.11	0.40	-1090.8	-4.0	1602.6	6.01
1977	96,098.5	8.2	1.90	5.80	-781.4	-2.4	537.0	1.70
1978	89,020.9	-7.4	-2.84	-7.87	-2821.9	-7.8	-2147.3	-6.22
1979	91,190.7	2.4	1.00	2.32	1461.7	3.4	3364.3	8.02
1980	96,186.6	4.1	2.03	4.1	-1975.2	-3.9	5091.1	10.26
1981	70,395.7	-2.6	-3.42	-6.73	-3902.1	-7.7	-1816.3	-3.60
1982	70,157.0	-0.3	-4.94	-9.55	-6104.1	-11.8	-2564.1	-4.97
1983	66,389.5	-5.4	-1.53	-2.68	-3364.5	-5.9	-1401.2	-2.47
1984	63,006.2	-5.1	1.82	2.86	-2660.4	-4.2	1909.7	3.03
1985	68,916.1	5.9	2.76	3.81	-3039.7	-4.2	4658.2	6.53
1986	71,075.9	2.2	-4.49	-6.14	-8254.3	-11.3	2937.0	4.07
1987	70,740.6	-0.3	0.51	0.47	-5889.7	-5.4	12498.9	11.69
1988	77,752.3	7.0	-0.58	-0.39	-12160.9	-8.4	9747.1	6.83
1989	83,495.0	7.3	13.39	5.96	-15134.7	-6.7	27111.0	12.19
1990	90,342.0	8.2	14.49	5.56	-22116.1	-8.5	64168.2	24.88
1991	94,416.1	4.8	36.30	11.20	-35755.2	-11.0	34515.2	10.78
1992	97,431.4	3.0	14.53	2.64	-39532.5	-7.2	61354.6	11.27
1993	100,015.2	2.1	-19.93	-2.84	-107735.3	-15.5	52669.7	7.62
1994	101,330.0	1.3	-54.20	-5.71	-70270.6	-7.7	43270.4	4.75
1995	103,510.0	2.2	-43.5	-2.20	1000.0	0.1	195533.7	9.97
1996	106,870.0	-3.4	209.7	7.42	37049.4	1.6	746916.8	27.16
1997	111,072.4	0.4	152.0	4.70	-5000.0	-0.2	395945.3	13.10

Sources
1. Statistical Bulletin of the CBN Abuja (various issues)
2. National Planning Commission (various issues), Abuja.
3. Partly computed by the author.

2.3   The Over-valued Exchange Rate and SAP Period (1981-1990)

A major oil glut was recorded in 1981. The glut and its attendant consequences plus the problems of the previous period heightened the imbalances in the Nigerian economy during the period 1981-1990. For example, it was widely known that Nigeria maintained an over-valued exchange rate. This policy adversely affected the performance of the economy. Maintaining an exchange rate that was higher than the equilibrium rate led to sub-optimal patterns of resource allocation. The low cost of imports led to increased demand for imported goods that produced excess demand for foreign exchange and resulted in deficit in the balance of payments. Also, there were cases of inflated contracts, which increased the cost of investment projects spectacularly. The civilian government freely renegotiated contracts. For example, the civilian government renegotiated the Kainji Dam project earlier contracted at $120 million by the military for $600 million. This presumably was a result of considerable increase in rent–seeking activities characterising the switch to civilian rule, (Bevan et al, 1992).

The external shocks arising from the oil glut implied that relative prices must change to maintain market clearing. However, agents, public or private, could either accept or resist these relative price changes. Also, an appropriate response to the shocks would have involved substantial changes in national assets. As a response, government embarked on Structural Adjustment Programme (SAP) in 1986. The underlining aim of SAP was to reduce the attendant consequences of heavy reliance on crude oil as well as external shocks. The policy measure was designed to last for an initial two years (1986-1988), but had to be extended to 1993. The reforms included the replacement of the hitherto fixed exchange rate with a substantial trade liberalization as well as substantial reduction in the size of the public sector.

From Table 1, the period 1981 through 1986 recorded much more unimpressive performance than the period 1970-1980, as the economy recorded persistent negative growth rates of 2.6, 0.3, 5.4, 5.4 and 0.3 per cent during the years, 1981, 1982, 1983, 1984 and 1987, respectively. Thus the economic problem could be described as having attained a crisis dimension. The Investment-Savings gap declined from 2.0 per cent in 1980 to a negative 4.9 per cent in 1986. The overall deficit as percentage of GDP, which stood at a negative 7.7 per cent in 1981, worsened in 1986 as it stood at a negative 11.3 per cent. In a similar vein, balance of trade as percentage of GDP, which stood at 10.26 in 1980 fell sharply to 4.0 in 1986.

2.4 The Post-SAP Period 1991-1997

All the problems identified in the previous periods were also persistent during the period 1991-1997, in some cases with greater dimensions. For example, high level deficit financing had resulted into huge public debt. The public debt had to be serviced. This resulted in large transfer expenditures with significant proportion going into debt servicing. Another worrisome aspect of the Nigerian expenditure profiles was that most of them were externally oriented. These were either to service foreign debt or to import resources for the economy. The implication is that significant leakage occurred in the economy resulting in balance of payments dis-equilibrium. Thus, despite the relatively high expenditure profile not much has been recorded as net benefits to the domestic economy, (Bevan et al, 1992).

The military government planned to return the country to a democratically elected government in 1992. It later postponed this date to 1993. The inability of the military to hand over power in 1993 brought an impasse. During the impasse, socio-economic

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activities were at their lowest ebb as there were lots of economic sanctions from foreign nations. Investment activities were discouraged, because the environment was unfriendly. In fact, capital flight became more pronounced, (Ajayi, 1991). At home, many manufacturing firms had to fold up and lay off their workers partly because of inability to import essential inputs and partly because of unsold stock arising from weak purchasing power of the consumers. As a response to the above, government relaxed the Structural Adjustment Programme (SAP) in 1993, in reaction to public outcry that the policy was anti-welfarist. There was no substitute programme to consolidate the gains from SAP. The unemployment arising from the lay-offs and the embargo on new recruitment brought lower output, lower income and inability to save.

The average growth rate of real Gross Domestic Product stood at 1.5 per cent during 1991-1997. The unimpressive performance will be better appreciated if we consider the growth rate of population that stood at 2.6 per cent per annum as given by the National Population Commission, (NPC, 1997). The Investment-Savings gap as percentage of GDP stood at -2.8, -5.7and –2.2 per cent in 1993,1994 and 1995 respectively. The overall deficit as percentage of GDP shows no significant improvement as it stood at –7.2, -15.5 and –7.7 per cent for 1992, 1993 and 1994 respectively. The balance of trade as percentage of GDP stood at 11.3 per cent in 1992, fell to 4.8 per cent in 1994 but rose to 13.1 per cent in 1997.

The above analysis has shown that significant resource shortages existed in the Nigerian economy. Also, it could be deduced from the analysis that the resource shortages have implications on the performance of the economy. The above further provides justification for this study.

CHAPTER THREE

LITERATURE REVIEW AND ANALYTICAL FRAMEWORK

3.1 INTRODUCTION

Two subjects are addressed in this chapter. The first is the review of relevant literature. The second is the analytical framework for the study. For a thorough understanding, we sub-divided the literature review into themes. In this regards we have three themes. In the first theme we grouped together studies that address growth models as they relate to sustainable economic growth. In the course of the review, we found out that some studies accorded prominence to foreign resources as basis for sustainable economic growth; this is addressed in the second theme. In the third theme we grouped together studies that examined the effects of resource gaps on sustainable economic growth.

The subject matter, of resource gaps and their implications for sustainable economic growth, have over the years generated much interest among economic researchers, and have increasingly become a focus of economic analysis. The general consensus is that resource gaps may impose limit on capacity growth. Three main resource gaps have been identified in the literature. They are Investment-Savings gap, Export-Import gap (foreign gap) and Budgetary gap (fiscal gap). Different studies have used different methodologies and reported predominance of different resource gaps in different countries. This has led to different policy proposals to deal with the problems of resource gaps in different countries. Also, the methods of financing the gaps depend on the type of resource gaps reported. In the review of literature that follows this introduction, we look at the above issues in each of the study reviewed.

3.2 LITERATURE REVIEW

3.2.1 Growth Models and Sustainable Economic Growth.

Chenery and Bruno (1962) analysed the main development alternatives in Israel and showed the theoretical interrelationships among the main instruments of development policy. They were aroused by some alleged deficiencies in growth models as a basis for development policy. Notable among these alleged deficiencies included the focusing on the investment- savings relationship and the possibilities of substitution between capital and labour, as well as the exclusion of the changing structure of demand, the role of foreign trade and the allocation of resources. As a consequence, he argued that, formal growth models had failed to clarify the theoretical relationships among the several instruments of development policy, which ordinarily should be one of its major functions.

The relations comprised those among objective variables, instrument variables and structural limitation variables. By objective variables they meant those variables reflecting the aims or purposes of policy. Such variables were taken as given such that the problem would be to find the best combination of values of instrument variables. By instrument variables they meant those variables, which were subject to government control. Structural limitation variables meant those variables that posed stumbling block for policy analysis either because the variables were outside the control of the government or were rather irrelevant for policy analysis. In fact, the omission of several of the instruments and limitations could make the use of growth models seriously misleading.

Chenery and Bruno identified some factors that could limit economic growth in Developed Countries as well as in Less Developed Countries (LCDs). In the case of Developed Countries, these factors included the existing factor supply (labour and capital stock); the rate of population increase; the rate of savings; and the efficiency of factor use

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as well as its change overtime. In the case of Less Developed Countries (LDCs), in addition to those factors enumerated above, they identified three other factors. These included the inflow of foreign resources (to allow for excess of imports over exports), the present and future composition of demand; and the ability to plan and carry out development activities (investment, technical assistance, etc).

The methodology used by the authors was that of an aggregate model similar to the one used by Chenery and Goldberger (1959). The model included the objective and instrument variables and the structural limitations. The structural limitations were characteristic of developing economies in which trade and capital imports played significant roles. The model was therefore thought to be applicable to a considerable range of countries. The approach also led to a measure of productivity of foreign assistance, which could provide a basis for inter-country comparisons. However, one of the methodological problems in this study was how to identify in advance factors that could prove to be effective limits to economic growth without some degree of bias.

The study further identified three limits to economic growth in Israel. These were, supply of capital, supply of labour and balance of payments. Chenery and Bruno argued that capital and labour were complementary (suggesting that neither of the two could on its own constitute a distinct resource gap, thereby necessitating the combination of both), while balance of payments was similar to the Investment - Savings limitation. Thus, there should be a change in the structure of income with a view to reducing the proportion going to consumption and hence increase savings. Similarly, there should be a change in the structure of production in order to reduce the ratio of imports to total output.

They also reported that the productive alternatives (what should be done to ensure sustainable economic growth) of the Israeli economy were found in full Employment

equilibrium, Investment-Savings equilibrium, and Balance of Payments equilibrium. In an attempt to select the best alternative from the identified three, they argued that foreign borrowing could not affect full-employment equilibrium. This they justified on the premise that the Israeli economy was already almost fully stretched i.e. operating at full capacity. The deduction from the above is that substantial part of the increase arising from foreign borrowing would therefore be directed towards consumption. It should be noted from the point of view of the classical economists that at equilibrium, savings equal investment. If dis-equilibrium exists, it can be in two ways. In the first instance, savings may lag behind investment. In the second instance, investment may lag behind savings. Borrowing may be a solution under the first situation. Under the second situation the appropriate thing to do is to lend out the excess fund. If this is not done, the excess fund will no doubt go into consumption expenditures in order to keep the equality between income on one part and consumption and savings on the other part. Thus, increase in income will have to be compensated for with increase in consumption assuming saving is fixed ($\uparrow Y = \uparrow C + S$).

On the Investment-Saving equilibrium, they reported that if there were a zero propensity to save the marginal productivity of aid/grant would be equal to the marginal productivity of investment. Following Rosentein - Rodan (1961), they postulated that as the marginal propensity to save increases, the effect of a unit of aid on total output rises. The justification for this lies in the fact that the increase in domestic savings permits the increment in investment to exceed the amount of aid. However, if the economy is already operating at full employment, the marginal productivity of investment decreases.

In the case of foreign exchange equilibrium, they reported that those countries for which foreign exchange was the binding limit to economic growth would have the highest productivity of external aid. In the case of Israel, they found that the propensities to import

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which was used as proxy for values of the productivity of aid ranges from 0.85 to 1.10 as the exchange rate was increased from 2.5 to 3.5 per cent.

Comparing the plausibility of Investment-Savings equilibrium with the Foreign Exchange equilibrium, they reported that the productivity of aid could range from 0.2 to 0.6 when domestic savings was the limit to economic growth, and from 0.4 to over 1.0 when balance of payment was the limiting factor. They also found that low productivity was correlated with high capital-output ratios, low savings and high import propensities. However, in cases where marginal imports constituted a very large fraction of the increase in total output (about 0.40 or more) the productivity of aid under the Foreign Exchange equilibrium would likely drop below that of the Investment-Savings equilibrium. They concluded, however that domestic Investment-Savings gap was the dominant factor limiting economic growth in Israel. Thus, their findings reflected the low level of monetized savings in countries, which are in their pre-take off stage of development.

It is, however, very doubtful whether Investment-Savings limitations and Balance of Payment limitations are very similar as argued by Chenery and Bruno (1962). For instance, other studies, notably, El-Shibly and Thirwall (1981), Oyejide and Raheem (1990) and Mwega et al (1994), have reported that Investment-Savings and Foreign Exchange constraints could be distinct resource gaps that could limit economic growth. By implication, if domestic savings and foreign resources are easily substitutable, and the incremental-capital output ratio and incremental output-import ratio are not fixed, resource gap analysis will no doubt loose quite a lot of its force, (El-Shibly and Thirwall, 1981).

Furthermore, productivity of aid largely depends on two main factors. First, is the rational allocation criterion, which depends on the form of such aid. There are basically, two forms of aid/grants. They are the matching aid and the non-matching aid.

Theoretically, matching grants are esteemed to be more effective than non-matching grants, with regards to the response of the recipient units to the inflow of fund. By effectiveness of an aid, we mean its power to change behaviour from what it would otherwise have been in a direction, which the particular policy-makers/donors prefer.

The second factor influencing the productivity of aid is that of the donor's evaluation of the relative desirability of an increase in output as between countries. Unfortunately, economic theory cannot really contribute much to the evaluation, as it is basically subjective and determined through political processes. For example, in Nigeria as a result of the continued staying in power of the military, the inflow of aid/grants has been rather unimpressive, in the past one and a half decades. The implication from the above is that any programme of economic growth, which largely depends on inflow of aid/grants, may be a mirage. In fact, foreign aids are not only unreliable; they are also not sustainable. Policies based on aids will no doubt suffer the problem of unsustainabilty.

Finally, Chenery and Bruno emphasised only two constraints to economic growth: domestic savings and foreign exchange. According to them, fiscal constraint was not a serious economic problem. However, we know that in most Less Developed Countries, government through the public sector is one of the agents promoting economic growth. This is done largely through government expenditures, most especially capital expenditure. By implication, in as much as any government is able to finance its current expenditures from its current revenues, no fiscal constraints exist. Between 1950-1960, the period covered by Chenery and Bruno in their study, the government of Israel was able to achieve this. Major sources of the revenue were the reparations from the Germans as well as donations from some other countries. The absence of fiscal constraints manifested in the form of 11.0 per cent Gross National Product (GNP) average growth rate for the period

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1950-1959. In other words, the searchlight for development alternatives would not have considered fiscal constraints. By implication, the result of the study could hardly be replicated for policy formulation in any country without the presence of those situations in Israel. Put differently, any country such as Nigeria, where fiscal constraints exist may find the study less suitable for policy formulation and implementation. This no doubt calls for a study of actual case.

Mckinnon (1964) constructed a growth model of the Harrod-Domar type, which incorporated in a crude way the effects of international trade on the growth of developing countries. He was aroused by earlier studies by Chenery and Bruno (1962), and Manne (1963), who had argued a dual role for the state of foreign exchange balance as it affected economic growth. The first role, which in the views of the classical economists was that foreign aid or investment, only has the effect of supplementing domestic savings in the receiving country. The second role christened the modern view argued that many goods have strategic importance in efficient industrial growth but cannot be produced domestically in the early stages of industrial development, or after a war. Thus, foreign aid or foreign private investment could have a large favourable impact on the growth rate of the economy where such a constraint was binding even though the foreign transfers were a small fraction of available domestic saving.

The model he constructed differed from that of Johnson (1958) in that foreign capital goods directly affected the productive capacity of the economy and exports did not passively react to foreign demand conditions, but were directly related to domestic economic growth. The model could be viewed as a rather simpler general exposition of several ideas given by Chenery and Bruno (1962) for the case of Israel.

To show the impact of foreign trade on aggregate productive capacity of the

economy, Mckinnon specified that foreign goods entered as inputs into domestic production function. In the specification he postulated that total investment at time "t" would equal the sum of domestic savings plus net foreign transfers. He reported that if net foreign transfers were zero, and domestic savings could be freely exported to obtain foreign capital goods, domestic savings would be the only constraint to economic growth. Also, if exports were not sufficiently great to finance needed imports of foreign capital goods, the warranted growth rate would not be achieved, thus, suggesting the existence of a foreign exchange constraint.

He also argued that foreign capital transfers could have effects on economic growth rate, but in a specified manner. For example, it could be carried out through increasing import capabilities where foreign exchange constraint existed, that is, increasing purchases of foreign capital goods. Similarly, foreign capital transfers could have the effect of increasing domestic savings rate where saving constraints existed, that is, by increasing the effective level of total investment in both domestic and foreign capital goods. However, in a situation where foreign exchange constraint existed, foreign aid transfers would always have a proportionately greater effect on economic growth rate than if domestic saving constraints existed. In other words, it would be possible to get more punch from a foreign aid dollar when there existed a pool of potential domestic savings, or the marginal propensity to save and the marginal propensity to export were higher.

He further argued that in order for any economic growth rate to be sustainable, it was a necessary condition that exports covered immediate import needs on current account. If the contrary were the case, there would be insufficient exports generated at full capacity output to cover current foreign materials requirement and the purchase of foreign capital goods would be rather impossible. He contended that in a case where current export capability at

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full capacity output was below current account materials needs, self-sustainable economic growth would be outrightly impossible. To ameliorate such situation, such that full capacity growth would be sustainable, he suggested sufficiently large foreign transfers. However, that would only be a necessary condition, as foreign exchange availability would only permit operation at full capacity and to permit capital accumulation. The sufficient condition, he argued would entail some basic structural changes.

The implication from the above is that a foreign aid transfer needs not have the effect of reducing a foreign exchange constraint on the growth rate. This holds even if the savings constraint was not binding, provided there were deficiencies in current account materials needs and the net foreign transfer was not very large. Thus, the giving of aid in such a circumstance would take the form of a rescue operation permitting an economy "to keep its head above water" - a situation which might apply to aid transfers given to some countries at the present time.

Mckinnon holding a similar view with Chenery (1961) supported the inefficacy of the traditional static theory of comparative cost advantage in dealing with the problems of economic growth and development. In Mckinnon's view, static models which used comparisons of long run equilibrium positions of prices and commodity flows to compare positions of free trade and autarky were inherently ill suited to the analysis of continuous change. He did not oppose the use of the static Ricardian model to illustrate the static notion of comparative cost advantage for trade in final consumer goods. However, he argued that the model was bedevilled with two defects. The two defects included, (1) the capacity of a growing economy to move from producing simple to more complex industrial goods had been ignored; and (2) two commodity worlds spawn excessive preoccupation with the terms of trade. In other words, export expansion and economic growth were.

always associated with sharp declines in the terms of trade. However, in the modern economic environment, growth in output and exports was largely associated with a country moving up the hierarchy of complexity for industrial goods, thereby actually increasing the demand for its own product.

He introduced substitution possibilities with a view to making the model less rigid and somewhat more responsive to price considerations and different resource endowments. In other words, the assumptions of exogenous determination of international prices, fixed needs for imports of intermediate materials and capital goods, limited capacity to export depended on the development level of the economy. This was carried out in two ways. First, the use of import substitution as an alternative to export expansion, and second, the relaxation of the assumption of fixed input needs in the production function and/or the introduction of more factors of production. The concept import substitution refers to the domestic production of current materials or capital goods previously imported.

On the first way above, Mckinnon, argued that the prospective demand for primary products by the heavily industrialised countries of the world was less favourable now than it was in the last century for the products of the Less Developed Countries. He justified the argument by the development of synthetics, the fall in raw materials required for a unit of manufacturing output and the position of resource-rich North America as the most heavily industrialised area. By implication, Less Developed Countries would have to focus more on the development of light manufactures for direct export substitution in order to mobilise additional foreign exchange for the process of capital accumulation. However, the export and import substitution possibilities would depend on the level of development and production capabilities of an economy.

On the second way above, Mckinnon argued that the commonly used Cobb-

Douglas production function with an elasticity of substitution of unity among factor inputs would be an inappropriate alternative. In his opinion, a production function whose parameters could be adjusted to permit limited substitution possibilities should be preferred, such as the type developed and advocated by Arrow et al (1961).

Finally, Mckinnon argued that irrespective of the level of the propensities to save and export, the existence of potential domestic savings (capacity to undertake investment) was rather a necessary condition in obtaining a high pay-off on a given foreign-aid transfers. However, the institutional organisation required to ensure that domestic savings were adequate could take several forms. For example, the presence of an entrepreneurial class, which appropriates a significant proportion of the final product, and with a high marginal propensity to save was one solution. Another was the effective capital stock in an economy consisting of human resources as much as physical plant and equipment.

The argument from Mckinnon was that inadequate domestic savings, and foreign exchange, with the latter exerting greater impact could effectively limit economic growth. Mobilising sufficient savings for investment has not been an easy task in LDCs, especially in Nigeria. It should be noted that an economic agent's decision to save depends on two principal factors, notably the level of income available to the economic agent at any particular time and the attractiveness of savings option relative to consumption. The latter is also referred to as the willingness to save or the marginal propensity to save. The relative attractiveness of savings to consumption would depend on the rate of interest, the resource distribution and the institutional structures available for resource mobilisation. In Nigeria, the level of per capita income is ridiculously low. There has been wide spread income inequality as the gap between the few rich and the many poor have not only been widening, more people have been joining the poor class. The instability in the institutional structures

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available for resource mobilisation as manifested in the high frequency of distressed banks has eroded the confidence of even the few rich who should be better disposed to savings. Most of the few rich people now prefer to save in foreign countries. The sum total of the above is that domestic savings are very low.

Chenery and Eckstein (1970) were moved by two factors. The first was the earlier study by Prebisch (1950), who had argued, that continued dependence on primary exports would place limits on further economic growth in Latin America. However, while the limits, notably, structural imbalance appeared to have been real, especially for exporters of tropical agricultural products, the alternative then advocated by Presbisch (1950) and which was pursued throughout Latin America - especially import substitution through industrialization - had run into increasing difficulties.

The above difficulties manifested in the form of unimpressive industrial growth, despite protection and other preferential policies. For example between 1948 and 1961, manufacturing industry grew at 5.6 per cent in Latin America as compared to 7.0 per cent in all the Less Developed Countries (LDCs). A major problem with the policy of concentrating too heavily on one factor limiting economic growth had been the mere replacement of one set of constraints with another. This he argued underscored the need to establish a more comprehensive framework for diagnosing development problems and prescribing a set of remedies.

The second factor was the results from similar past studies, notably Diaz and Carlos (1966) for Argentina, Baer (1965) for Brazil, Mamalakis and Reynolds (1965) for Chile, Sheahan (1968) and Vanek (1967) for Colombia. Each of the above studies argued that the external sector had been a critical element in explaining past economic difficulties and in determining future economic prospects. In addition, each of the studies pointed to a number

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of internal limitations and gave some analysis of the interaction between the two sets of the factors.

It was against the above backdrop that Chenery and Eckstein developed an aggregate growth model that brought out the relationship between the internal and external factors in economic development. They used the model to address four issues. One, to appraise the development performance in Latin America. Two, to indicate in quantitative terms some of the requirements of economic growth in Latin America. Three, to provide a framework for the discussion of alternatives facing the United States of America and Latin American countries. Four, some modifications were attempted by introducing some additional variables into the equations of the Chenery - Strout model (Chenery and Strout, 1966), in order to bring out the interdependence of the two identified factors limiting economic growth: foreign exchange and capital. The modifications included the following: (i) the use of an investment function dependent on the rate or economic growth; (ii) the inclusion of investment and consumption as separate determinants of imports requirements (replacing the single income variable in the equations for most countries); (iii) the introduction of substitution effects into the import function; and (iv) the inclusion of the level of exports and capital inflow as determinants of saving.

On the development performance in Latin America, Chenery and Eckstein estimated capital requirements, saving, investment, and trade performance of sixteen Latin American countries for the year 1950 -65. The countries were the members of the Alliance for Progress except Uruguay, Haiti and Dominican Republic. For the review period, Gross National Product of the sixteen countries recorded a compound rate of growth of 4.9 per cent, coupled with 2.9 per cent population growth per annum. Thus, per capita growth of GNP was 2.0 per cent, suggesting that economic growth during the period had not been

smooth for most of the countries concerned.

On capital requirements, they argued that if higher growth rates were based on greater investment, the part of gross investment used to replace old equipment and to construct social overhead facilities usually represents a smaller share of the total. The regression results obtained conformed to the above prediction as all the sixteen countries except one (El Salvador) showed lower incremental ratios during periods of higher economic growth.

On savings requirement, they supported Landau (1966) and Vanek (1967), who had earlier argued that whenever the trade gap was dominant foreign exchange was the scarce factor of production. Since investment was highly dependent upon imports, domestic investment opportunities would vary directly with the availability of foreign exchange, and domestic savings could be expected to vary in response to those opportunities. Thus suggesting that export earnings would have positive effect on saving. They tested the above a priori expectation and reported that, impact of additional foreign capital on saving was found to be negative. Also in all cases but two, the impacts of the export share were positive.

On exports growth, they found a rather unimpressive performance as all the countries under study experienced declines in exports. Also, both exports and external reserves were found to be declining share of Gross National Product. Nevertheless, virtually all the countries showed higher propensities to import from increase in investment expenditure. On the whole, they found that investment and imports were the two limiting factors affecting economic growth in Latin American countries.

However, we know that in Less Developed Countries (LDCs), investment is highly dependent on level of imports, as most of the investment goods are not produced locally.

To import the investment goods requires foreign exchange, which comes from export receipts. By implication a declining export receipts will reduce imports (widens the trade gap) and consequently investment, while declining investment will have negative effect on aggregate output.

On the requirement for sustainable economic growth Chenery and Eckstein projected a growth rate of 8.0 per cent per annum. To bring about the necessary adjustment between the Exports and Imports (trade gap), they suggested currency devaluation along with more pragmatic decisions on investment allocation. They argued that if a country was faced with a trade gap in excess of its savings gap it should direct a part of current investment towards reducing following year's trade gap. The above argument would hold, assuming that investment in such a situation would be enough to reduce the following year's trade gap by a specified share of the current excess trade gap. They postulated further that such investment could exceed 30.0 per cent of total gross domestic investment and that it entailed a capital - output ratio that was 20.0 per cent higher than that applied to ordinary investment.

To improve the savings and investment performance they called for increases in marginal saving rates in relation to the highest observed performance of other developing economies. They defined high saving as a movement to a saving rate half way between the historical rate of 35.0 per cent. However, the ability to divert a substantially larger share of increased income to savings was considered possible only if annual increases in income were larger. At larger level of income, the marginal propensity to consume reduces, thus, making allowance for higher marginal propensity to save.

On the third issue of alternative requirements for sustainable economic growth, they argued that the increase in investment needed to sustain economic growth would have to be

financed through a net inflow of external capital. They however, projected that such inflow needs only be temporary. By implication, if an increased inflow of capital stimulates improved domestic developmental performance, then long-run external resource costs of sustainable growth could be less comparatively than those of continued historical growth rates with past performance. In conclusion, they recommended increased savings, exports and aid to achieve higher growth rates for the Latin American countries.

In Nigeria, per capita income remains low with high incidence of poverty and high propensity to consume almost equal to one. Thus, the propensity to save is consequently low, or almost equal to zero and in some cases negative. By implication, the above might have given rise to problems of resource gaps in Nigeria requiring concerted policy measures to address them. The formulation and implementation of such policy cannot be based on intuitive judgements but on valid quantitative estimate of the effects of the resource gaps.

Wheeler (1984) investigated sources of stagnation of many Sub-Saharan African (SSA) economies between 1970-80. He was aroused by two principal theoretical propositions ensuing from the debate that economic growth could have been much faster, had different economic policies been adopted. The first theoretical proposition was that African policy makers erred by paying too little attention to incentives including prices which reflected opportunity costs. The second theoretical proposition argued that sustainable economic growth as promoted by government and parastatal activity had been a major source of inefficiency.

To achieve the principal objective, two econometric exercises were carried out. The first analysed the impact of international trade on average economic growth experience of African States during 1960s and 1970s. The second was a growth model which analysed

the effects of several environmental and policy variables on economic growth in a cross-section sample of African states during the 1970s.

On the impact of international trade on average economic growth performance in African states, Wheeler found that the world market of primary commodities had played a universal role in determining the fates of individual African economies. This he further argued was to the extent that economic fortunes of most African states, including those deemed "best managed" by international financial community, were heavily dependent on world trade cycles. Movements in terms of trade and international conditions of demand were also found to have had a very strong impact on general growth experience of African states through their impact on foreign exchange earnings.

On environmental variables, notably rainfall, violence, foreign aid, proximity to rich external labour markets, trend and stability of barter terms of trade and diversity in export structure Wheeler reported the following. On rainfall, Wheeler reported that national output and rainfall had a distributed lag relationship. This suggests that if there were more rainfall in a particular year, the impact on output would be noticed in the following year. Thus, farmers in anticipation of the previous year's experience could increase their efforts in the new year. However, he found that the tail of the lag distribution was relatively short. This implies that the findings could be better adopted for a short-run analysis and not for long-run analysis.

On violence, four distinct categories of violence were considered. They were, coup detats, colonial wars, postcolonial wars, and armed incursions by mercenaries or opposition forces across national frontiers. On coup detat, the Granger causality test was adopted. The result showed that a one-way flow of causation existed from incidence of coup to output deterioration. Experimentation with other violence variables in a pooled time-series cross-

section model relating annual growth of Gross Domestic Product to the other categories of violence yielded three major conclusions. One, colonial wars had no significant impact on output change. Two, separate impact coefficients for coups, post-colonial wars, and armed border incursions were not significantly different from one another, so that aggregation was possible. Three, a composite dummy variable whose value was one for a year in which any violent event occurred and zero otherwise performed better than aggregated violence index.

On foreign aid, Wheeler reported that bilateral aid to developing countries rather than being on benevolence, had often been given as a means of cementing political relations which were strategically or ideologically advantageous. He carried out a multivariate analysis, which incorporated aid from the United States of America, defunct USSR, China, and some international organisations. Wheeler reported coefficients that were negative and significant at 95.0 per cent level of confidence, for the U.S.A. and international organisations; negative for China; and positive and significant for the defunct USSR. By implication, bilateral aid from three of the major donors did not have any significant association with growth rate of Gross Domestic Product.

On policy variables and growth, Wheeler regressed real exchange rate balance in the trade accounts and habit parameters, on average growth rate of Gross Domestic Product between 1970-80. In the case of the measure of balance in the trade accounts, Wheeler found distribution of indices so skewed that it was effectively lognormal in shape. In the case of habit parameter for imported consumer goods, an apparently greater-than-linear response rate dictated a slightly better fit for squared value of the variable. The two habit parameters were upshift coefficient and downshift coefficient. He reported that all the policy variables had significant impact on output. Furthermore, he argued that the two habit parameters provided strong support for the argument that unwillingness to cut back

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on other categories during revenue down swings had pronounced effects on output through the impact on the supply of intermediate inputs.

He concluded that overall comparison between environmental and policy influences, suggested that the former, as a set, had more impact. The habit parameter results were also consistent with a model that accorded great importance to appropriate allocation policy for regimes whose over-valuation of exchange rates forced them to ration foreign exchange. Finally, Wheeler's result was consistent with the argument that many African states had mistakenly starved themselves of intermediate manufacturing and agricultural inputs in order to maintain long-run investment programmes, even in the face of evidently low domestic capacity utilisation.

However, the environmental variables, which Wheeler reported that they had greater impact, are usually exogenously determined. For example, the managers of the economy cannot influence whether rain will fall or not. Also, whether foreign aid will be granted or not will depend on the donor's decision, irrespective of the expectations or needs of the would be recipient. Similarly, whether there will be coup detat or not is outside the control of the incumbent government. In fact, even government adjudged "good" have not been spared of coups, whether successful or attempted. By implication, most Sub-Saharan African countries, including Nigeria had been suffering from environmental variables outside their control.

In Nigeria, since the attainment of political independence in 1960, there had been ten different regimes. Only three were civilian regimes having ruled for only ten years out of the thirty-nine years, implying seven military regimes. Thus, it had been civilian regimes that had been intervening into the Nigerian body polity, while the military has more or less been the permanent type of regime. Military regimes by their nature come into power

through coups, and associated violence as well as instability. Investors will not be favourably disposed to investing in an economy where violence and instability are prevalent. In some cases, existing investment may be relocated. The sum total of the above is that significant resource imbalances may emerge; as a consequence output may fall.

Thus, more of the economic stagnation being experienced in Nigeria might have been imposed by the environmental variables, which unfortunately are not easily preventable. Therefore the country may have to concentrate on policy variables, which by their nature can be controlled, as they are endogenous. However, we know that the quality of policy will depend largely on the quality of information at the disposal of the policy makers. By implication, policy formulation and implementation cannot be effective in the absence of reliable information. Thus, there should be adequate information about what is available, what is needed and how best to fill the gap arising therefrom. This study addresses some of the above issues.

3.2.2 Role of Foreign Resources in Sustainable Economic Growth.

Adelman and Chenery (1966) investigated the effects, of foreign aid on the recipient's economic development. Although some past studies had addressed the theoretical issue of aid and economic development, they had been focusing more on strategy, for more rapid development utilising substantial amounts of aid. The popular argument of the past studies had been that a moderate volume of external resources could make possible a substantial increase in the rate of economic growth of an undeveloped economy. This could be carried out through financing additional investments as well as through providing additional imports required to sustain a higher level of income. However, Adelman and Chenery were of the opinion that although the past studies were

able to establish some of the criteria for effective programmes of aid, the extent to which aid recipients would be able to carry out the required policies could better be determined from a study of actual case. Thus, they attempted to use econometric investigations to ascertain the effects of aid on economic development and the policy problems presented by dependence on external assistance, with reference to the Greek economy.

To analyse the need for external assistance and its effects on the performance of the economy, they chose a model consisting of a set of dis-aggregated functions. The function described economic behaviour in the following spheres of activity: (i) consumption by households and government; (ii) private and public gross capital formation; (iii) imports of goods and services; and (iv) exports of goods and services. The time period chosen was 1950-1961, as they felt that the degree of the post-war dislocations of the Greek economy could vitiate attempts to extend the time span to include earlier years.

The following assumptions were made in respect of the economic behaviours: (i) that private consumer expenditures were linearly related to disposable income; (ii) that government consumption expenditures were linearly related to Gross National Product (GNP); (iii) that residential construction investment was related to profitability and time; (iv) that non-residential construction investment was related to previous year's value and time; (v) that gross domestic investment in machinery and other equipment were linearly related to supply of imports of goods and services (vi) that investment in inventory is exogenously determined; (vii) that imports were a linear function of gross domestic investment and relative price of imports; (viii) that exports were linearly related to time; (ix) that depreciation changes depend in a linear manner, on size of the capital stock at the beginning of the review period; and (x) that direct taxes and transfer payments were linearly related to gross national product. The method of estimation was Theil's Two-Stage Least

Squares, while Ordinary Least Squares estimating techniques were used to estimate equations that contained only a single endogenous variable. The results suggested that the model reproduced remarkably faithfully the time paths of all endogenous variables.

In the analysis of the results, Adelman and Chenery distinguished between two constraints to economic growth. These included (i) savings-limited growth, and (2) import-limited growth. They argued that the effect of variation in the capital inflow would depend on which of the two constraints set the limit to growth in given circumstances. To estimate savings-limited growth, they assumed that the investment determined by the model was essential to sustain the level of Gross National Product, while to estimate import-limited growth, they assumed that the amount of imports determined by the system were required by the structure of demand at any given level of GNP.

On import-limited growth, that is, when import requirements were the limiting factor, they reported that when savings and investment were not a limitation on growth, the increase in productivity of an additional unit of external assistance was more than proportionate relative to the amount of foreign assistance given. However, imports were in turn limited to the sum of export earnings and capital inflow. On savings-limited growth, that is, when available savings were not sufficient for the planned investment, they argued that it was necessary to reduce foreign capital inflow in order to increase GNP. This was justified by the negative multiplier effect that dependence on foreign capital inflow had on the Greek economy.

On external capital requirements to sustain any given rate of growth they made use of 6.0 per cent growth rate for the period 1950-1961. Incidentally, this was the rate actually achieved. Their results suggested that up to 1957, the principal function of external assistance was to make up the gap between savings and required investment. They reported

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further that, since 1957, the Export-Import gap had become increasingly dominant. By implication, the supply of funds for investment had the tendency to exceed the demand, (Ellis, 1964).

To ascertain the productivity of aid in the Greek economy, the authors made two alternative assumptions as to the ways in which the economy would have adjusted to a reduction in external resources. For the first alternative they assumed that the structural relations of the model indicated the best performance of the economy, such that the effect of a reduction in external assistance would have been to reduce the level of GNP. Under this assumption they attempted to reduce the economic growth rate to 2.0 per cent. They found that, in as much as the export growth was assumed to be unaffected, the Export-Import gap fell below the Investment-Savings gap after 1952 and thereby became the more binding constraint. Thus, a reduction in the external capital inflow over the period 1951-1961 from 75 billion drachmas to 16 billion drachmas could have been achieved by reducing the growth rate from 6.0 to 2.0 per cent.

For the second alternative, they assumed that the gain from the additional capital inflow that was actually forthcoming could be measured by the difference in GNP that resulted from raising the growth rate from 2.0 to 6.0 per cent. They found that import gap became increasingly important as the growth rate was raised and on the aggregate, it was the larger of the two for growth rates above 6.0 per cent. This result was consistent with that of Chenery and Strout (1966), who had earlier argued that the productivity of aid would increase with the time period considered when the savings limitation was dominant, but it would decline when the import limit was more binding.

The authors also considered the possibility that if aid had been reduced during the period (1951-61), whether the Greek economy would have been able to economise on its

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use through improved internal performance. In this case, they assumed the smaller of the two identified gaps to be taken as a measure of the minimum aid requirement for sustaining a given level of Gross National Product. They reported that, although the total aid requirement for sustaining any given level of GNP under the minimum - gap assumption was less, the marginal productivity of assistance was not very different from that computed for the maximum-gap assumption. They also found that the provision of external capital to Greece had been highly productive. Thus, suggesting that the benefits to the Greek economy greatly exceeded the costs of the capital imported, even if the opportunity cost of the capital was taken to be considerably higher than the actual cost to Greece of interest and amortisation. The principal source of the high productivity of external resources in this situation had been the great increase in domestic savings that had been made possible by more rapid growth.

Greek economy had been able to demonstrate its ability to maintain a high rate of growth and to finance an increasing share of the investment needed to sustain it from internal sources. However, the fact that it continued to depend, for its further development, on a large inflow of capital was a source of concern to the authors. This led to an attempt to investigate the magnitude and feasibility of structural changes designed to reduce this inflow to more manageable proportions over the period 1962-71. They found that although investment gap could close in 1970, the import gap would continue to widen, while to reduce the present large capital inflow and would also require substantial import substitution. They further argued like Papandreau (1962) and Ellis (1964), that the tendency for the savings gap to decline, while balance of payments gap rises, was a clear indication that new investment had not been sufficiently directed into sectors that earn or save foreign exchange.

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Finally, on the possibilities of self-sustaining growth, they argued that there would be excess of savings over investment needs, if foreign capital covered the larger gap. Thus, the excess of the trade gap over savings gap would suggest that further import substitution or export expansion would be economical - even if larger amounts of capital were required per unit of foreign exchange saved - since otherwise there would be a waste of potential savings. They further argued that further investment to reduce the export-import gap would increase the savings gap. By implication, to minimise the requirement for external capital would require an ex-ante equalisation of the two gaps. As a way out of the above economic problems, they recommended that for Greece to maintain a growth rate of 6.0 per cent and eliminate its requirement for additional external capital there should be significant change in the structure of its output.

However, in Nigeria the inflow of foreign exchange has not been smooth. A major way to examine the inflow of foreign exchange in any country is to take a look at the balance of payments of such a country. One key observation is noteworthy from the Nigerian balance of payments. The overall performance has been unimpressive. For example, whenever it recorded surplus it was usually low and whenever it recorded deficits it was usually high. A possible implication from the above is that the country may not be able to finance its import, with the consequence of Export-Import gap. It should be noted that domestic savings are a function of domestic income. The former will also fall, thus creating another gap between investment and saving (Investment-Savings gap). The implication of a self-reinforcing relationship between the two gaps is that, efforts to solve one gap are as important as efforts to solve the other.

Chenery (1967) examined the implications of the rapid increase of public assistance to Less Developed Countries and the stagnation of private investment as a result of the

public grants. His main preoccupation was therefore to evaluate the system for administering public grants and loans, and how the system of administration could be greatly improved by tailoring it more specifically to the needs and performance of the aid recipient without sacrificing the legitimate interests of the donors.

In an attempt to distinguish between public and private capital flows, he argued that although the flows performed very similar economic functions, they were only distinguishable with respect to the perceptions of the two participants in the exercise. To the recipient, grants were distinguishable primarily by the extent to which their allocation conforms to development priorities. Public capital flows were designed primarily to promote the economic development of the recipient and can take a great variety of forms, notably direct, indirect flows, among others. In evaluating the effectiveness of public capital inflows, he identified three factors. These were short-term effects of capital flows on economic growth, the long-term effects of capital flows and the capability of the capital flows to achieve sustainable economic growth.

One of the very popular arguments why Less Developed Countries (LDCs) clamour for grants was to be able to transform and improve their slow and rather unimpressive economic growth performance. These would no doubt require some improvement in the quality of human resources, a rapid increase in the capital stock, substantial changes in the composition of output and accompanying changes in attitudes and institutions. He argued that in the absence of foreign assistance or foreign private investment, a Less Developed Country would have no other choice but to depend on its own resources to provide for all the above requirements. Thus, the limits to economic growth at any point in time would be much more likely to be bottlenecks in the supply of, skills, particular commodities or productive capacity in particular sector, than general shortages of resources.

On the short-term effects of capital flow, he reported that availability of grants could reduce the bottlenecks like skills, importable commodities and savings. He further argued that offsetting the imbalance between the structure of supply and the structure of demand would achieve this. He also argued that in as much as the receipt of external assistance generated no incomes it should be possible to increase investment by the entire amount. By implication the effectiveness of such grants should be equal to the marginal productivity of additional capital. However, he was of the opinion that the effectiveness would be lower than the productivity of the grants in situation where there was a balance of payments bottleneck.

On long-term effects of external assistance he argued that effectiveness would depend on productive uses that were made of increments it produces in national output in addition to short-term effects discussed above. He sub-divided the effects into two. One, initial increments in GNP resulting directly from additional resources provided. Two, indirect effects on growth resulting from the productive use made of the initial increments in GNP. On the initial direct increments he argued that appropriate uses of the grants could be used to relax any or all of the three constraints. For example, labour training in the skill limited phase, and import substitution or additional exports in the import-limited phase.

On the indirect effects, he argued that if marginal saving rate was high, additional savings out of the aid-induced increase in GNP could finance a higher proportion of additional investment than the aid itself. By implication, if marginal saving is low, the long run effectiveness of aid could be substantially less, even if the direct short-run effects had been the same.

On the third factor of evaluating the effectiveness of aid notably the capability of the aid to promote sustainable economic growth, he conceded to the popular argument that

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aid recipients usually put in place, process to ensure continued growth in the absence of grants. However, he argued that except there was a rise in the saving rate or an improvement in the efficiency with which capital and human resources were used, the growth rate after aid had terminated would revert to the growth rate when it started. This holds, no matter how much aid there had been in the intervening period.

To prevent the above, he called for structural changes like Adelman and Chenery (1966) did. These he summed up as follows: (i) that investment must be raised until it equals the share of GNP required by the target growth rate and the capital output ratio; (ii) that the marginal savings rate must exceed the required investment ratio in order to eventually eliminate the need for external capital; and (iii) that if the ratio of imports to GNP was constant, exports must increase more rapidly than the target growth in GNP in order to close the trade gap.

He argued further that one of the potential constraints to achieving self-sustaining economic growth had essentially been a balance of payments problem. This he argued could arise because it was easier to increase the savings rate rapidly enough to prevent indefinite dependence on external aid than to follow trade policies that would eventually reduce balance of payments problem. He holds the opinion that attempts by LDCs to fill the trade gap through increased aid, unaccompanied by a rise in investment, could lead to a diversion of potential savings into consumption because of inability to control inflation or lack of demand for investment. He recommended export growth of at least 5.0 per cent as a way to close the trade gap accompanied by some import restrictions.

However, we know that foreign assistance may be matching or non-matching. Theoretically, the former is esteemed to be more effective relative to the latter with regard to the recipients' responses to the inflow of the grants. For example, recipient of non-

matching grants may 6see it as increase in their income that could be spent, as they like.

Under such a situation the recipients will like to pay less taxes, and consume more of

private goods relative to public goods. Also, the structural changes that Chenery advocated

could be rather difficult given the under-development nature of a country like Nigeria. The

implication from the above will be that investment, saving as well as exports may be rather

difficult to be raised to the required level to close the gaps.

Moran (1989) was worried by the foreign lending cutbacks, increased interest rate

and declining commodity prices, which resulted in significant decline in availability of

foreign exchange in Less Developed Countries (LDCs) in the early 1980s. The situation,

which had resulted in stagnation of merchandise import volumes for all non-oil exports

LDCs from 1984-86. The stagnation compared with annual increases of more than 6.0 per

cent from 1965-81 really posed serious economic problems to most LDCs, as the countries

faced a sharp reduction in imports.

To ameliorate the unimpressive situation, policy makers had devised strategies that

could promote economic growth without a significant deterioration in their trade balances.

To analyse the strategy devised by policy makers, economists have made use of two

models. The first was the traditional import model, which linked imports to domestic

output and relative import prices. However, Moran argued that the traditional model had

not proven useful in explaining the unimpressive performance in the LDCs which were

short of foreign exchange, (see also Mirakhor and Montiel, 1987). The second model

commonly employed to analyse the strategies was the approach suggested by Hemphill

(1974) and extended later by Chu et al (1983), Winters and Yu (1985) and Sunderarajan

(1986). The approach focuses on interpreting the interaction of variables affecting import

demand and import capacity.

A major methodological shortcoming of the two models, however, was that they treated import prices as being exogenously determined. Thus, suggesting that government authorities have no control on import demand, by not being able to increase the domestic import price. It should be noted that the marginal propensity to import should depend largely on the level of income, thereby; making imports an endogenously determined variable.

Moran provided an alternative model by deriving two separate equations. The first was the traditional import equation, while the second described the country's import capacity. The first model introduced two sets of explanatory variables: relative prices and domestic output, and foreign exchange receipts and international reserves. The second import model assumed that import volumes and relative import prices were endogenous. Also, it included two independent structural equations: an infinitely inelastic import-supply curve, and a normal downward sloping demand curve. Thus, a major methodological contribution of Moran's alternative model was that it determined import volumes and the real exchange rate endogenously.

In estimating the import models, Moran made use of pooled cross-section and time series data from twenty-one developing countries, including Nigeria, for the period 1970-80. The countries were in four categories. The categories were (1) the low-income countries; (2) the major exporters of manufactures; (3) the non-fuel primary commodity exporters; and (4) the oil exporters. The countries were chosen to represent each of the main groups distinguished in (World Bank, 1986).

For the first model he obtained long-run foreign exchange elasticity that ranged between 0.5 and 0.8; foreign reserves elasticity that oscillated around 0.1; price elasticity that ranged between -0.3 and 0.04; and income elasticity that ranged between 0.2 and 04.

The obtained inelasticities suggested that import demand could be highly constrained by the above variables (foreign exchange and foreign reserves), as a unit increase in import demand produces a less than proportionate increase in the above variables. For the second model, Moran reported that foreign exchange constraints were important for analysing real import behaviour in developing countries.

He arrived at two conclusions. One, that although price and income effects were important in the analysis of import behaviour in developing countries, foreign exchange constraints also played a critical role in determining imports - as they strongly affected import volumes. Two, since governments were likely to increase domestic prices of import in the face of constraints, import demand estimation should also account for the endogeneity of these prices. He recommended the consideration of broader set of policies, other than the traditionally considered, by policy makers willing to increase imports in developing countries.

However, we recognise that foreign exchange inflow can be made possible through three main ways, notably, export earnings, external borrowing and foreign assistance. About 90.0 per cent of Nigeria's exports are accounted for by the crude oil. Furthermore, it is very doubtful whether Nigeria and indeed other Less Developed Countries can successfully do without some form of imports. However, we know that while imports are crucial, not all imports will have the same positive effects on capacity utilisation and hence output. In this regard, we consider it highly imperative that any meaningful study should take due cognisance of the composition of imports. The above issues are addressed in this study.

Rattso (1991) investigated international linkages between Sub-Saharan African (SSA) countries and rest of the world. He was aroused by three major factors. One, the

weak growth performance of SSA during the 1980s arising from foreign exchange constraint and the consequent reduced import capacity, which had been having negative impact on sustainable economic growth. Two, most international studies on the problem, notably World Bank (1989) had arrived at a conclusion that foreign transfers would be necessary if higher per capita income growths were to be achieved. Three, the heavy external borrowing since the middle of 1970s had increased foreign debt to unmanageable levels. As a way out of the above problems, most countries in SSA opted to handle the foreign exchange constraints with direct government regulation of imports, especially import compression.

To analyse the interactions between SSA and rest of the world, Rattso relied heavily on the North - South model notably Taylor (1981), who initiated the formalisation of broader developmentalist perspective emphasising structural constraints to growth in the South. Rattso, however, modified Taylor's model by taking into account important characteristics of SSA, notably, intermediate imports and import compression policy.

Rattso based his analysis on six major assumptions: (i) that complete specialisation exists between SSA and rest of the world; (ii) that SSA is import dependent for both intermediate imports and investment goods; (iii) that foreign capital inflow to SSA is rationed by institutions in rest of the world such that trade deficit of SSA becomes exogenous; (iv) that import compression policy determines allocation of imports in SSA; (v) that SSA is supply constrained, with capacity utilisation linked to intermediate imports; and (vi) that income distribution plays an important role in determining consumption and savings behaviour in SSA and rest of the world.

Using the above assumptions, he argued that the main asymmetry relationship between the two regions were in the areas of capacity utilisation and trade balance. On

capacity utilisation, he argued that the rest of the world was independent of the development in SSA. This arose largely from the small size of economic activities in SSA. Nevertheless, financing of possible trade imbalances would be determined in rest of the world, such that whenever imports of intermediates to SSA were rationed, depending on the foreign exchange situation, capacity utilisation in SSA would be affected by economic fluctuation of rest of the world.

With regard to terms of trade, he argued that those were being determined by the macro-economic equilibrium in SSA as a result of price-flexibility in SSA and mark-up pricing in rest of the world. Thus, if price level in the latter should go up, price of goods in the former should follow to keep terms of trade constant. By implication, economic activities in rest of the world would affect relative prices of SSA goods through import compression mechanism.

He concluded that rationing of foreign capital to SSA, and consequent exogenous trade deficit of the region, implied that macro-economic performance in SSA would have no effects on economic growth of rest of the world. Thus, suggesting that demand expansion in SSA would not spillover to increase effective demand for goods from rest of the world. Also, that, fluctuations in SSA economy were dependent on economic development in rest of the world, such that expansion in the latter, with increased demand for the former's goods would improve foreign exchange constraints in SSA. Put differently, whenever the activity level of the rest of the world was demand determined in the short-run, it would benefit from increased capital flow to SSA. Similarly, the drying up of capital inflow to SSA would hurt its demand for goods from the rest of the world and capacity utilisation of the latter would suffer. By implication, increase in aid from rest of the world, to SSA could make sense to help its own economy.

Finally to improve the economic performance in SSA, Rattso gave two suggestions. One was for the short-run and another was for the long run. In the short-run he recommended export promotion and more efficient use of existing foreign exchange resources. In the long run, SSA should try to overcome the asymmetry with respect to the rest of the world. The essence would be to address problem of dependency on imported intermediate and investment goods, such that building up of production capacity for intermediate and investment goods would create more internal dynamism and relax the constraint.

The recommendation of export promotion as a way out of unimpressive economic performance in Sub-Saharan African countries may not be very relevant in the Nigeria case. Export promotion refers to incentives to make a country's exports more attractive to foreign consumers. However, Nigeria is a monocultural economy with heavy dependence on crude oil. Prices of crude oil, as well as quantity that will go for exports, are exogenously determined. Thus suggesting that, both are outside the control of the Nigerian authorities. By implication, no amount of promotion can influence price and quantity of crude oil. Similarly, other items for exports are usually crude materials whose prices are determined by their buyers. For example, the foreign buyers fix price of raw cocoa beans. The sum total of the above is that export promotion may not really produce required result of boosting exports receipts.

On the call for more efficient use of resources, we know that for resources to be efficiently allocated requires that the forces of the demand and supply determine prices. The public sector in Nigeria is relatively larger than the private sector. It should be noted that the public sector is the highest employer of wage labour in Nigeria. Also, the public sector had been found to be crowding-out private sector investment, (Olomola and Abiola

1997). Moreover, political considerations rather than economic reasoning are stronger in determining which project to finance with available resources. Consequently, projects financed with the scarce foreign exchange were either unproductive or lacked adequate cost control, which could result in escalation of fees.

Finally, on the urge for reduced dependence on intermediate and investment goods in the long-run, a country that does not know the quantity of and the effects of the resources it has now on output as well as and what it needs in the future may not be able to effectively put in place policy of self-reliance. This further reinforces the justification for this study.

Rattso (1994) analysed import compression as a policy response to balance of payment crisis arising from foreign exchange situation since the 1980s, for most Sub-Saharan Africa countries. What stimulated Rattso was the policy conflict between efforts to attain balance of payments equilibrium and efforts to promote sustainable economic growth. Sub-Saharan Africa countries due to their underdevelopment nature, had being found to be facing a highly inelastic imports (see also Moran, 1989). To finance the imports require balance of payment surpluses, which unfortunately has been absent.

The consequence of unavailability of balance of payment surpluses had manifested in the form of economic stagnation. This had led to calls for structural adjustments in the SSA region. A much more disturbing situation had been the controversial sources of the economic stagnation. For example, Wheeler (1984) blamed the external environment. However, World Bank (1989) insisted on the importance of overly expensive monetary and fiscal policies and over- valued exchange rates. Rattso contributed to the debate by analysing the medium-run adjustment responses to shifts in key policies and parameters.

Rattso concentrated his analysis on three linkages between the traded and protected sectors in addition to the conventional spillovers through income generation and

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consumption demand. The sectors were connected through the foreign exchange constraints, the wage formation, and the investment determination. The traded sector comprises agricultural exports, raw materials and industrial exports. The protected sector comprises capital intensive and import intensive industries, delivering to investment projects and therefore of importance for economic growth process. Also, capacity utilisation of the two sectors was dependent on access to imported intermediate inputs. He postulated that import compression could have implication on the link between the traded sector exports and capacity utilisation of the protected sector. Also, import capacity could be determined by export revenues and foreign savings, and used for imports of intermediate and investment goods.

However, he found that whenever government as a deliberate policy decided to compress imports, imports of investment goods would be given priority, such that the intermediate imports to the protected sector would be rationed according to the current account situation. He also argued that the emerging low capacity utilisation would motivate a shift and investment levels would fall, possibly because of rationing of imports of investment goods. This argument was however consistent with the descriptions of Tanzania given by Ndulu (1986), of Zimbabwe by Davies (1991), as well as the conclusions of Wheeler (1984) and Ndulu (1991) for the whole Sub-Saharan African region, including Nigeria.

He argued further that flex-price of protected goods could influence costs of traded goods production, as higher price level of protected goods would raise nominal wage level. He was of the view that as a way out, adjustments could be channelled through real exchange rate. The real exchange rate could be equivalent to the domestic terms of trade, while real wage rate could be defined in terms of a price index, which could reflect

consumption basket. Assuming nominal exchange rate to be fixed, real exchange rate would be basically determined by market balance of the flex-price-protected sector. By implication, inter-sectoral importance of wage formation could be linked to the relationship between real product wage of the traded sector and the real exchange rate. Furthermore, he was of the view that, investment demand could affect sectoral balance through combined demand for domestic construction and imported technology.

Rattso however concluded that capacity utilisation of the protected sector would go down in a situation where imported intermediates were endogenously rationed. This would suggest that supply of traded goods would reduce because real appreciation following excess demand at the protected goods market would imply higher costs of traded goods production. Rattso's result was also consistent with the rather common argument that the protected manufacturing industries in Sub-Saharan Africa have high profits, but are supply constrained.

The above study no doubt has implication for sustainable economic growth. For economic growth to be achieved and sustained require that necessary resources be in their desired state. An important resource that may constraint economic growth is the quantity of import especially capital imports. A situation whereby these capital imports are very scarce and have to be rationed would suggest that economic growth would be limited.

Olaniyi (1995) examined contributions to propensity and/or poverty of Less Developed Countries by foreign capital, including foreign loans, direct foreign investments and export earnings. The rather inconclusive evidence between foreign capital and sustainable economic growth in Less Developed Countries aroused him. Rahman (1968) had argued that foreign capital could have a negative correlation with sustainable economic growth. According to Rahman, foreign capital inflow generated huge public debt servicing

charges on the recipient's economy; that there were poor rates of return on aid or loan-financed investment; and that such inflow could lead to reduction in domestic savings. Some other studies, notably Papanek (1972), Krasha and Taira (1974), Dowling and Hiemenz (1983) reported a positive relationship between foreign capital inflow and economic growth.

However, Olaniyi reported that foreign capital did not make any significant contribution to gross capital formation or to development of a self-sustained economic growth in Nigeria. Export earnings were also found to be negative although insignificantly related to gross capital formation at 95.0 per cent level of confidence. He anchored the findings on the low linkage between the oil sector (dominant exports sector) and the rest of the economy. He found periods of oil boom to be associated with high profile consumption. During the boom consumption goods of all kinds were imported in preference to locally produced goods, and economic activities shifted to commerce rather than real production. His findings were consistent with those of Metwally (1977) who had earlier reported that there was no spread effect of oil sector exports to the rest of the economy despite the growth of the Nigerian economy, which was highly associated with the oil sector.

He also reported that demand and time deposits in commercial banks did not play any significant role in the determination of gross capital formation. Thus suggesting domestic savings as an important explanatory variable for gross capital formation. The justification he provided for this argument was the then deregulation of the financial sector which caused the rates of interest in the money market to rise above the internal rates of return on capital in the Nigerian economy. By implication, it became uneconomical for investors to source for development capital from commercial banks. Thus, commercial

bank funds went mainly into the finance of commerce and speculative activities in the foreign exchange market.

Furthermore, he reported that foreign direct investment was positively correlated with gross capital formation. However, there was no evidence that foreign direct investment contributed significantly to the explanation of growth in gross capital formation at the 80.0 per cent level of confidence. Also, net factor payment from abroad was found to be negatively associated with gross capital formation, even though no evidence supported its use as a significant explanatory variable. Nevertheless, the study found that the impact generated by net factor payment was several times over and above the positive impact of foreign direct investment.

The contribution of current public debt inflow or external loan capital was found to be consistent with a priori assumption of its being an additional capital resource into the Nigeria economy. Its contribution was however found to be significant only at 90.0 per cent level of confidence, while the burden generated by external debt servicing revealed higher correlation coefficients than those of net loan inflows did. By implication, since negative impact generated by loans was higher than positive impact, it followed, therefore, that net effect of foreign debt on the Nigerian economy would be negative over time.

On the whole, Olaniyi reported that the most important factor contributing positively to capital formation in the Nigerian economy was real national income. He found that current income performed better than lagged income and both were found to be highly significant. A negative correlation was also found between savings and exports, and both had negative correlation with gross capital formation. This finding was also consistent with the suspicion raised by Oseghale and Amenhienan (1987) who argued that lack of effect of the oil sector on the rest of the economy could be due to discontinuity between export

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earning and investment. In addition, external reserve did not contribute significantly to gross capital formation, at 90.0 per cent level of confidence.

Olaniyi, however, concluded that internal economic variables notably gross domestic product, domestic price level and the multiplier effect of consumption in the past period were the most important determinants of growth in gross capital formation in the Nigerian economy. Also, that internal sources of income were not only the most efficient sources of investment income in the economy, they were the only net contributors to growth in capital formation in the economy. Furthermore, foreign capital, rather than acting as an additional or complimentary source of investible resources, serves to substitute domestic resources wasted through policies that encouraged frivolous consumption, corrupt capital flight, a heavy commitment of scarce domestic resources to external military expeditions not advised by economic rationality, and the abandonment of productive ventures for commercial and speculative activities.

However, the inflow of foreign capital has its own implications on resource constraints in Nigeria. The excruciating burden created by debt service obligation and payment for factors from abroad have combined to completely neutralise the capacity of export sector to contribute to capital formation in other sectors of the economy. By implication, Export-Import gap has become rather bigger. Attempt to close the gap has exacerbated the external indebtedness of the country, with its attendant consequences. In Africa, Nigeria tops the list of debtors, it is a market borrower, and a prominent member of the group of the fifteen heavily indebted countries, as well as the only member of organisation of petroleum exporting countries in the group. Efforts to get the country out of this problem have not been successful.

3.2.3 Effects of Resource Gaps on Sustainable Economic Growth.

El-Shibly and Thirwall (1981) employed the dual-gap analysis with Sudan as a case study. They were aroused by some other previous studies to investigate the dominant resource constraint limiting economic growth in developing countries. The study also estimated future resource requirements to achieve a particular target rate of economic growth.

Thus, El-Shibly and Thirwall (1981) aimed at carrying out a quantitative estimates of investment requirements in relation to forecasted domestic saving, and import requirements in relation to expected export earnings, under two different economic growth rate assumptions. The first of the two alternative economic growth rate assumptions was 5.5 per cent per annum, which was the historical average growth rate between 1960 and 1975. The second was 7.5 per cent per annum, which was the target economic growth rate of the Sudanese six-year plan 1977/78 - 1982/83. They also attempted to compare the estimates with projections made in the Sudanese six year plan which in the authors' own opinion under-estimated the short fall of both savings below investment requirements and exports below imports requirements during the plan period. Thus, the study aimed at making an independent assessment of the consistency of the Sudanese plan.

To estimate the investment requirements, the authors first attempted to calculate the incremental capital - output ratio. However, as a result of extreme variability in the quality of investment associated with a given change in output, regression analysis could not be employed. Instead, they took the period as a whole and estimated the incremental capital output ratio by applying the growth formula $g = s/v$ so that $v = s/g$, where v gives the incremental capital output ratio; s is the saving ratio; and g is the growth rate. The average investment ratio for the period 1960/61 to1974/75 was 0.134, and the average rate of

growth of output was 0.055, giving an estimate of 2.44 for the incremental capital output ratio. They found this to be relatively on the low side, thus the authors decided to use the incremental capital output ratio assumed by the plan, which was 3. The adoption of the plan's incremental capital output ratio achieved two objectives. One, the figure was probably more realistic. Two, using it enabled the authors to compare the estimates of investment requirements on the same assumptions as those of the plan.

On the savings requirements, they found an average propensity to save of 8.4 per cent for the period 1960/61 to 1974/75. The figure was also relatively constant, as there was no evidence to suggest that the marginal propensity to save exceeded the average propensity to save over time. They argued further that the level of savings and the ratio of saving to national income in developing countries were a function of many variables affecting the ability and willingness to save.

In calculating the import requirements for growth, the authors estimated the incremental output - import ratio using the growth model $g = im$, where g is growth rate; i is the marginal propensity to import and m is the incremental output-import ratio. They reported an average import ratio for the period 1960/61 - 1974/75 of 0.19 and an average growth rate of 0.055, giving an historical estimate for m of 0.29.

However, since not all items of import could have the same effect on economic growth, the authors attempted to desegregate imports into investment goods and consumption goods. The advantage inherent in the approach was the fact that as one moves towards a higher growth path it would allow for a change in marginal propensity to import, if import coefficient of investment expenditure differed from that of consumption expenditure. Confronting the specification with time series data for the period 1960/61-1974/75, the authors reported 0.138 and 0.607 coefficients for consumption and investment

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expenditures respectively. To estimate the export requirements, El-Shibly and Thirwall made use of a trend equation. They reported an export growth rate of 6.41 per cent. This they compared with the growth rate assumed by the plan of 11.0 per cent per annum and concluded that the Sudanese plan was over optimistic.

In determining the dominant constraint assuming a growth rate of 5.5 per cent, two different estimates of Export-Import gap were employed. The first was based on the use of estimated import coefficients of investment and consumption. The second was based on the use of incremental- capital output ratio. The use of import coefficients gave higher estimates of import requirements than the use of incremental output import ratio. Thus implying a lower implicit value of incremental output import ratio in the disaggregated approach. The results suggested that domestic resource gap and foreign exchange gap were of roughly similar magnitude. However domestic inflation would widen the Investment - Savings gap in absolute terms and a rise in the price of traded goods would widen the Export-Import gap, barring a sufficient improvement in the terms of trade. However, deterioration in the terms of trade would widen the Export - Import gap even more.

On the second assumption of 7.5 per cent economic growth rate, both Investment - Saving gap and Export-Import gap widened absolutely at the higher growth rate. The two approaches used to forecast import requirements gave roughly similar results, with the disaggregated approach tending to give a slightly lower estimate. They argued further that both gaps would be widened in absolute terms by inflation and deterioration in the terms of trade would widen the export import gap.

Comparing the two alternative growth rates, they reported that the savings and income projections of the six-year Sudanese plan were inconsistent. The inconsistency arose by applying the plan's assumed saving propensities to the target levels of income,

which gave a much higher level by the plan. Also, the figures of investment requirements were inconsistent, as the cumulative investment requirements obtained were higher than the plan estimates. This suggested that the plan under-estimated the real magnitude of the domestic resource gap. In a similar vein, the growth rate of export was too optimistic, as it underestimated the growth rate of import requirements. The study concluded that the plan envisaged a cumulative domestic resource gap and trade gap of roughly equal magnitude with domestic resource gap just dominant. The authors' estimation supported the above argument, even though they reported that the absolute magnitude of both gaps had been underestimated.

El-Shibly and Thirwall postulated that the domestic resource gap and trade gap could both be nearly 50.0 per cent higher than the levels estimated by the plan. In other words, the plan under-estimated investment requirements relative to savings, while it over-estimated export earnings relative to import requirements. By implication, the above results would suggest that the policies to ameliorate the level of domestic saving should assume as much importance as policies to augment the quantity of foreign exchange if the dependence on foreign assistance would have to be reduced.

However, in estimating the Investment- Saving gap and the Export-Import gap, the authors treated the two gaps as being mutually exclusive. This was a major methodological flaw of the study. Taylor (1994) has argued that, for gap models to be effective requires incorporating the identified gaps in a single model. In fact, the task of solving the problem has been a major pre-occupation of most of the recent studies including this present study.

Oyejide and Raheem (1990) in an attempt to emphasise the importance of investment in promoting economic growth carried out some projections based on a three - gap growth exercise for the period 1990-1995. They reported that foreign exchange

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constraints would limit economic growth most in Nigeria, especially between 1990-1993. The constraints were projected to attain their peak in 1992 when current account deficit was projected to be about 6.5 per cent of Gross National Product.

To prevent per capita income and consumption from falling, they projected economic growth rate of 4.5 per cent between 1990-1995. To achieve the target growth rate, they proposed required growth of domestic investment ranging between N18.09 billion in 1990 and N35.5 billion in 1995. Also, they opined that more of the required investment would have to come from the public sector. The projected savings showed that domestic saving would increase from N20.17 billion in 1990 to almost N35.1 billion. Comparing the investment requirement with saving level they found that the former was higher than the later.

On fiscal constraints, they projected insignificant increase in the resources for public expenditures during the period 1990-1995. They projected fiscal deficit/GDP ratio to be well above 10.0 per cent between 1990-1994. Thus suggesting that it would be very difficult to get fiscal deficit proportion reduced to 4.0 per cent target level as envisaged in the IMF/World Bank Supervised Structural Adjustment documents.

The projections above were based on some assumptions. The assumptions were: (i) that the agricultural sector would grow much more rapidly and contribute about 34.0 per cent to GDP; (ii) that Structural Adjustment Programme (SAP) would be implemented appropriately; (iii) that internal environment would be conducive enough to promote growth; and (iv) that the Nigerian economy would continue to be public sector led, such that the bulk of the required investment would come from the public sector.

Comparing their projections with World Bank (1987), Oyejide and Raheem reported marginal differences between the two studies. These were largely predicated on

different perception about the likely growth rates. For example, the World Bank presumed a 3.9 per cent growth rate in the medium term, while Oyejide and Raheem worked on a 4.5 per cent growth benchmark.

However, the divergence between the two projections with respect to gross domestic investment and savings was quite large. Oyejide and Raheem assumed about 26.0 per cent Investment/GDP ratio, while World Bank assumed about 8.6 per cent. Also, while Oyejide and Raheem assumed about 20.0 per cent savings ratio, the World Bank projections were based on 6.2 per cent. By implication, the World Bank opined that available savings would be more than sufficient to finance the required investment level and consequently foreign savings would not be necessary as envisaged.

Also, both values of current deficit as well as external debt values by the two projections were different. The World Bank's current fiscal deficit projection started on a rather high N17.4 billion in 1990, to decline to N1.2 billion in 1994, and to shoot up to N5.3 billion in 1995, whereas Oyejide and Raheem's current fiscal deficit projection hovered around N5 billion to N6 billion throughout the 1990-1995 period. Similarly, while Oyejide and Raheem projected external debt to increase from U.S. $30.61 billion in 1990 to U$37.5 billion by the end of 1995, the World Bank's estimates was to increase from U.S. $28.4 billion in 1990 to U.S. $29 billion in 1995.

However, the assumptions of Oyejide and Raheem have turned out to be unrealistic as the targets have become invalidated and frustrated. For example, agricultural sector did not grow as projected as it contributed less than 30.0 per cent to Gross Domestic Product (GDP). Also, SAP could not produce growth but instead exacerbated its reduction, as the economy grew at 2.4 per cent as against the 4.5 per cent projected. Furthermore, accompanying SAP has been the urge to reduce the size of the public sector, thereby

threatening the required investment from the sector. Finally, continuous stay in government of the military has made the required appropriate internal environment rather difficult to attain. The above outcomes have further underscored the need for fresh studies to articulate the problem of resource gaps that will ensure sustainable economic growth in Nigeria. Moreover, for any growth exercise to be plausible, especially in Less Developed Countries, it has to be internally driven. Thus, any growth exercise relying mainly on foreign resources may not be sustainable. This might have been responsible for the failure of the country in the past, as it had been over relying on resources from abroad, notably earnings from crude oil exports and foreign assistance. These sources are largely unreliable and unsustainable.

Mwega et al (1994) were worried by two factors. The first was the unimpressive economic growth performance of Sub-Saharan African (SSA) countries caused mainly by the large macro-economic imbalances, which characterised the region beginning from the early 1970s. The second was the 1986 Kenyan government published session paper titled, "Economic Management for Renewed Economic Growth". The paper argued that if Kenyans would enjoy improvement in their living standards, it was imperative that economic growth became the primary concern of economic policy and that the rapid economic growth rates experienced in the first decade of independence be retained and sustained. During the said period, Kenyan economy performed impressively with the real Gross Domestic Product registering an average growth rate of 6.5 per cent between 1964 - 74. This was achieved by the implementation of policies particularly those that could alleviate savings, fiscal and foreign exchange constraints. The session paper therefore explicitly identified large resource gaps as important constraints limiting economic growth in Kenya.

The session paper in an attempt to suggest ways to alleviate the identified constraints, advocated for a reduction of fiscal deficit with a view to controlling inflation, reducing public indebtedness, increasing government savings and avoiding crowding-out of private sector investors, who needed access to domestic credit. The persistence of large budget deficit was attributed to excessive expansion of ministry expenditure, mainly in the current account, and an inelastic tax system. The session paper therefore called for tax reform to increase the tax revenue/GDP ratio and a restriction of government expenditure to reduce budget deficit. The paper recommended a reduction of budget deficit to about 2.5 percent of GDP by the year 2000.

The session paper further argued that foreign exchange gap had widened as the demand for imports to promote growth, outstripped growth of export revenues and supply of foreign capital, thus limiting the rate at which the economy could grow. The paper therefore advocated for a more aggressive export promotion drives as well as efficient import-substitution in agriculture and industry. It set a target export growth rate of 5.0 per cent per annum, which was well beyond the country's past export performance.

It was against the above backdrop that Mwega et al examined whether it was savings, budget or foreign exchange gaps, which was the binding constraint on economic growth in Kenya and how these gaps had evolved in the 1970s and 1980s. The rationale for this was that all the three gaps had increased over time; thereby it was not obvious which one had been the most binding. Thus, Mwega et al attempted to analyse the extent to which the availability of foreign exchange (and the associated import compression) had evolved to become the binding constraints to economic growth controlled for capacity utilisation as hypothesised by the Kenyan government's 1986 session paper.

The three-gap framework used by Mwega et al (1994) extended the traditional two -

gap model mainly associated with Chenery's model. It distinguished fiscal gap as another potentially important constraint to economic growth apart from savings and foreign exchange constraints. The specification drew heavily from the methodological framework by Taylor (1989,1990). A major component of this methodology especially linked the growth problem with shortages of intermediate imports with the adverse impact of this on capacity utilisation, investment and economic growth.

They reported that all the three gaps were binding, though at different levels. However, foreign exchange was found to be the most binding constraint on the growth of output in Kenya. Thus, it was apparent that impact of external shocks and adjustment policies pursued since the early 1970s was to increase the importance of savings gap vis-à-vis fiscal gap and the importance of foreign exchange gap vis-à-vis saving gap as constraints on potential growth in Kenya.

They argued further that Kenyan economy could be in macro-balance provided the three gap equations intersected at one point. This could be brought about in three ways. One, through a downward shift of the fiscal gap equation. Two, through an upward shift of the savings gap equation. Three, through a leftward shift of the foreign exchange gap equation. Thus, the size of the gap triangles (the area enclosed by the three equations when drawn on the same diagram) could therefore be used to measure the degree of macro-imbalances in a given period in the economy.

However, they found that policies and forecast outcomes of the 1989-93 Development Plan that intended to close the gaps were not only inadequate but also inconsistent. This was because the plan envisaged substantial reductions in the country's dependency on foreign savings and external grants and increased dependence on imported capital without a commensurate rise in exports and/or a reduction in debt burden to take up

the slack. The target for the reduction in budget deficit from 4.5 per cent to 3.3 per cent of Gross Domestic Product was also ambitious so that the increase in macroeconomic imbalances if the plan's targets were achieved was under-estimated. In fact, they expressed the fear that the policies and forecasted outcomes could exacerbate the macro-imbalance.

The plan covered policy areas such as employment generations and improved management of human and financial resources, regional balance and the environment. Attention was paid to time phasing of economic policies in order to achieve logical and sequential pattern development. The plan targeted real per capita GDP to grow at 5.4 per cent per annum and given a population growth of 3.8 per cent per annum, income per capita was expected to increase at 1.6 per cent per annum. The assumption was that incremental capital output ratio would remain stable or increases slightly, gross investment was targeted to increase at 11.2 per cent per annum with inventory investment being a stable component.

They concluded that increased availability of intermediate imports through export promotion and more concessionary capital inflows and the associated reduction of import compression would alleviate the saving, fiscal and foreign exchange gaps that undermined good macroeconomic performance.

Nigeria like Kenya is a primary product exporting country, such that domestic output is mainly influenced by the domestic weather conditions. The main exports notably crude oil, depends on the state of demand in the world oil market. Thus, both demand for and supply of imports and exports are inelastic. It should be noted that economic theories postulate that both demand for and supply of imports and exports should be elastic. By this we mean that, if import prices are increasing a country should be able to respond to such increase by doing without some imports, thereby conserving foreign exchange. Similarly, a country should be able to respond to more demand for its export by supplying more, this is

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to earn more foreign exchange. However, it is very doubtful whether Less Developed Countries, and indeed Nigeria, could mobilise more foreign exchange through the above means to alleviate the problems of inadequate intermediate imports.

The Mwega et al has two important flaws, among others. One in the estimation of the potential output, they regressed GDP on time. This is inadequate. We know that lags of GDP for at least three years are theoretically important as explanatory variables to potential output. Two, the authors estimated the gap equations separately, whereas we consider a simultaneous equation better as this will bring out the interrelationships among the resource gaps. The identified shortcomings are addressed in this study.

Taylor (1994) examined savings, foreign exchange, investment, and inflation restrictions on potential output growth and capacity utilisation. He assumed that actual output could fall below or equal to potential output, such that the ratio of actual/potential output would equal to or less than unity. The incremental capital output ratio which could range between 0.2 and 0.4 could be limited by available savings, foreign exchange restriction and an economy's own investment demand function and thus could constraint potential output growth. He postulated that the three growth restrictions should, as of necessity, be equal to attain macro equilibrium. Thus, he was implicitly advocating for a steady state growth of the resources.

Subject to demand - drive and foreign exchange closures, he used the model to illustrate the effects of devaluation and heterodox shock anti-inflation package, and to analyse policy problems posed by adverse shocks and incoming resource transfers. On devaluation, he argued that it could drive up cost inflation. He argued further that given inflation tax, forced saving, and the fact that depreciation could cut real spending power if there was an initial trade deficit, a resulting potential excess of saving over investment

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would make output to decline.

With respect to heterodox shock that is aimed at reducing the cost-based inflation rate by price freezes and de-indexation, of contracts, Taylor argued that the package alone could not perform effectively. In his view, cost oriented anti-inflation programmes would have to be accompanied by increased transfers from abroad, cuts in fiscal dis-saving or public investment restraint.

On adverse external shock he argued that with reduced external inflows the rate of inflation could have to rise to generate forced saving and a higher inflation tax to offset lower saving from abroad. In other words, with a binding foreign exchange limit, demand driven equilibrium would be rather difficult to attain. Thus, such real output would have to tend towards slower potential output growth, reduced output, and faster demand inflation, which in turn could stimulate further price pressure from the side of costs. Holding a similar view with Bacha (1990), he argued that an adequate policy response to an external shock would be rather difficult to orchestrate. To ameliorate the adverse effects of external shock, Taylor recommended fiscal restraint, increased public investment, higher exports, import quotas and controls expansionary policy as well as policy co-ordination.

However, he further argued that each of the above recommendation had its own merits and demerits. For example, fiscal restraint could permit faster capacity growth and reduced inflation. Increasing public investment could speed up capacity growth and enhance investment crowding-in, but at the cost of higher inflation and reduced current output. Higher exports could help release the foreign exchange limit, but to raise sales abroad in the short-run could be rather difficult especially for a raw material exporter. He nevertheless conceded to the fact that an export push could be easier for semi-industrialized economies in which domestic recession could create spare manufacturing capacity which

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could be diverted to foreign markets, as adopted successfully in Turkey, Korea, Brazil, etc.

He also argued that import quotas and contracts could permit capacity utilisation or growth to rise, but this should be in conjunction with other policies. Expansionary policy could stimulate growth and capacity utilisation but at the cost of spiralling inflation. Finally, he argued that policy co-ordination could be difficult, especially in the Less Developed Countries. His reason was that few countries could be agile enough to deploy simultaneous fiscal restraint in current transactions, increased state capital formation, intelligent manipulation of quota, and export incentives to offset all the ill effects of an external shock.

However, in Nigeria, the replacement of the hitherto fixed exchange rate with the floating exchange rate and the ongoing guided deregulation has resulted in significant depreciation of the domestic currency (naira). Similarly, the fact that substantial inputs into Nigeria's production come from abroad heightens the suspicion that inflation might have been imported. During inflation, it is possible to have increased savings arising from the supernormal profits of the private sector investor, provided that the consequent higher cost could be passed on to the consumers in form of higher prices. Quite a number of past regimes in Nigeria have been focusing attention on controlling inflation. This has been pursued through various economic stabilisation measures. However, not much has been achieved. A major reason being that any policy measure intended to control inflation without adequate attention to increased economic growth will most likely result in no lasting decrease in inflation, even though such solutions may offer a reduction. In fact, inflation may not pose a serious economic problem provided economic growth rate is higher than the inflation growth rate, with the tendency to reduce inflation growth rate to a tolerable rate. The argument from the above explanations is that all the constraints to

economic growth: Investment- Savings gap, Export-Import gap and Budgetary gap should be accorded primary attention. Once the above is put in place, other associated problems will be addressed through the trickle down approach. This has further under-scored the justification for this study.

3.2.4 Concluding Remarks on the Literature Review

From the above review many things are noteworthy. One, some of the studies notably Oyejide and Raheem (1990) only attempted to trace the gaps. In our opinion, the gaps are there and known. The question is why estimating a known phenomenon? Some others notably, Chenery and Bruno (1962), Chenery and Strout (1966), El-Shibly and Thirwall (1981), Taylor (1994) and Mwega et al (1994) attempted to estimate the sizes of the gaps. Attentions of most researchers have not been directed at examining the effects of the gaps especially on output. In fact, some of the studies intuitively assumed that the resource gaps should constrain economic growth.

Furthermore, studies that attempted to estimate the sizes of the resource gaps; Mwega et al (1994) estimated the equations individually. We know that the resource gaps exist together (may even cause one another) and may combine together to exert impacts on the economy simultaneously. The implications from the foregoing analysis are that mere tracing the gaps is not sufficient and estimating the gap equations individually may not help much. Therefore we consider it imperative to identify the relationships among the resource gaps and estimate simultaneously. This will not only extend the frontier of knowledge on the debate on resource gaps; it will greatly help policy makers in efforts to fill the gaps.

In our modelling we employed the error correction modelling (ECM) technique. None of the past studies known to us used this modelling technique. This is considered

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necessary because in the short run relationships between the dependent and independent variables may give rise to some fluctuations. There is therefore the need to know how the short run fluctuations are corrected in the long run. In conclusion, resource gaps, as an economic problem has been topical in recent times. The peculiarities of each country will no doubt call for more studies. In fact, it is the need for more studies that justifies this study.

3.3 ANALYTICAL FRAMEWORK

In this section we present the analytical framework for the study. First, some concepts are considered crucial for a thorough understanding of the argument we are trying to put across; we therefore provide some clarifications of such concepts. We brought into focus the importance of economic growth as well as the theoretical link between investment and economic growth. Finally, we provide the theoretical link between resource gaps and sustainable economic growth.

3.3.1 CLARIFICATION OF KEY CONCEPTS

3.3.1.1 Resource Gap.

A major focus of macroeconomics is the level of resource utilisation. Usually, emphasis is on two principal issues. One, what determines the growth rate of the resources, that is, the growth of potential output, as well as the determinants of their level of utilisation at any given period of time. Two, what determines the level of actual output relative to potential output, at any given period of time, (Branson, 1979). The potential output is defined as the output, which an economy is capable of producing during a given period of time, usually a year, (Bauer and Delly, 1988a and 1988b). Seer (1972) has argued

that national output, that is, the actual output is not totally meaningless, just because it is an inappropriate indicator of economic development, and it at least has significance as a measure of the economy's potential.

By implication, potential output is the Gross Domestic Product that would be produced under full employment situation. The economy is said to be at full employment when only frictional unemployment exists. That is, everyone who wishes to work at the going wage-rate for his type of labour is employed, but, because it takes time to switch from one job to another, there will at any one moment be a small amount of unemployment. Thus, the full employment level of Gross Domestic Product can be thought of as measuring full-capacity output, that is the largest output of which the economy is capable when all resources are employed to their feasible limits. However this may be practically impossible, as it is a mere theoretical construct. Nevertheless, it is the ideal that every economy thrives to achieve and sustain. It is also an important yardstick for measuring the employment situation in an economy.

Actual output on the other hand is Gross Domestic Product that was produced with the existing capacity. If potential output equals the actual output, such that the ratio: potential/actual output equals unity, no output gap exists. However, if there is dis-equilibrium between the two, especially when actual output falls short of potential output, then output gap exists. Put differently, output gap is the difference between potential and actual output. The gap may either be positive or negative. It is negative in the case of the above, and positive if the actual is higher than the potential. Ordinarily, the former may constitute a more serious economic problem than the latter.

To produce potential or actual output requires employment of some resources. Resources refer to agents or factors of production employed in an economy or firm to

produce and distribute goods and services or the purchasing power to effectively demand for investment goods. Factors of production are conventionally classified into land, labour, capital and entrepreneur. Land includes natural resources, properties of soil and waterways or simply its ability to be built upon. Labour, summarises the services of both manual and non-manual labour, for example, the services yielded by a broker in bringing two parties together, as well as those provided by a machine operator or road-digger. Capital, refers to the services provided by machinery, buildings, tools and other productive instruments which are goods made to produce other goods which considerably increase the productivity of land and labour, and which are only obtained by sacrificing current consumption possibilities. Finally, entrepreneur is the organiser of the other identified factors, with a view to ensuring efficiency.

However, for the purposes of this study we define a resource as the purchasing power to effectively demand for investment goods or to enhance capital inflow. The rationale for this lies in the fact that our intention is to consider resources in their entity without necessarily breaking them into components. In as much as it is not very easy to add land plus capital plus labour and entrepreneur together, we consider it worthwhile and reasonable to proxy the resources with the means to purchase them. Two important · characteristics of resources are that they are economic goods and consequently relatively scarce. Scarcity is a condition where there is less of something than people would demand to have if it cost nothing to buy. Thus, scarcity here is with respect to the total flow of goods and services which society would like to produce with them. Allocation of scarce resources for their best uses rests on the assumption that full employment exists. If the economy is operating at substantially less than full employment, resources are at least temporarily not scarce. By implication, the opportunity cost of additional output of almost

any kind is about zero, such that simply reducing unemployment can produce more output.

To close output gap (potential output minus actual output), with a view to achieving sustainable economic growth, require that resources be in their desired state. A resource is in desired state if it is adequate relative to its functions, (Lee and Liu, 1988). If dis-equilibrium exists between the existing and desired state of a resource, resource gap evolves. Specific activities are required to fill the resource gap and return it to desired state.

3.3.1.2 Measurement of Potential Output

In order to measure the output gap we need to first measure the potential output. To measure potential output, various methods have been used. Some of such methods include the following:

(a) The constant growth rate of GDP approach;

(b) The government target growth rate approach;

(c) The Okun's law equation approach;

(d) The theory of Real Business Cycles (RBC) approach; and

(e) The Mwega et al (1994).

3.3.1.2.1 The Constant Growth Rate of GDP Approach

Under this approach, it is assumed that potential output grows gradually following Okun's formalisation relationship, but that shift in aggregate demand makes actual output fluctuate erratically. Thus, policy makers see themselves as smoothing aggregate demand and aggregate supply to keep actual output in line with potential output, hoping to avoid gaps as well as the problems they create. By implication, the approach assumes the growth in potential output to be a constant number.

The growth formula used is given as:

$$B_t = D_o (1+r_o)^n$$

$$\frac{B_t}{D_o} = (1+r_o)^n$$

$$= \left[\frac{B_t}{D_o}\right]^{1/n} = 1 + r_o$$

$$r_o = \left[\frac{B_t}{D_o}\right]^{1/n} - 1 \qquad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(3.2.1.1.)$$

where

D_o - actual output (GDP) at the starting period.

B_t - the actual output at the terminal period under consideration.

r_o - rate of growth of GDP.

n   - number of years under consideration.

Bamidele (1995) fitted Nigerian data into the above formula. He reported that it was rather difficult to apply the formula for the period 1970-1988 because the Nigerian economy was very unsteady and the GDP during the period fluctuated irregularly from year to year. However, he found some relative steadiness for the period 1970-1974.

3.2.1.2.2 The Government's Target Growth Rate of GDP Approach.

This approach bases the growth of the GDP on those very rates projected or pronounced as targets of achievement by the government over the years through its development plan documents which by all standards is an indication of the intentions of government. However, in a situation whereby actual growth rate is higher than target rate, the actual is usually adopted inasmuch as the higher actual growth rate signifies a higher

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potential than was envisaged. Target growth rate is obtained from development plan documents. For any period when the country experiences planning recess, as was the case in Nigeria between 1986-88, the target growth rate contained in the annual budget are usually used.

The government's target growth rate approach is no doubt beset with some shortcomings. These include the fact that the rate is politically determined. Political leaders in a bid to canvas for support usually fix high targets that is most of the time unattainable. Moreover, governments are usually not call to question over its inability to meet the set target growth rate. The implication from the above is that the government's target growth rate is nothing but a wishful thinking of the government. In fact, if wishes were horses, beggars would ride.

3.2.1.2.3 The Okun's Law Equation Approach

This approach is based on the understanding of the concept of potential output as what the economy could produce assuming full employment of available factors of production, (Okun, 1965). According to Okun's law:

$$\frac{Q^* - Q}{Q} = \alpha (U - U^*) \dots \dots (3.2.1.2)$$

where

Q^* - Potential Output

Q - actual output

U - Unemployment rate

U^* - benchmark unemployment rate

α - Okun's coefficient.

Solving the above equation for Q^*, we derive the equation that could give us the potential output. Thus, potential output is calculated as

$$Q^* = (\alpha (U - U^*)) Q + Q \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \ \cdot \ \cdot \ \cdot (3.2.1.3)$$

A major problem of estimating this equation is obtaining information about the variables, especially, U and U^*. In Nigeria, data on unemployment are both inadequate and unreliable, thereby making the use of the model unattractive.

3.2.1.2.4 The Theory of Real Business Cycles (RBC)

The theory of Real Business Cycles (RBC) argues that growth in potential output is highly variable and causes the fluctuations observed in actual output. Two approaches have been developed along the RBC. The first approach is using long-term information, which associates changes in potential output with long-run fluctuations. Bamidele (1995) described the association as reasonable because the potential level of output is determined by the supply of productive resources, and changes in these resources are likely to be persistent. Reiterating the above argument, Shapiro and Watson (1988) reported that a key assumption is that demand disturbances can influence the economy's level of output only for a short time, such that any long-term fluctuation in output are associated with supply shifts.

The second approach along the Real Business Cycle uses exogenous information. It links shifts in potential output to a set of exogenous variables. Boschen and Mills (1988) used this approach and isolated fluctuations in output to a set of observable variables that, they thought, could determine potential output. This set includes population growth, oil price shocks and marginal tax rates. In an attempt to explain long-term economic growth, Denison (1985) studied a more comprehensive set of variables, which included many

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exogenous forces that may cause changes in capital, labour, and the productivity of these inputs.

3.2.1.2.5   The Mwega and others (1994) approach

Mwega and others (1994) attempted to estimate potential output. They regressed real output proxied by real Grross Domestic Product (GDP) which is actual output on time. They obtained the residual values and added the maximum residual to the predicted real output for each observation. The predicted value was obtained from the regression equation by simply substituting for ('t') in each observation. The equation used is as given below:

$Y = h_o + h_1 t$

where

Y= real actual output.

t = time.

h_o and h_1 are parameters

A major shortcoming of the Mwega and others approach of measuring potential output is the assumptions that time alone is the independent variable, which determines the growth of potential output. Potential output is a future or desired phenomenon, implying that some elements of dynamic specification is essential in such modelling. Thus, actual output in the previous years will have influence on the growth of potential output.

3.2.1.3 Investment - Savings Gap

The role of investment to influence the level of output is less controversial. It has been argued that under a free enterprise economy, investment if well monitored will generate higher business profits, full employment and also make workers more productive,

(Atoyebi, 1985). The concept of investment in economic theory refers to domestic savings ;
plus inflow of foreign resources, (Thirlwall, 1983) or the change in capital stock, (Todaro,
1981). Strictly defined, investment is expenditure on real capital goods. It is also taken to
mean purchase of any asset, or indeed the undertaking of any commitment, which involves
an initial sacrifice followed by subsequent benefits.

We may categorise investment into two broad groups, notably physical capital
investment and human capital investment. By physical capital investment it refers to the
form of investment, which provides the worker with more efficient material, notably
equipment such as better machines, electrical power, transport, among others. Human
capital investment, on the other hand, refers to the form of investment, which makes the
worker himself more efficient, notably by making him more healthy, skilful and specialised
in knowledge.

To finance any form of investment requires savings. Savings refers to the setting
aside or postponement of present consumption to future date. Thus, savings equal
disposable income minus consumption. However, planned investment may not always
automatically equal available savings. Any disequilibrium between the two would give rise
to Investment-Savings gap, with its attendant consequences on unhealthy social, political
and economic conditions. By implication, every economy would thrive to achieve some
balance between savings and investment, as this is one of the factors that can move the
economy towards full employment and thereby close the gap between actual and potential
output.

Assuming savings (S) is some function of national income (Y), such that we have
the following:

$$S = sY.$$

Recall that investment (I) is defined as change in capital stock: $I = \Delta K$

Capital stock bears a direct relationship to income Y, as expressed by the capital-output ratio, k, such that $K/Y = k$ or $\Delta K = k \Delta Y$.

At equilibrium total saving will be equal to total investment, such that

$$S = I$$

Substituting we have:

$$S = sY = \text{ or } \Delta K = k \Delta Y = I$$

or

$$sY = k \Delta Y$$

Dividing through by Y and K we obtained the following expression:

$$\Delta Y/Y = s/k.$$

The above expression states that rate of growth of GDP is determined jointly by the national savings ratio, s and the capital-output ratio, k. However, the rate at which the economy grows for any level of saving and investment depends on how productive that investment is. The productivity of this investment can be measured by the inverse of the capital-output ratio, k, since this inverse 1/k is the output-capital ratio. It follows that multiplying the rate of new investment, $s = I/Y$, by its productivity, 1/k, will give the rate by which national income will increase. The productivity of capital is represented by p in our expression below.

A country will achieve its target growth rate, such that the gap between actual output and potential output closes or reduces, if there is a minimum level of domestic investment. To purchase the minimum level of domestic investment requires minimum savings, the ratio, which is calculated thus:

$$s = \frac{r_2}{p} \quad \text{...} \quad (3.2.1.4)$$

where

        s   - the required minimum saving ratio

        r_2 - target growth rate to close the output gap

        p   - productivity of capital.

If it is established that domestic saving is less than the level of investment required to achieve the target growth rate, we would have an Investment - Savings (I-S) gap at time "t" defined by El Shibly and Thirlwall (1981) and Thirlwall (1983) as:

$$I_t - S_t = sY_t = \left[\frac{r_2}{p}\right] Y_t - sY_t \quad \text{...................} \quad (3.2.1.5)$$

where

        I_t - Investment requirement at time 't'

        S_t - Savings requirement at time 't'

        Y_t - Output at time 't'

Other notations are as previously defined.

The disequilibrium between Investment and Savings (I-S gap) arises essentially from the fact that both are not necessarily carried out by the same economic agents. Also, investment and savings activities are influenced by different factors. Resource owners will be willing to forgo their present consumption if they anticipate higher benefits from such resources when invested in productive activities. Thus, a resource owner's decision to save would then depend on the overall level of resources made available to him, as well as the

attractiveness of savings option relative to consumption. The overall level of resources refers to the after tax income (disposable income) of the resource owner. The relative attractiveness of savings to consumption refers to the willingness to save or the marginal propensity to save. The willingness to save would depend on some factors, notably, the rate of interest especially on deposit, the resource distribution as well as the effectiveness of institutions mobilising savings. among others.

To specify savings model, a popular thing to do is to assume the existence of diminishing marginal utility of expenditure. Thus, suggesting that additional welfare gains would become progressively less valuable as consumption increases. Two implications are deducible from the above theoretical proposition. The first is that at low level of income, savings would be low. The rationale being that a proportionately greater amount would be consumed. The second implication is a corollary of the first. It is to the effect that, at high level of income, income earners would be better disposed to savings, as the opportunity cost of benefits forgone would be lower if basic consumption needs could be easily satisfied. Nevertheless, irrespective of the level of income, whether a resource owner would decide to postpone present consumption or not, would largely depend on the degree to which the consumption/saving trade off can be made to look attractive from the point of view of the resource owner.

3.2.1.4 Export - Import Gap

Production will take place if required resources are purchased. Some of these resources can be obtained from within the domestic economy, while others can only be obtained from outside the domestic economy. Those that are available within the domestic economy can be purchased with the domestic savings discussed under sub-section 3.2.1.3

above. Those available outside the domestic economy would require foreign currencies to purchase them. The relative importance of domestic inputs and foreign inputs would be better appreciated if we realise the non-substitutability of the two types of resources.

Inasmuch as the purchase of foreign inputs (imports) would require foreign exchange, how the foreign currencies are obtained becomes imperative. They can come from three principal ways. These are by increasing exports, compressing imports, as well as foreign assistance/aid. Each of the above options has its own merits and demerits.

To increase exports would demand two things. The first is that, domestic output should be increased sufficiently, such that more of the output can be released for export after satisfying domestic consumption needs. The second is that export promotion strategies be put in place and be pursued with a view to making the country's export more attractive. Domestic output would increase if further stressing of domestic resources takes place. This may not be advisable except the economy is not operating under full-employment. The underlining theoretical assumption for a successful export promotion is that both demand for and supply of exports should be elastic. The implication is that demand for and supply of exports should respond more than proportionately to the export promotion strategies. However, countries that are monocultural and especially those exporting essentially primary products may find it difficult to meet the above underlining theoretical assumptions. This is because monocultural economies are much more susceptible to cyclical downswings common with primary commodities in the international market. Also, primary products command lower prices relative to their secondary and tertiary counterparts.

Compressing imports suggest the pursuance of Import Substitution Industrialisation strategies; such that what were hitherto imported should be sourced for within the domestic

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economy. However, there is a limit to how much emphasis can be put on this, as countries in their infancy stage of industrialisation may not have a better option other than relying on imported intermediate inputs and capital goods. Most developing countries, especially Nigeria, are still in their infancy stage of manufacturing, (Bamidele, 1995). Whether a country would get foreign assistance or aid is outside the control of the country. The donor country decides how much to give as grant, for what purpose as well as to whom. Most of the above decisions are arrived at through political processes as less economic factors are given consideration, (Chenery, 1967).

The implications from the above analysis are two. To compress imports may not be a very attractive option for developing countries. Also, foreign assistance may not also be reliable. Thus, a country would have to rely on its exports to purchase required imports for investment purposes. Two, if an economy would maximally explore the inherent benefits from exports and imports, such an economy should be opened up to international trade. Gould and Ruffin (1993) argued that a country open to international trade might experience faster technological progress and increased economic growth. They anchored their argument on the fact that the cost of developing new technology falls, as more hi-tech goods are available. The concept technology refers to the sum of knowledge of the means and methods of producing goods and services. Technology is not merely applied science because it often runs ahead of science. Technological change and the diffusion of technology are important in economics because new methods, including those embodied in investment, play an important part in theories of economic growth. There is, however, some controversy about the extent to which technological development is an autonomous factor in economic growth. The reason for the above is simply due to difficulties in measurement.

If, however, the import requirements were higher than the level of export earnings

available for investment purposes, we would have Export - Import gap or foreign exchange gap. Reducing importation of intermediate inputs and machines could lead to low production and hence low output for the economy thereby creating an output gap. El Shibly and Thirlwall (1981) and Thirlwall (1983) has given the Export-Import gap at time 't' as:

$$E_t - M_t = i^* Y_t - i Y_t = \left(\frac{r}{m} \right) Y_t - i Y_t \dots\dots\dots\dots\dots (3.2.1.6)$$

where

E_t - required export

M_t - required import

i - the ratio of import to output

i^* - the required ratio of import to output.

m - productivity of imports

r - target growth rate to close the gap

Other notations are as previously defined.

3.2.1.5 Budgetary Gap

The mechanism of government intervention in the economy operates through public budget. Budget is an estimate of income and expenditure for a future period as opposed to an account, which records financial transactions. Budgets are an essential element in the planning and control of the financial affairs of a nation or business, and made necessary essentially because income and expenditure do not occur simultaneously. Thus, public budget contains revenue estimates, expenditure decisions of government as well as fiscal actions of government within a specified period usually twelve calendar months. The public budget is concerned with answers to the following questions.

(i)   How much should be realised as revenues?

(ii)   How much should be spent on various programmes?

(iii)   What are the objectives of government with respect to resource allocation, income distribution and economic growth?

(iv)   How will shortfall in revenue be accommodated, that is the issue of public debt management?

We may consider the government as a collective agent, such that it is the organ through which the collective choice of individuals can be made especially with regard to provision of social goods, augmentation of merit wants, and other public duties. To execute the above programmes, government obtains funds (revenue) from inhabitants of the country and the private sector in the form of taxes, charges, borrowings, grants, and profits, among others.

Tax is a compulsory levy imposed by government on individuals, firms, goods and services as well as legal entities within a country. Taxpayers have to pay the sums irrespective of any corresponding return of services or goods from government. Thus, a taxpayer does not receive a definite and direct quid pro quo from government. By implication it is not a price. However, it is possible that taxpayers get benefits from government but this is not a right. Tax is imposed on income, wealth or services, etc. However, intention of government will largely determine whether a compulsory levy is a tax or not. This suggests that all taxes are compulsory levies, but not all compulsory levies are taxes.

Charges are usually payments that are made for the use of government services. Borrowing, as the name indicates is the use by the government of fund belonging to another economic agent with the understanding that the fund will be repaid. Borrowing may be

internal or external and both principal and interest accruable will be paid back at a later date. Grants are funds made available by other countries or international agencies and are not supposed to be paid back. A profit as the name indicates refers to the excess of revenue over the costs on government direct investment.

Charges, borrowing, grants and profits are voluntary, but taxes are compulsory. Taxes account for the largest proportion of public revenue. Taxes may be imposed on production, they may be imposed on households or firms and they may be imposed on the sources or uses of the taxpayers' account.

Public expenditure refers to the expenses, which the government incurs for its own maintenance and also for the society as well as the economy as a whole. Expenses incurred in rendering assistance to other countries are also part of public expenditure. Public expenditure, in Nigeria, is grouped into four functional groups, notably Administration, Economic Services, Social and Community Services as well as Transfers.

Administration expenditure, we mean expenditure incurred on day-to-day running of government businesses. Examples are expenditures on general administration, defence, internal security, etc. Economic Services on the other hand, refer to expenditure by government's direct participation in the economy, principally to propel the economy forward. They include government's participation in transportation, agriculture and natural resources, communication, mining, quarrying and special projects. Social and Community Services mean expenditure incurred on provision of public goods or semi-public goods. Examples are provision of education, health, houses, streetlights, roads, bridges, dam, etc. Transfers refer to payments not made in return for some productive service; e.g. payments made by the state to needy individuals which, in effect, transfer income from wealthier sectors to the poorer. Examples are old-age pensions, unemployment benefits and widow's

pensions. They are not a payment in return for productive services, but rather represent income redistribution. Likewise taxation is a transfer payment to the government.

Dis-equilibrium may occur between public revenue and expenditure. This is what we refer to as budgetary gap. This may either be positive or negative. It is positive where revenue exceeds expenditure, such that the economy operates a surplus budget. This will increase the reserves of the country and does not pose much economic problem. However, where revenue lags behind expenditure we have deficit budget. This may pose a serious problem to the economy, because accumulation of deficit leads to public debt with its attendant consequences. The dis-equilibrium may either be voluntary or involuntary. It is voluntary if the government out of its own volition decides to bring about the dis-equilibium, while it is involuntary where exogenous circumstances impose the dis-equilibium on the government, (Abiola, 1996).

The involuntary dis-equilibrium would be better appreciated if we recognise that government, unlike individuals, has a rather unique way of going about its revenue and expenditure activities. For example, while individuals would prefer to be in possession of the means to effectively demand for commodities, government usually adopts a rather opposite approach. That is, government would estimate what to spend before sourcing for the revenue to finance such expenditure programmes. By implication, government would most likely wish to ensure that its expenditure programmes are not faltered and hence look for funds elsewhere.

The way out of the above, most times, has been deficit financing. This may be defined as the net increase in the amount of money in circulation, where such an increase results from a conscious governmental policy designed to encourage economic activities (for economic growth or some other objectives), which would otherwise not have taken

place. Defined this way, deficit-financing amounts to domestic credit creation, which is not offset by increased taxation, more restrictive bank credit policy and similar deflationary measures.

However, government deficit creates a short fall in private capital formation by reducing the pool of savings available for private sector investors, (Olomola and Abiola, 1997). Total capital formation is reduced by the extent that the deficits are not used for viable investment purposes, (Baro, 1991). The implication of directing deficit financing to unviable investment purposes would manifest in the form of reduction to the barest minimum, of private sector savings, thereby reducing the level of economic growth, (Abiola, 1996) and consequently stimulate output gap.

Measurement of the Budgetary Gap (BG) is given as follows:

$$BG = T_1 - T_2 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(3.2.1.7)$$

where

T_1 = Total Public Expenditure

T_2 = Federal Government Retained Revenue

The concept Federal Government Retained Revenue comprises of some items. The items are share of statutory allocation, independent revenue, deduction on loans to state and local governments and others. The above specification can either be deficit, balance or surplus as given below:

$T_1 - T_2 > 0$ Deficit

$T_1 - T_2 = 0$ Balance

$T_1 - T_2 < 0$ Surplus

3.2.1.6 Public Debt Servicing

Government gets its revenue principally from taxes. However, government may opt

to borrow to finance its expenditure. It then implies that citizens may pay less tax. Thus, borrowing becomes a form of postponed tax. By the time the loan is being repaid, the citizens may have to pay more taxes. The taxes will then be used to repay existing debt. The implication of the above is that less income will be available for spending, especially if the loan was externally contracted. In other words, public debt servicing may reduce national income of a country. This however presupposes that contracting new loans did not effect the servicing.

We note that, from a given level of income, some proportion will be allocated to consumption expenditures (C) while some will be allocated to savings (S) (thus, Y=C+S). In the view of the classical economists the savings in the above specification will be equal to investment (I) at equilibrium (thus, Y=C+I). The amount allocated to either consumption or savings will largely depend on the total income available. Thus, reduced income will also bring about reduced consumption expenditure and savings. The national income model may be expanded to include government and external sector as giving below:

Y= C+ I+ G+ (T-M).

where

Y = national income.

C = consumption expenditures.

I = investment expenditures.

G = government purchases.

T = exports.

M = imports

(T-M) = external balance.

The implication from the above is that reduction in savings with respect to a planned

level of investment has the tendency to generate dis-equilibrium between investment and savings. Existence of such dis-equilibrium may give rise to Investment-Savings gap.

Also if we assume that import is a function of income, we may specify as follows:

$$M = M_0 + mY$$

where

M = total imports.

M_0 = level of import not influenced by level of income.

m = marginal propensity to import.

Y = national income.

Given that export is exogenously determined, a reduced level of income could ordinarily make import to reduce. If both exports and imports are inelastic, such a country will have to import irrespective of the level of income. This is because the essential items for domestic production are not adequately available at home. Also, the country has to export because the materials cannot be processed at home. The sum total of the above is that dis-equilibbrium between exports and imports may emerge. This may give rise to Export-Import gap.

Furthermore, public debt servicing could reduce available revenue to the government for executing its expenditure activities as represented by G in our macro-model. This imposes two options on the government. One, to reduce its expenditure and makes it equal to revenue with its attendant consequences on national income and peoples' welfare. Two, to maintain the expenditure profile. In the case of the second option, the government will be confronted with dis-equilibrium between available revenue and intended expenditure. This is what we simply refer to as Budgetary gap. In a nutshell, public debt servicing may have implications on our identified three resource gaps.

3.3.0 ECONOMIC GROWTH AND ITS IMPORTANCE

Gross Domestic Product is the market value of all the final goods and services produced by an economy during a specified period, usually twelve calendar months, irrespective of whether the final goods and services are produced by the country's factors of production or their foreign counterparts. The term economic growth may be simply defined as a situation whereby a country generates sustained increase in its Gross Domestic Product, with a view to reducing or eliminating poverty, inequality and unemployment, (Todaro, 1982).

Seer (1969) perhaps best posed the basic questions about the ultimate goal of economic growth when he asserted that: "the questions to ask about a country's development (ultimately) are therefore: what has been happening to poverty? What has been happening to inequality? What has been happening to unemployment? If all the three of these have declined from high levels, then beyond doubts this has been a period of development for the country concerned". However, dearth of reliable statistical data on the key variables highlighted above poses stumbling block on the use of the variables. It has been to ameliorate the above shortcoming that the concept of economic growth has been adopted. Economic growth is much easier to measure by looking at the Gross Domestic Product.

3.3.1 Economic Growth and the Production Possibilities Curve (PPC)

There are two common measures of the rate of economic growth. The first is the

rate of growth of a country's real Gross Domestic Product which tells us how rapidly the economy's total real output of goods and services is increasing. The second is the rate of growth of per capita real Gross Domestic Product. The second alternative is a better measure of the rate of increase in the standard of living of a country's citizens.

To represent the process of economic growth, it is convenient to use the production possibility curve, which shows all the efficient combinations of output that an economy can produce over a specified period of time. For the purpose of illustration, let us assume that a country produces only two goods: consumption goods and investment goods. Then, if this society has at its disposal a fixed amount of resources and if technology is fixed, the production possibility curve shows the maximum quantities of consumption goods and investment goods that can be produced. Figure 3.3.1 is a geometrical representation of the above.

Fig. 3.3.1: Production Possibilities Curve showing all the efficient combinations of

Input in an economy producing two goods.
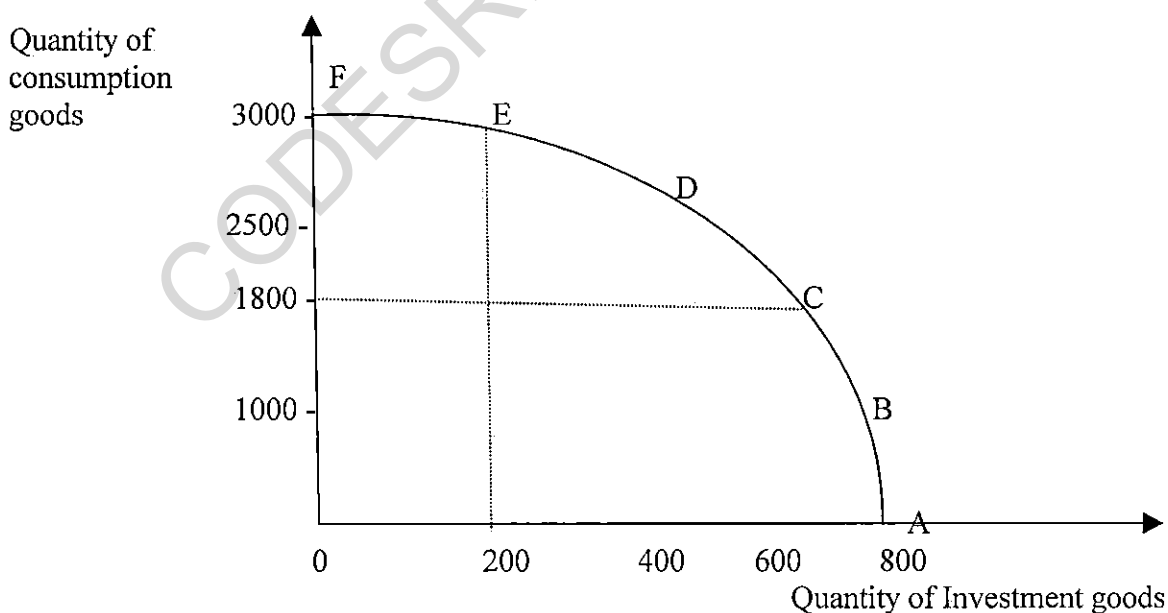
Source: M.P.Todaro (1982, pp. 107).

The production possibility curve has meaning for a full employment, maximum efficiency economy. If there is wide spread unemployment, or if resources are being used

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inefficiently, or if there is poor management, then the actual combination of investment

goods and consumption goods which is being produced by the society might be shown by

point X in figure 3.3.1. At point X 200 units of investment goods are being produced,

whereas, if there were no unemployment and /or there was a more efficient and effective

management, the total output could be anywhere on the segment C-D-E on the production

possibility frontier. For that matter, a lower level of unemployment and /or a slightly more

efficient production process could result in a consumption goods-investment goods

combination at any point in the area of the triangular arc bounded by points X, C, D and E.

Our hypothetical country's potential output increases when its production possibility

curve shifts outward as represented in figure 3.3.2.

Fig.3.3.2: Production Possibilities Curve showing the process of economic growth
in an economy producing two goods.

Quantity of Investment goods
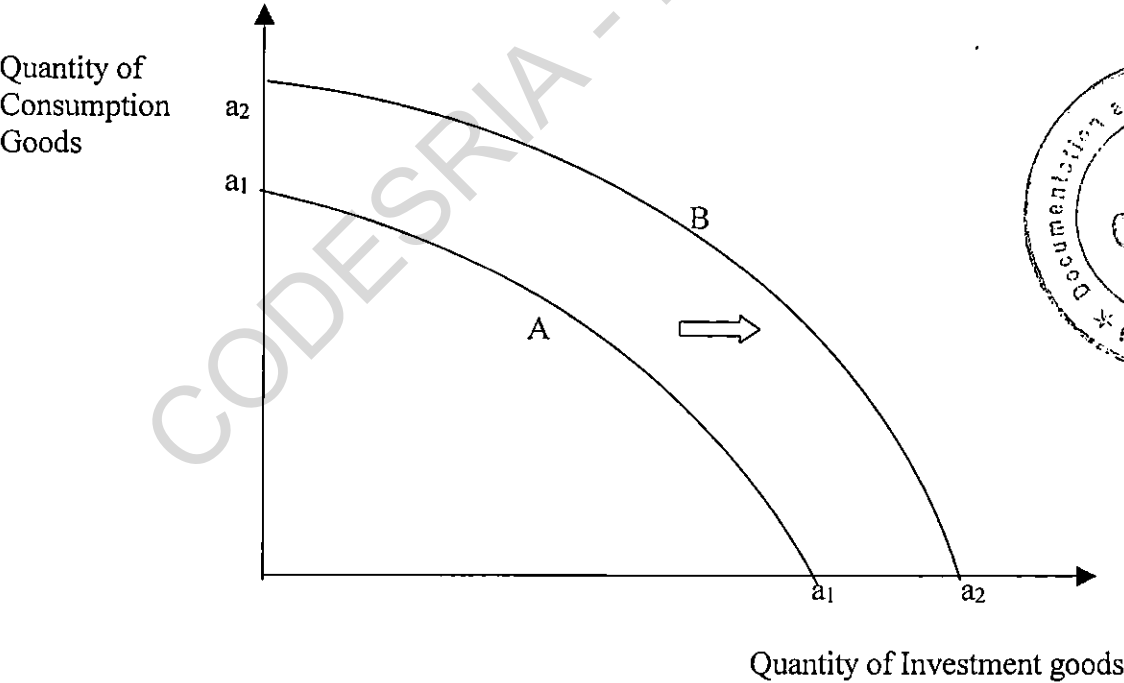
Source: M.P. Todaro (1982, pp. 110)

It could be observed that the production possibility curve shifts outward

from point A to point B, where point A is anywhere on curve a_1 -a_1 and point B is anywhere

on curve a_2 - a_2. This implies that the society can produce (and consume) more of one good without necessarily having to produce (and consume) less of the other good. Since these are assumed to be the only two goods produced by this economy, it follows that the Gross Domestic Product will be higher than before. In other words, the process of economic growth is under way. Thus, its productive capacity utilisation should be greater. The production possibility curve shifts outward if the economy is efficient, and if population remains relatively constant, per capita Gross Domestic Product increases and economic growth occurs. Moreover, the faster the production possibilities curve shifts outward, the greater the rate of economic growth. However, the economy will be efficient, if one basic condition is met. The condition is that the economy should optimally allocate its scarce resources.

The shape of the production possibilities curve is due to the operation of the law of diminishing returns. It represents the fact that as consumption good is reduced, the increases in investment good gets smaller and smaller because the resources being released from consumption good are encountering diminishing returns when they are moved into investment good. A similar result will be obtained if investment good is reduced.

The production possibilities curve is an important analytical device in several areas of economics, particularly in general equilibrium theory, welfare economics and international trade theory. It is also useful in pointing out some basic economic lessons, e.g. in an economy with a fixed quantity of resources and a given technology, it is not possible to have more of one thing without having less of another.

3.3.2 Importance of Economic Growth

The question that may readily come to mind is why is economic growth a widely

held macroeconomic goal? The answer is not far fetched. The growth of total output relative to population means a higher standard of living. An expanding real output means greater material abundance and implies a more satisfactory answer to the economising problem. Thus, a growing economy is in a superior position to meet new needs and resolve socio-economic problems, both domestically as well as internationally. A growing economy, by definition, is the one that enjoys an increment in its annual real output, which it can use to satisfy existing needs more effectively or to undertake new projects. Expanding real wage or salary incomes would make new opportunities available to any given family, without the sacrifice of other opportunities and enjoyments.

Similarly, a growing economy can, for example undertake new programmes to alleviate poverty and clean up the environment without impairing existing levels of consumption. Economic growth lessens the burdens of scarcity. A growing economy unlike static one can eat its cake and still almost have it. The implication from the above is that, by easing the burden of scarcity, i.e. by releasing the country's production constraints - economic growth allows a nation to realize existing economic goals more fully and to undertake new output-absorbing endeavours.

3.4.0 THE THEORETICAL LINK BETWEEN INVESTMENT
AND ECONOMIC GROWTH

A lot has been said about the theoretical link between investment and economic growth. It is also universally accepted that investment and economic growth are positively related. However, opinions differ about the direction of influence. For example classical economists notably Harrod and Domar (see Allen, 1973 pp.197-219) postulated that investment (through capital formation) has a crucial role to play in the growth process. Neo-classical growth theorists notably Robert-Solow's challenged the critical role of investment in growth process. In the Robert-Solow's model, it was postulated that capital accumulation affects growth only during the transition to the steady state and the long term growth is determined only by the rate of technical change which is assumed to be exogenous.

The endogenous growth theory of Roemer (1986) stresses the insufficiency of capital accumulation to guarantee long-term growth. They argued that sustained growth depends not only on accumulation of physical capital, but also on two fundamental factors notably human capital and technology.

The UNCTAD economists notably Akyuz and Gore (1994) and Singh (1996) re-emphasised the critical role of investment in the growth process. They argued that investment does not just augment a factor of production but it is the means by which new technologies are put into practice. It was further argued that inasmuch as technical change is regarded as being embodied in new capital goods, there was no reason why eventual decreasing returns should set in under high rates of investment. Thus, high rates of investment could lead to faster technical progress, greater learning-by doing, greater learning by using, raise workers' skills, increase human capital, and through cumulative

causation, lead to a virtuous circle of greater competitiveness and sustainable economic growth, (De Long and Summers, 1993) and (Haque, 1995).

Some other economists notably Serven and Solimano (1993), Obadan and Odusola (1999) argued that the investment –growth process may be path-dependent. This suggests that the theoretical relationship between investment and growth is bi-directional. In their opinion investment can be sensitive to cyclical variations in output. If it does, then a short-term effects recession may have long-tem effects by causing a deep investment slump that could permanently traps the economy in a low growth (low income and saving) low investment and consequently low productivity. Thereby, setting in motion the vicious circle of poverty.

The implication from the above analysis is that the importance of investment in any country cannot be over-emphasised. A critical look at the vicious circle of poverty as depicted in figure 3.5.1.would reveal two things.
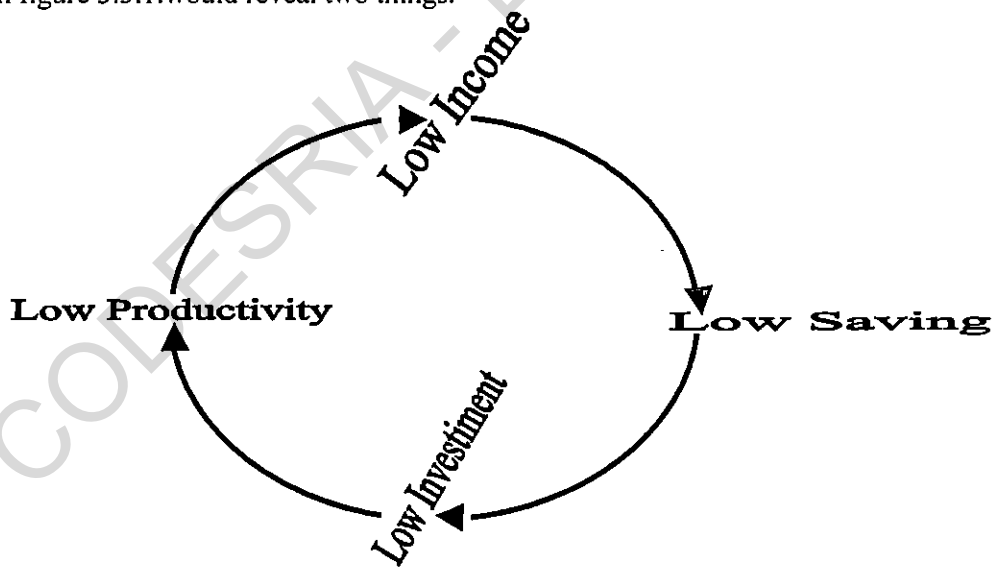
Fig. 3.5.1 Diagram showing the Circle of Poverty

One, that investment is an important factor to promote economic growth. Two, that inadequate investment could limit economic growth and ultimately manifest itself in the form of low productivity, low income (low consumption and saving), low investment and consequently increased poverty. By implication, an important point to break the vicious circle of poverty is to address the question of investment. By increasing investment, productivity would increase. This would increase income and ultimately saving.

Through investment, new capital is installed in an economy each year and this increases its productive capacity. If there was no net investment, capital would wear out gradually, and production eventually would fall from year to year. A certain amount of investment would be needed to prevent production from falling. This we refer to as capital consumption allowance. Investment in excess of such allowance is net investment. Technically, total investment therefore equals capital consumption allowance (replacement investment) plus net investment. It follows from this definition of net investment that it increases output, since capital consumption allowance keeps net output constant, and any investment in addition, to this should increase output, (Eltis, 1966).

The proportion of output that is allocated for net investment and the incremental capital output ratio would determine the growth rate of output. Thus, following Harrod (1939),

we have

$$g_w = \frac{s_o}{k} \quad \text{..(3.4.1.)}$$

g_w = potential/warranted growth rate of output.

s_o = proportion of an economy's net output which consists of its savings

k = incremental capital output ratio.

The warranted rate of growth of output is synonymous with rate of growth of

potential output. It is defined as that growth rate which if it occurs, would leave all participants in the economy satisfied and which they would all prefer to maintain. It is attained when the potential output equals actual output. Savings refer to the postponement of current consumption to some future date. The incremental capital output ratio k is calculated by dividing total capital stock (K) by total output (Y).

However, the higher the volume of observable incremental capital output ratio, the lower would be the economy's growth rate. However, in cases where the above does not hold, the changes in growth rates would be very small. Leibenstein (1966) justified his arguments with the following reasons: (i) the investment rate is a more stable variable than other variables affecting economic growth; (ii) the significance of non-capital inputs is greater than that of capital inputs; (iii) changes in the level of employment of all inputs affect growth rate more than investment; and (iv) some outputs are related probabilistically to inputs. Also, he further argued that increases in capital contribute only a small proportion to total economic growth. He put the proportion between 10-20 per cent. As a consequence, most of the growth rate would be accounted for by non-capital inputs.

The inverse relationship between observable incremental capital output ratio and growth rate no doubt has some implications. The first is to the effect that incremental capital output ratio is really a function of growth rate rather than growth rate being a function of incremental capital output ratio, thus, suggesting a one-way causal relationship. Secondly, the inverse relationship casts grave doubts on the appropriateness of the acceleration principle as a tool of analysis and on the incremental capital-output ratio as a planning instrument. Thus, suggesting that it is the consequence of economic behaviour, and to some extent the consequences of other aspects of planning machinery, which determine the incremental capital - output ratio, rather than the other way round,.

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(Leibenstein, 1966).

Some factors may be responsible for the stability of investment rate. We know that public sector investment is likely to change slowly because investment decisions are often taken prior to knowledge about what the growth rate would be, and it depends on tax revenues as well as on assessment of necessary social overhead cost through the political processes.

By implication, public sector investment would not solely determine economic growth rate, neither would a zero economic growth rate significantly reduce public sector investment, (Leibenstein, 1966). Similarly, private sector investment could be stable because private construction component of investment could be highly durable, and unrelated to economic growth. Also, private sector investment could be carried out for defensive purposes as well as for expansion, (Lamfalusy, 1961). However, many of the non-capital inputs would likely vary highly from year to year. For example, factors such as technological progress, organisational and managerial change, as well as changes due to increases in knowledge do not occur in a steady progress.

The required investment goods could either be provided domestically or be purchased from abroad. Domestic provision requires domestic private sector savings and domestic public sector savings, while the foreign provision requires foreign exchange. Assuming an absence of substitutability among the identified three sources, economic growth would be constrained by whichever factor that has been the most limiting. Let us assume that the growth rate permitted by the availability of desired foreign exchange and public sector revenue is higher than the one permitted by the availability of domestic savings. In such a case, the country would be foreign exchange and public sector revenue constrained, such that some proportion of domestic savings would be unutilised.

The implication deducible from the above explanations is that there would be limit on sustainable economic growth as long as resource constraints exist. Thereby making it very imperative to use foreign exchange to augment domestic saving, and / or raise the productivity of domestic resource. However, if foreign exchange is the dominant constraint, ways should be found to use unutilised domestic resources to earn more foreign exchange, and / or raise the productivity of imports. In a similar vein, if public sector revenue is the dominant constraint, efforts should be made to generate and/or by increase government tax efforts through increase in tax rate, expansion of tax base, increase in tax coverage or by making the tax collection simply buoyant.

3.5.0 THE THEORETICAL LINK BETWEEN RESOURCE GAP AND SUSTAINABLE ECONOMIC GROWTH

Most Less Developed Countries fail to achieve sustainable economic growth because of the absence of the pre-requisites for same. Sustainable economic growth involves two basic things. One is achieving economic growth. Two, is ensuring that the growth continuously optimises the use of natural capital with an intergenerational dimension, i.e. meeting the needs of the current generations without having to compromise those of the future generations. Sustainable economic growth, if achieved, reduces to the barest minimum the resource gaps which hitherto act as constraints. The essence is to make the potential and the actual output as close as possible. Three groups of factors have been identified in the management of resource gaps to ensure sustainable economic growth, (Khan, 1995). They include environmental, social and economic factors.

Figure3.6.1 identifies the factors in the three groups.
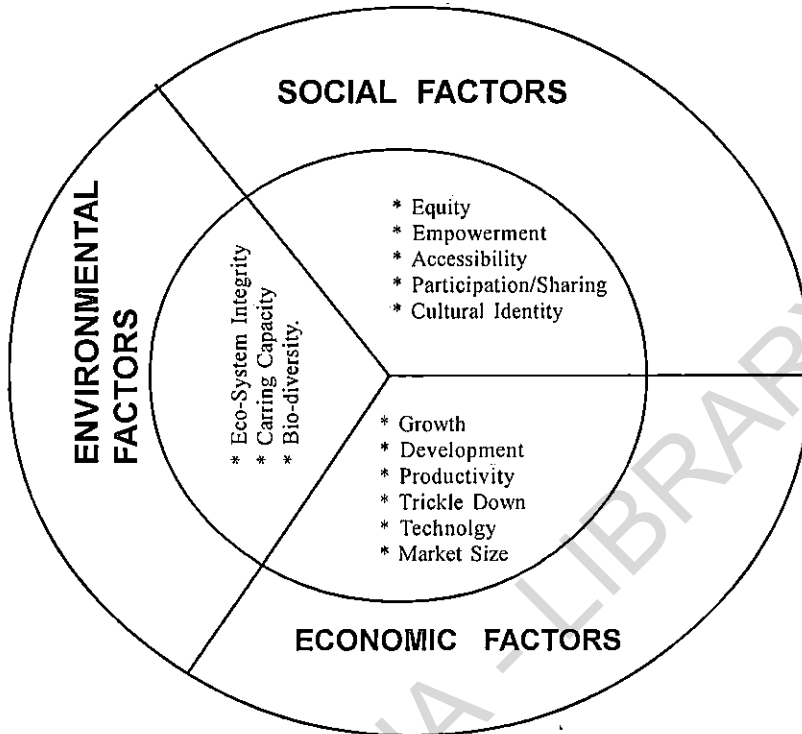
FIG. 3.6.1: FACTORS AFFECTING SUSTAINABLE GROWTH.

Social sustainability addresses issues such as equity, empowerment, accessibility, participation/sharing, cultural identity and institutional stability. The essence is to alleviate poverty, remove colonisation and exploitation of natural resources. Economic sustainability relates to a production process that satisfies the present level of consumption without compromising future needs. Environmental sustainability means that natural capital must be maintained both as a provider of inputs "sources" and as a "sink" for wastes, (World Bank, 1986). It has also been argued that to achieve environmental sustainability: (i) in the source site, harvest rates of renewable natural capital must be kept within the

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regeneration rates; and (ii) in the sink site, to control waste emissions within the assimilative capacity of the environment without impairing it, (Khan, 1995).

From figure 3.5.1 above, the social factors will achieve the objective of alleviating poverty, if there is equity in the distribution of income, equal opportunities for all and sundry as well as a change from the cultural problem of ever increasing consumption habits, among others. These social factors depend on the realisation of economic factors; for instance, there must be increased productivity leading to positive growth and development for equity to be meaningful. We also recognise the fact that empowerment itself can induce growth. Nevertheless, empowerment can be legally or culturally induced. The technology to be adopted for production should be related to whatever obtains within the domestic economy. This is to ensure easier manageability and promotion of maintenance culture. In as much as whatever is produced would have to be sold, size of the market should be able to accommodate the output.

However, neither the social factors nor the economic factors can be pursued in a vacuum. They have to give due consideration to the environmental factors, notably, eco-system integrity, carrying capacity, and bio-diversity. Thus, social and economic goals should be pursued within the limitations of the biophysical environment. In other words, what are required are a growth-oriented and an equity-based enabling environment to ensure optimisation in resource allocation and use, as well as equity in resource distribution. Thus, sustainable economic growth, which seeks to pursue growth and equity within the context of intergenerational resource stability, sees growth as achieving the inter-linking objectives of social, economic and environmental sustainability both in the short and the long run.

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The merits of articulating the link between resource gaps and sustainability are many. The merits are:

(i)   it ensures development of appropriate methodological tools to appraise projects and assist investment and planning decisions by weighing equally the requirements of sustainability; and

(ii)   it also puts in place an appropriate sustainable economic growth idea to measure growth in the context of an integrative framework.

3.6.0 ECONOMIC GROWTH AND STEADY STATE GROWTH

Economic growth will be limited and not sustained if the steady state conditions are not fulfilled. The steady state growth occurs when the proportional rates of growth of all variables in an economy are constant over time. Thus, suppose we have an economy consisting simply of firms and households, where firms receive consumers' expenditure in return for goods and pay this back to households in return for productive services. If households spend part of what firms pay them on consumption expenditure, and save the rest; and firms spend on new investment exactly the same amount as households save. If, now, national income, consumption expenditures, saving and investment expenditures were all growing at say, 6.0 per cent per annum, every year without change, then we would say that the economy was in steady-state growth. The steady-state situation is generally the starting point in the analysis of most models of economic growth.

The variables of concern for economic growth to take place usually include capital accumulation, labour force expansion and technical progress. Thus, we may specify our production function as in equation 3.5.1.

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$$Y_3 = f(K, L, R, T) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(3.5.1.)}$$

where

Y_3 = net output

K = capital inputs

L = Labour inputs

R = Research

T = Level of technology.

A look at the above formulation will make it rather clear that they are the four independent variables that are crucial for growth in output. Nevertheless, we know that capital accumulation (K) is an essential and endogenous element in all growth models. The other factors labour (L), research (R) and technology (T) may be considered as exogenous influences, (Allen, 1973). In other words, while the growth in labour supply, research and technical progress may provide the momentum for economic growth; capital accumulation is the vehicle of economic growth.

Thus, taking the two leading variables in our model: Y_3 and K, the growth rates are:

$$\frac{1}{Y} \Delta Y = \Delta \log Y \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(3.5.2.)}$$

similarly,

$$\frac{1}{K} \Delta K = \Delta \log K \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(3.5.3)}$$

Then net investment is simply the increase in the capital stock, this we have:

$$I = \Delta K \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(3.5.4)}$$

where

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I = net investment.

such that

$$\frac{I}{K} = \frac{I}{K} \Delta K = \Delta \log K \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(3.5.5.)$$

represents both investment as a proportion of capital stock and the rate of growth of capital stock.

We look for steady - state growth when Y_3 and K grow at a constant proportional rate, the same rate for each variable. If the common rate is g, called the warranted rate of growth or growth rate of potential output of the steady - state situation, then, we will have:

$$\Delta \log Y_3 = \Delta \log K = g. \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (3.5.6.)$$

Giving on integration

$$\log Y = \text{constant} + gt \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots..(3.5.7.)$$

that is

$$Y_3 = Ae^{gt}$$

where

A = a constant of integration

t = time

similarly

$$K = Ae^{gt}_o \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(3.5.8)$$

Thus, given the initial values Y_{30} and Ko at time $t = 0$, we will have:

$$Y = Y_o e^{gt} \text{ and } K = K_o e^{gt} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(3.5.9)$$

Furthermore, since $\frac{I}{K}$ is also equal to g, we will then have:

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$$I = I_0 e^{gt} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(3.5.10)$$

where

$$I_0 = g k_0 \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(3.5.11).$$

The theoretical argument we are putting across from the algebraic manipulations above is that for economic growth to occur investment is crucial. Also, investment will take place if required capital is purchased. To purchase the capital, requires absence or significant reduction in the resource gaps. The rationale for the above lies in the following. To purchase capital within the domestic economy requires that the gap between domestic saving and investment be closed. Also, to purchase capital that is foreign based requires foreign exchange, which necessitates the reduction of the gap between export and import. Furthermore, in a situation whereby public sector is a major factor promoting economic growth, the reduction of the budgetary gap is crucial.

CHAPTER FOUR

METHODOLOGY

4.1 INTRODUCTION

This chapter discusses the methodology of the study. The chapter is sub-divided into three sections. The first section discusses the model specification. The second section discusses techniques of data analysis. The third section discusses the sources of data. Two basic techniques were employed in the analysis of the study. They were descriptive and econometric analyses. Descriptive analysis made use of ratios and percentages to fulfill our objectives on how the resource gaps had been financed as well as the relative merits of each source of financing. To determine the existence of output gap, the effects of the gaps on economic growth as well as the most significant and binding resource gap, we employed econometric analysis.

4.2 MODEL SPECIFICATION

For the econometric analysis, we specified a three-gap model. The specification was anchored on the endogenous growth model. In this regard an aggregate production function in the endogenous growth model form for a representative economy as postulated by Romer (1986 and 1994) was adopted. Thus we have:

$$Y = (R, K, L, F)\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(4.2.1)$$

where

Y= total output produced by the economy (GDP).

R = research and development carried out by economic agents in the economy.

K = the accumulated capital stock.

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L = the accumulated stock of human capital.

F = other factor inputs.

The gross domestic product (GDP) is used as proxy for level of total output. The gross domestic product is defined as the market value of all goods and services produced by the inhabitants of Nigeria on yearly basis during the period of study (1970-1997). The level of total output in any economy could be influenced by some factors. One of these factors is the quantity and quality of research and developmental efforts carried out by economic agents in the economy. The essence of the above could be traced to the positive, though indirect effects research and developmental efforts could have on capital stock and productivity of the labour force. In Nigeria, reliable data on research and developmental efforts is rather difficult to come by. As a way out, total expenditure on education (at all levels) by the government was the proxy used for research and development.

Capital refers to the services provided by machinery, buildings, tools and other productive instruments that are goods made to produce other goods which considerably enhance the productivity of other factors of production especially land and labour. Capital is obtained by sacrificing current consumption possibilities. For our purpose, gross capital formation in the country is used total desired capital, (Obadan and Odusola, 1999).

The size of the labour force is determined relative to the total population, (Odedokun, 1996) and (Sogotemi, 2000). The inclusion of labour force in the production function is of socio-economic importance as it gives insight into the national potentials and capacity to produce both the actual and potential output, the manpower and infrastructures required for national economic growth, advancement and development.

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The difference between the actual and potential output gives the output gap. The labour force is defined to include the economically active (employed) persons in Nigeria, and the job seekers (unemployed) persons, (NPC, 1997). The justification for including the latter lies in the fact that they possess the potentials to contribute positively to national output.

Finally, other factor inputs (F) captures the effects of level of technology, efficiency profile (F), etc., on economic growth.

Thus, rewriting equation (4.2.1) above in a structural form gives:

$$Y = a_0 + a_1R + a_2K + a_3L + a_4F + e \dots\dots\dots\dots\dots\dots\dots\dots\dots (4.2.2)$$

where

all notations are as previously defined.

$a_0, a_1, a_2, a_3,$ and a_4 are parameters.

$e = $ the error term.

Total desired investment is divided into two: private sector investment represented by X_1 and public sector investment represented by X_2. Total capital expenditure of the Federal Government is used as proxy for public sector investment, X_2. Private sector investment is simply calculated by subtracting public sector investment from gross investment. This is given as:

$$X_1 = I - X_2 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (4.2.3)$$

Investment may either be intended or unintended. Investment is intended if it is the amount that the investors planned for. On the other hand, it is unintended where the investment recorded is the change in business inventories due to discrepancy between aggregate supply and aggregate demand. However, unintended investment could generate unstable equilibrium. Thus, the total gross investment as given above referred to planned.

investment that is simply given as:

$$I = X_1 + X_2 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(4.2.4)$$

where

all notations are as previously defined.

Public sector investment refers to such investment that takes place in a whole economic set up, where the government performs, in the sense of procurement and usage or application of funds and other economic resources for the satisfaction and promotion of improved welfare of the citizenry. The concept private sector investment on the other hand, refers to such investment that takes place in that compartment in a whole economic set-up, where the citizens acting as individuals or organizations pursue their economic activities for the purpose of profit maximization.

Investment expenditure is an important component of the national income. In fact, it is the second largest component of the national income next to consumption expenditures. Thus, from the national income accounting identity for an open economy, we have:

$$Y = C + I + (T-M) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(4.2.5)$$

where

Y = total output produced by the economy/ GDP.

C = aggregate consumption expenditures being the sum of private and government consumption $(C_0 + G_0)$

I = investment expenditures.

T = total exports of goods and services.

M = total imports of goods and services.

$(T-M)$ = net exports or external trade balance.

Solving for I from equation (4.2.5) gives:

$$I = (Y-C) - (T-M) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(4.2.6)$$

To finance desired investment I, requires savings. A saving is defined as the postponement of present consumption to future date. Thus, a saving is equivalent to disposable income less consumption expenditures. It is assumed that savings could come from two sources, notably domestic savings (DOMSAV) and foreign transfers/foreign savings (NFT). The domestic savings could also be divided into two: private savings and public savings.

$$S = DOMSAV + NFT \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(4.2.7)$$

A domestic saving (DOMSAV) is simply defined as the difference between aggregate income and aggregate consumption. It includes the following savings items (i) savings and time deposit with commercial banks; (ii) national provident fund; (iii) federal savings bank; (iv) time deposit with merchant banks; (v) premium bonds, savings certificates, and savings stamps; (iv) life insurance funds; (vii) other deposits notably with peoples bank and community banks. The sum total of (i-vii) gives total savings, which is the proxy used for domestic savings, (DOMSAV). This is given as

$$DOMSAV = Y - C \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(4.2.8)$$

The level of investment in any economy depends on factors such as the growth of actual output, GGDP, the level of domestic savings (DOMSAV), the difference between potential output and actual output which is simply referred to as output gap (YG), the prevailing rate of interest especially the lending rate of interest (LRATE), and the level of capital imports (CAPIMP). Theoretically, a positive relationship is expected between investment on one hand and growth rate of actual output, savings and capital imports, on the other hand. It has been argued that investment determines the rate of growth of output

out of which additional savings takes place, Nalo (1993). Lewis (1954) argued that a central problem in the theory of economic development is to understand the process by which a community, which was saving 4 to 5 per cent of its national income, converts itself into an economy where voluntary savings are raised to about 12 to 15 per cent. By implication the role of savings in output growth can be seen through its impact on investment. Furthermore, as the level of output /income increases the marginal propensity to consume reduces thereby releasing more income for savings. It is less controversial that all developing countries require capital imports. In fact, without the imported capital goods, production may be very low or in some cases rather impossible.

However, a positive relationship is expected between investment and output gap, whereas, a negative relationship is expected between investment and rate of interest. A higher output gap will induce increased level of investment. Thus, as the level of investment increases, the level of output increases and the output gap consequently reduces. Also, high rate of interest rate especially lending rate usually makes it unattractive to borrow fund and invest. We decided to use lending rate, which reflects market situation better. The lending rate of interest refers to the price charged on loans granted to customers, by commercial banks and other financial institutions. The investment equation is therefore specified in a linear form as given below:

$$I = d_0 + d_1 GDP + d_2 DOMSAV + d_3 YG + d_4 LRATE + d_5 CAPIMP \ldots\ldots\ldots\ldots(4.2.9)$$

To derive our Investment Savings Gap (ISGAP) equation it is assumed as follows: (i) that total consumption expenditure is exogenous; and (ii) that Incremental Capital Output Ratio (ICOR) is held constant. Subtracting domestic savings from both sides of equation (4.2.9) we derived the Investment- Savings Gap equation. Thus we

have:

$$\text{I-S} = \text{ISGAP} = c_0 + c_1\text{GDP} + c_2\text{YG} + c_3\text{LRATE} + c_4\text{CAPIMP}\dots\dots\dots\dots\dots(4.2.10)$$

where

c_0, c_1, c_2, c_3, and c_4 are parameters

other notations are as previously defined.

It should be noted from equation (4.2.6) above that our specification assumes that investment is undertaking in the economy. Also the economy is governed and open. Existence of investment activities implicitly suggests that savings take place. Existence of government sector suggests that revenue is raised and expenditure is undertaken, while openness implies existence of imports and exports. Thus, the three assumptions implicitly suggest that the three resource gaps co-exist. Furthermore, a preliminary Granger causality test found a causal relationship between investment-savings gap and the other resource gaps. It is expected that the other two resource gaps will have negative relationship with the ISGAP. By incorporating these resource gaps into equation (4.2.10) above we have:

$$\text{ISGAP} = c_0 + c_1\text{GDP} + c_2\text{YG} + c_3\text{LRATE} + c_4\text{CAPIMP} + c_5\text{BGAP} + c_6\text{EMGAP}\dots\dots(4.2.11)$$

all other notations are as previously defined.

The excess of exports over imports is our export-import gap (EMGAP) and is equal to trade balance, written as:

$$\text{EMGAP} = \text{T-M}\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(4.2.12)$$

where

EMGAP = Export-Import gap

T = total exports

M = total imports

Total import is divided into two different categories. These include capital imports (CAPIMP), and non-capital imports, M_2. In Nigeria, total import comprises of the following: (i) food and live animal; (ii) beverages and tobacco; (iii) crude materials inedible; (iv) mineral fuels; (v) animal and vegetable oils and fats; (vi) chemicals; (vii) manufactured and transport equipment (capital imports); (viii) miscellaneous manufactured goods; and (ix) miscellaneous transactions, (CBN's Statistical Bulletin, 1998). The rationale behind this division is because we realized the fact that not all aspects of total imports could have positive impact on economic growth. Thus we have:

$$M = CAPIMP + M_2 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \quad (4.2.13)$$

where

all notations are as previously defined.

Substituting equation 4.2.13 into equation 4.2.12 and equating to zero gives:

$$(T - (CAPIMP + M_2)) = 0 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (4.2.14)$$

Solving for CAPIMP from equation (4.2.14) gives:

$$T - CAPIMP - M_2 = 0$$

$$- CAPIMP = M_2 - T$$

We represent the difference between total exports, T, and non-capital imports, M_2 by A, such that we have:

$$CAPIMP = T - M = A \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(4.2.15)$$

where

all notations are as previously defined above.

It has been argued that in developing countries trade balance, which is determined by world demand, is not likely to exceed A (the difference between total exports and non-capital imports), (Nalo, 1993). The implication from above is that equation (4.2.15)

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above is expected to be positive, i.e. A>0, T- M_2 >0.

Apart from the capital imports discussed above, the export-import gap will also be influenced by some other factors, notably the output gap and growth rate of output. A major objective of every economy is to achieve balance of payment equilibrium. This will be feasible if the domestic economy produces sufficient output to release significant proportion to export and also reduces import. The implication from the above is that the output gap in the economy should be small and the growth of the economy should be high enough to sustain the balance of payment equilibrium. Thus, it is expected that output gap (YG) should have negative relationship with Export-Import gap while the growth rate of output (GGDP) will have positive relationship with the export-import gap (EMGAP).

The preliminary Granger causality test also suggests that Investment-Savings gap causes Export- Import gap. However, we know that one of the ways to reduce domestic Investment-Savings gap is through foreign transfers. The net foreign transfer (NFT) is the balance after foreign transfers have been used to fill part of domestic Investment-Savings gap (ISGAP). The net foreign transfers (NFT) will have positive relationship on the export-import gap (EMGAP). Specifying our Export-Import gap (EMGAP) in a linear form, we have:

$$EMGAP = b_0 + b_1NFT + b_2CAPIMP + b_3YG + b_4GGDP\ldots\ldots\ldots\ldots(4.2.16)$$

where

all notations are as previously defined.

We assume that public budget is an ex-post phenomenon. Thus, the Budgetary gap (BGAP) is simply defined as the discrepancy between what the public sector budgeted to spend and what it actually spent. This depended on the quantity of fund from

which the public sector could borrow to address the imbalance. The quantity of fund on the other hand would be determined by three factors. The first factor is the quantity of domestic savings, (DOMSAV). The second factor is the past savings of the government, which is measured by its capital expenditures, which we referred to as public investment (PUBINV). This factor can and do generate income to the government. The third factor is the net foreign transfers, (NFT).

Thus BG can be specified as follows:

$$BGAP = f(DOMSAV, PUBINV, NFT).............................(4.2.17)$$

all notations are as previously defined.

Savings, which are income less consumption, other things being equal, should give rise to increased investment. The neo-classical synthesis posits that for an economic agent, savings plus borrowings must equal asset acquisition. Thus, in a closed but frugal economy, national savings and domestic investment will always be equal ex-post. By implication, a high rate of saving leads to a high rate of investment. Also, Obadan and Odusola (1999) found for Nigeria, a unidirectional relationship between savings and investment, with savings Granger causing investment. We therefore expect a positive relationship between budgetary gap (BGAP) and domestic saving (DOMSAV), public investment (PUBINV) and net foreign transfers (NFT).

Furthermore, we know that one of the objectives of attempting to close the budgetary gap is to increase the growth rate of output (GGDP) and reduce the output gap (YG). The smaller the output gap and the higher the growth rate of actual output the higher will be the level of welfare of the citizens, all other things being equal. At higher level of welfare the amount of public expenditures on capital will reduce as the economy become more matured, especially in a free market economy. A negative relationship is

expected between Budgetary Gap (BGAP) and output gap (YG) while positive relationship is expected between Budgetary gap and growth rate of output (GGDP).

Thus, assuming a linear relationship our Budgetary Gap can be specified as follows:

$$BGAP = f_0 + f_1DOMSAV + f_2PUBINV + f_3NFT + f_4YG + f_5GGDP \dots \dots \dots (4.2.18)$$

It should be noted that the broad objective of the study is to examine the implications of resource gaps (Investment-Savings, Exports-Imports and Budgetary) on economic growth in Nigeria. To achieve the objective we incorporate the three gaps in an equation. From the preliminary Granger causality test the three resource gaps combined to cause the output gap. Therefore we expect negative relationships between each of the resource gaps and output gap. Thus we have:

$$YG = h_0 + h_1ISGAP + h_2EMGAp + h_3BGAP \dots \dots \dots \dots \dots (4.2.19)$$

We know that increase in the productivity of the labour force will increase the level of output in an economy. This is because the labour force produces the actual output and the potential of the labour force will also determine the feasibility of producing the potential output. Furthermore as the labour force improves its potential, the actual output increases, thereby having the tendency to increase the per capita income (PCI). Thus, we expect positive relationships between output gap (being the difference between potential and actual output) on one hand and the size of the labour force and per capita income on the other hand. Therefore assuming a linear relationship equation (4.2.19) is re-written as:

$$YG = h_0 + h_1ISGAP + h_2EMGAP + h_3BGAP + h_4PCI + h_5LFORCE \dots \dots \dots (4.2.20)$$

In summary the system of our equations are as follows:

$$ISGAP = c_0 + c_1GDP + c_2YG + c_3LRATE + c_4CAPIMP + c_5BGAP + c_6EMGAP \dots (4.2.11)$$

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$$EMGAP = b_0 + b_1NFT + b_2CAPIMP + b_3YG + b_4GGDP\dots\dots\dots\dots\dots\dots(4.2.16)$$

$$BGAP = f_0 + f_1DOMSAV + f_2PUBSAV + f_3NFT + f_4YG + f_5GGDP\dots\dots\dots\dots(4.2.18)$$

$$YG = h_0 + h_1ISGAP + h_2EMGAP + h_3BGAP + h_4PCI + h_5LFORCE\dots\dots(4.2.20)$$

4.3 TECHNIQUES OF DATA ANALYSIS

Theoretically, an equation is described as being identified if it has a unique statistical form such that it is possible to derive the estimates of the parameters. Our system of equations as presented above in summary form is over-identified because more than one numerical value can be obtained for some of the parameters of the structural equation.

As a result of the over identification, the estimating technique of Indirect Least Squares (ILS) cannot be applied. The justification for this lies in the fact that such a technique will not yield unique estimates of the structural parameters. As a way out we adopted the Two Stage Least Squares (2SLS) estimating technique, as developed by Theil (1953) and Basmann (1977) and adopted by Batavia and Lash (1982), Meltiz and Pardue (1973), Aja-Nwachukwu (1993) and Ajisafe (1997). All the above authors found 2SLS appropriate for the estimation of over-identified equations.

The 2SLS estimating technique is a single equation method, being applied to one equation of the system at a time. It has provided satisfactory results for the estimates of the structural parameters and has been accepted as the most important of the single equation techniques for the estimation of over-identified model, Koutsoyiannis (1973). The 2SLS aim at the elimination as far as possible of the simultaneous-equations bias. The source of this bias is the existence of endogenous variables in the set of explanatory variables of the function. Such endogenous variables have a systematic component

determined by the predetermined (exogenous) variables of the model, and a random component. It is the latter that creates the dependence of the relative variable with the random term of the structural equation. Our systems of equations are estimated using linear form.

4.3.1 The Relative Impact of the Resource Gaps on Output Gap.

To measure the relative impact of the three resource gaps: Investment-Saving gap (ISGAP), Exports-Imports gap (EMGAP) and Budgetary gap (BGAP), on output gap, we estimate the beta (β) coefficients for the gaps. We employed the formula below:

$$\beta_i = \frac{Z_i \, G_i}{G} \quad \text{...(4.2.1.1)}$$

where

β_i = the estimated beta coefficient of the resource gap i.

Z_i = the estimated coefficient of ith resource gap.

G_i = the standard deviation of the ith resource gap.

G = the standard deviation of the dependent variable.

Thus, β_1, β_2 and β_3 represent the beta coefficients of the Investment-Savings gap, Exports-Imports gap and Budgetary gap respectively. It is worth noting that for the purpose of this analysis the values are taken in absolute terms that is we disregard the accompanying signs.

4.3.2 Unit Root Test

The study uses time series data. It is therefore necessary to address the econometric problem of whether the time series data are stationary or non-stationary. A stochastic process is said to be stationary if the joint and conditional probability distributions of the process are unchanged if displaced in time. In practice, it is more

usual to deal with covariance stationarity, restricting attention to the means, variances and covariance of the process, (Spanos, 1986).

The essence of ascertaining the stationarity or otherwise of time series data lies in the argument that the statistical properties of regression analysis using non-stationary time series data are dubious, (Phillips, 1986). Granger and Newbold (1974 and 1986), and Charemza and Deadman (1997) justified the above argument. They argued that non-stationary time series data may give rise to spurious regressions, un-interpretable student-t values and other statistics, goodness of fit measures, which are too high and, in general make regression results extremely difficult. Some studies have identified tests for stationarity of time series data in the literature. They include Fuller (1976), Dickey and Fuller (1979 and 1981). For our purpose in this study we adopted the Augmented Dickey Fuller (ADF) test for unit root, as given by Dickey and Fuller (1981).

4.3.3 Reasons for choice of ADF test

A substantial weakness of the original Dickey Fuller (DF) test is that it does not take account of possible autocorrelation in the error process, ϵ_t. The DF equation is given as:

$$\Delta y_t = \alpha y_{t-1} + \epsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(4.2.3.1)$$

where

y_t = the variable to be tested for stationarity.

α = regression coefficient.

ϵ_t = represents a series of identically distributed stationary variables with zero means.

If ϵ_t is autocorrelated (that is, it is not white noise) then the ordinary least squares

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estimates of the DF equation, are consequently not efficient. The Augmented Dickey – Fuller (ADF) test is generally regarded as being the most efficient test from among the simple test for integration and it is at present the most widely used in practice, (Charemza and Deadman, 1997). The ADF equivalent of DF given above is as follows:

$$\Delta y_t = \alpha_1 y_{t-1} + \sum \alpha_i \cdot \Delta y_{t-i} + \in_t \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots (4.2.3.2)$$

The ADF testing procedure is the same thing as the DF test, with an examination of the student-"t" ratio, α_1. The critical values of the tests are the same as for the DF test. The DF equation is augmented by adding lagged left-hand-side variables to the set of regressors. The inclusion of the augmentation terms is to secure a white noise property for $\in_t$. Conducting thorough autocorrelation tests does this.

The decision rule is that if the computed student-t statistic is smaller (more negative) than the lower critical value for a particular number of observations (n), the null (unit root) hypothesis has to be rejected and the variable under consideration is accepted. The above specification ADF equation for each variable in our modeling was estimated using the recent computer package of Econometric Views of econometric data analysis and estimation.

4.3.4 Cointegration

The unit root tests would help to determine the stationarity or otherwise of the variables in our model, that is the order of integration of the variables. There is therefore the need to determine how the movement between the dependent variable and each of the independent variables move in the long run. Thus we need to carry out Cointegration test on our equations. We know that in the short run, relationships between the dependent and independent variables may give rise to some fluctuations. There is therefore the need to

know how the short run fluctuations are corrected in the long run. Engle and Granger (1987 and 1991) have shown that cointegrated series have an error correction presentation thereby making cointegration test a necessary condition for error correction to hold. Hylleberg and Mizon (1989) as well as Phillips and Loretan (1991) have offered a detailed analysis of cointegration and error correction mechanism.

4.3.5 Error Correction Modeling (ECM)

This is a model designed to account for economic realities in that observed economic data reflect behaviour that attempts to compensate for part of peoples' past error, Yoshida (1990) and Folorunsho (1998). The process involves two stages. First is to conduct a test against the null hypothesis that the residuals of the long run model are stationary. The second stage is to switch to a short run model with an error correction mechanism. This is as given below:

$$\Delta D = b_0 + b_1 \Delta Q_1 + b_2 \Delta Q_2 + ECM_{t-1} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(4.2.5.1)$$

where

ΔD = is the dependent variable.

ΔQ_1 and ΔQ_2 are independent variables.

ECM_{t-1} = the error correction modeling

b_0, b_1 and b_1 are parameters

Including the lag of the dependent variable as an independent variable expands the above specification, while other independent variables are lagged by 1,2,3,4. The coefficient of ECM_{t-1} must be negative and statically significant. In this study a variable is assumed statistically significant if its student "t" statistics is significant at 5.0 per cent.

4.3.6 Technical Relationship and Economic Interpretation.

We consider it worthwhile to distinguish between technical relationship and economic interpretation. The former refers to the statistical inference drawn from the theoretical exposition in our model specification. Put differently, it has to do with whether the coefficient of a parameter should carry a priori a positive or negative sign. If the coefficient of a parameter carries a positive sign, it suggests that a unit increase in the independent variable will increase the dependent variable by the magnitude of the coefficient of the parameter. The opposite is true for the coefficient of a parameter that carries negative sign. Economic interpretation on the other hand refers to the economic significance deducible from the technical relationship. It is possible that both the economic interpretation and the technical relationship are the same and at times they may differ.

In this study, the economic interpretation differs from the technical relationship. This is due largely to the nature of the study. In this study our dependent variables are gaps (shortages), which are implicitly negative. If the coefficient of a parameter carries a negative sign, the economic interpretation will be that a unit increase in the independent variable will widen or worsen the gap (dependent variable) under consideration. In fact, it is like adding negative number to another negative number the sum will result into a larger negative number.

Similarly, if the coefficient of an independent variable carries a positive sign, the economic interpretation will be that a unit increase in the independent variable will reduce the gap (dependent variable). In other words it is like adding positive number to another negative number the sum will result into decrease in the negative number. In this study we lay emphasis on the economic interpretation. This is because we consider economic interpretation much more important for policy formulation and implementation.

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4.4 SOURCES OF DATA FOR THE STUDY

The data used for this study came solely from secondary sources. The sources were publications from the Central Bank of Nigeria (CBN): Annual Reports and Statements of Account; Economic and Financial Review; Principal Economic Indicators; and Statistical Bulletin.

Furthermore, publications from the Federal Office of Statistics (FOS), notably, Annual Abstract of Statistics, were used. In some cases where we considered it very necessary we obtained and used information from International Financial Statistics (IFS) published by the International Monetary Fund (IMF).

In a similar vein, the past plan documents, notably First, Second, Third, and Fourth National Development Plans, as well as the three years Rolling Plans were used. The yearly budget estimates of the Federal Government of Nigeria were also used.

The advantages derived from the above sources are numerous. They include the following. One, the sources are very detailed. Two, the sources could enable easy and meaningful international comparisons. The data collected included the following: GDP, total capital formation, labour force, total population, lending rate, public capital expenditures, capital import, total import and export, net foreign transfer, total domestic savings and external reserves. Others included total public debt, total debt service, total external and internal debts, as well as total internal and external debt service.

CHAPTER FIVE

EMPIRICAL ANALYSIS

5.1   INTRODUCTION

This chapter presents analysis of our results. The chapter is further sub-divided into five sections. In the first section we investigated the existence of output gap in Nigeria. In the second section we examined causal relationships among the resource gaps and output gap. In the third section we estimated the effects of the resource gaps on output gap. Section four identified the magnitude as well as which of the gaps have been imposing most limiting constraint on economic growth. In the fifth section we examined the sources of financing the gaps as well as assessed the relative merits of each method of financing.

5.2   DETERMINATION OF OUTPUT GAP IN NIGERIA: 1970-1997

Following the identified shortcomings in the known approaches for determining the potential gap (see chapter three), we specify a potential output equation of the form below. The specification extended the equation used by Mwega et al (1994). We regressed Gross Domestic Product (GDP), which is the actual output on time and the lags of Gross Domestic Product for 1,2, and 3 years.

We therefore specified our model in linear form as:

$$Y^*_t = g_0 + g_1 TM + g_2 GDP_{t-1} + g_3 GDP_{t-2} + g_4 GDP_{t-3} \dots\dots\dots\dots (5.2.1)$$

where

Y^*_t = potential output at time t

TM = time

GDP = actual output at time t

g_0, g_1, g_2, g_3 and g_4 - are parameters.

We conducted unit root test on Gross Domestic Product. This is to determine the order of integration. The result shows that it was integrated of order two, suggesting that the variable is stationary at second difference. We applied time series data for the period 1970-1997 to equation 5.1.1 above, using Ordinary Least Squares (OLS) estimating technique. We obtained the following regression results.

$$Y^*_t = -167918.1 + 17092.07T + 1.462330GDP_{t-1} -$$
$$\quad\quad (-1.19) \quad\quad (1.77) \quad\quad\quad (6.61)$$

$$0.766977GDP_{t-2} + 0.222670GDP_{t-3}\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5.2.2)$$
$$\quad (-1.86) \quad\quad\quad (0.51)$$

*The figures in parentheses are student "t" statistics.

R^2 = 0.939677

D.W = 2.027405

F = 77.88739

The figures in parentheses are "t" statistics.

From the above results our coefficient of multiple determination (R^2) is 0.94. This implies that about 94.0 per cent of the variation in our dependent variable is explained by the variations in the identified independent variables. This gives a good fit. The F-statistic, which tests the overall level of significance of regression, also suggests that our model have an overall significance at 5.0 per cent level. This is because our obtained F^* which gives 77.887 is greater than the theoretical F which gives 2.89. The Durbin-Watson statistic (d^*) gives 2.027405. This suggests that the regression result is free from the problem of autocorrelation.

Table 5.1

Estimates of Potential Output and Capacity Utilization, 1970-1997

Year	Potential Output (Y^*_t) (N' million)	Actual Output (GDP) (N' million)	Output Gap: Actual Output-Potential (N' million)	Capacity Utilisation: GDP $\frac{\text{GDP}}{Y^*_t}$
1970	5205.1	5205.1	0.00000	-
1971	6570.7	6570.7	0.00000	-
1972	7208.3	7208.3	0.00000	-
1973	928894.7	10990.7	-917904.0	0.0118
1974	222358.3	18289.3	-204069.0	0.0823
1975	317677.8	28957.0	-288720.8	0.0912
1976	362963.4	26656.3	-336307.1	0.0734
1977	367814.9	31520.3	-336294.6	0.0857
1978	344308.9	34540.1	-309768.8	0.1003
1979	299206.2	41947.7	-257258.5	0.1402
1980	235268.0	49632.3	-185635.7	0.2109
1981	154035.6	50456.6	-103579.0	0.3276
1982	571513.3	51570.3	-519943.0	0.0902
1983	535514.2	56709.8	-478804.4	0.1059
1984	176307.4	63006.2	-113301.2	0.3574
1985	309576.0	71368.1	-238207.9	0.2303
1986	452049.9	72128.2	-379921.7	0.1596
1987	602606.0	106883.2	-591917.8	0.1774
1988	760261.4	142678.3	-617583.1	0.1876
1989	924149.4	222457.6	-701691.8	0.2407

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Table 5.1. Contd.

1990	1093506.0	257873.0	-835633.0	0.2358
1991	1267660.0	320247.3	-947412.7	0.2546
1992	1446023.0	544330.7	-901692.3	0.3764
1993	1628080.0	691600.0	-936480.0	0.4248
1994	1813377.0	911070.0	-902307.0	0.5024
1995	2001517.0	1960690.0	-40827.0	0.9796
1996	2192153.0	2740460.0	548307.0	1.2501
1997	384978.0	2834800.0	2449822.0	1.1886

Sources

(1) Statistical Bulletin of CBN, Abuja (various issues)
(2) Partly computed by the author.

From equation 5.1.2 above, we computed our table 5.1 above. From the output gap column, one thing was noticeable, and that is, except 1996 and 1997, Nigerian economy recorded output gaps throughout the period under review. Even during the oil boom the output gap stood at N204069.0million in 1974. Expectedly it rose to N519943.0million in 1982 during the period of the oil glut. With the introduction of the structural adjustment programme in 1986 the gap dropped to N379921.7million. It started to rise again in 1989 when it stood at N701691.8million. This could be traceable to the abandonment of the structural adjustment programme arising from public outcry against the programme. The rise was persistent until 1995 when it dropped sharply to N40827.0million. However, the actual output exceeded the potential in 1996 and 1997 when the gap stood at N548307.0million and N2449822.0million respectively. The observed trend in 1996 and 1997 could be as a result of over heating of the economy suggesting over stretching of the available resources.

A major consequence of the observed substantial output gap has been the existence of substantial capacity under-utilization. We calculated our capacity utilization using the formula below

:

$$U = \frac{GDP}{Y^*_t} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(5.2.3)$$

where

U = level of capacity utilization

GDP = actual output

Y^*_t = potential output.

From our formula in equation 5.2.3, we a priori expected the level of capacity utilization to be equal to or less than unity. If the level of capacity utilization were less than

unity, it would be interpreted as having capacity under-utilization. If the level were equal to unity, it would be interpreted as having optimum capacity utilization. We recognised the fact that, it is a possibility to have a situation where the level of capacity utilization could be greater than unity. Thus, suggesting that, the existing resources were being over-stretched. However, we know that such a situation would not be sustainable at least in the medium-run and long run, suggesting that the situation would have to return to an optimum equilibrium or below equilibrium position.

Furthermore, from table 5.1, we observed that output gaps and capacity utilization move in the opposite direction, suggesting an inverse relationship. In other words, the years with the highest level of output gaps correspondingly gave the lowest level of capacity utilization or highest level of capacity under-utilization. For example, 1973, when the output gap recorded the highest figure of N9179040.0million corresponded with the period when capacity utilization recorded the lowest figure of 0.0118. Also, 1995 when capacity utilization recorded the highest figure of 0.9796, corresponded with the period the output gap recorded the lowest figure of N40827.0million. The above result is consistent with Fabayo (1981) who reported that substantial capacity under-utilisation exists in the Nigerian manufacturing sector. The implication of the above analysis is that the Nigerian economy has been producing below what it was capable of producing. Thus, the economy could produce more if the resources to produce the potential output were adequate or were in their desired state.

5.3 THE RESULTS OF GRANGER CAUSALITY TESTS

The results of the Granger causality tests are as given below. The objective of the test is to provide empirical justification for using simultaneous equations for our study. It should be noted that we have three resource gaps. We consider it worthwhile to examine whether each of the resource gaps causes the other. Also, whether the three resource gaps combine together to cause the output gap. If the resource gaps cause one another, we will be justified to do three things. One, we will be justified to consider each gap as distinct and then specify different equations to explain them. Two, we will be justified to use the resource gap that causes the other as explanatory variable, as we did in our model specification. Three, we will be justified to incorporate the three gaps as explanatory variables for the output gap equation. We specify null hypotheses. The decision rule is to reject the null hypothesis if the probability is less than 10.0 per cent and accept the alternative hypothesis.

Pairwise Granger Causality Tests

Null Hypothesis	Observations	F-Statistic	Probability
BGAP does not Granger Cause ISGAP	26	8.17488	0.00237
ISGAP does not Granger Cause BGAP		10.9564	0.00055
YG does not Granger Cause ISGAP	26	9.65285	0.00106
ISGAP does not Granger Cause YG		25.1623	2.7E-06
EMGAP does not Granger Cause ISGAP	26	10.1823	0.00081
ISGAP does not Granger Cause EMGAP		4.37250	0.02585
YG does not Granger Cause BGAP	26	5.49805	0.01202
BGAP does not Granger Cause YG		69.6231	5.4E-10
EMGAP does not Granger Cause BGAP	26	1.84590	0.18260
BGAP does not Granger Cause EMGAP		203158	1.2E-05
EMGAP does not Granger Cause YG	26	5.90403	0.00924
YG does not Granger Cause EMGAP		8.61157	0.00186

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From the results ISGAP indirectly causes BGAP and EMGAP. Also, EMGAP indirectly causes ISGAP but not BGAP, while BGAP indirectly causes ISGAP and EMGAP. The Granger causality test result further shows that the three-resource gaps combine to cause output gap (YG).

The Granger causality tests thus provide justification for specifying different equations for the three resource gaps. It also provides justification for using the three-resource gaps as explanatory variables for the variations in output gap. Finally, it provides empirical basis for estimating the systems of equations simultaneously.

5.4   DETERMINATION OF THE EFFECTS OF RESOURCE GAPS ON ECONOMIC GROWTH IN NIGERIA, 1970-1997

This section estimated the effects of the resource gaps as well as identified the resource gap that imposes the most limiting constraint on economic growth in Nigeria. First we conducted unit root test of our variables. Thereafter, we conducted cointegration test on our equations. The essence was to be able to employ error correction modelling (ECM) technique. Our systems of equations were then estimated using the Two Stage Least Squares (2SLS) estimating technique.

5.4.1 Results and Analysis of the Unit Root Test and Cointegration

The results of the unit root test are presented in tabular form below. The critical values of the first and second difference for the above variables are given at three levels. These are 1.0 per cent, 5.0 per cent and 10.0 per cent. These are as given below.

First Difference	Second Difference
1% = -3.7204	1% = -3.7343
5% = -2.9850	5% = -2.9907
10%= -2.6318	10% = -2.6348

Almost all our variables were stationary at their first difference. Total investment was however found to be non-stationary at both the first and second difference. As a result of the non-stationarity, we decided to use its growth rate. Our test found its growth rate to be stationary at both the first and second difference. In this study, we used variables in their first difference except where such variable was not stationary at its first difference. The justification for the above lies in the fact that the more differencing conducted on a variable the less economic meaning such a variable will have.

Results of the Unit Root Test and Cointegration

Variable	Level of Difference	ADF Test Statistics
GDP	First	-2.914473
	Second	-4.110784
PCI	First	-2.986926
	Second	-4.052512
DOMSAV	First	-1.068668
	Second	-6.505201
INVEST.	First	3.101625
	Second	-0.444836
GROWTH RATE OF INVEST.	First	-5.93988
	Second	-8.098941
LFORCE	First	-3.999435
	Second	-6.613747
R	First	-2.433543
	Second	-5.478397
POP	First	-4.010431
	Second	-6.594287
LRATE	First	-4.806863
	Second	-10.09426
PUBINV(X_2)	First	1.789541
	Second	-3.334184
CAPIMP	First	-3.790153
	Second	-10.24948
INVRATE	First	-3.458152
Δ EXT. RESERVES	First	-2.292935
	Second	-4.395513
NFT	First	-3.754986
	Second	-8.403995
PUBSAV	First	-4.501720
	Second	-5.031548
YG	First	-3.277575
	Second	-4.101390
ISGAP	First	-4.456186
EMGAP	First	-3.727225
BGAP	First	-5.949617

Note: The notations are as previously defined under model specification.

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5.4.2 The Estimated Results of the Systems of Simultaneous Equations

The results of the systems of simultaneous equations are as given below.

$$\text{ISGAP} = 1464.439 - 0.030080\text{YG} - 0.112380\text{EMGAP} + 0.356467\text{BGAP} -$$
$$\phantom{\text{ISGAP} = }(0.503) \quad\;\; (-1.782) \quad\quad (-3.817) \quad\quad\quad (1.259)$$

$$3607.438\,\text{LRATE} - 1.178866\text{ECM}_{t-1}\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(5.4.2.1)$$
$$(-3.275) \quad\quad\quad\quad (-2.548)$$

*The figures in parentheses are student "t" statistics

$$R^2 = 0.6799$$

Durbin Watson statistics = 1.68

F-statistics = 6.401

Lists of instruments used for the regression are the followings:

YG_{t-1}, $EMGAP_{t-1}$, $BGAP_{t-1}$, $LRATE_{t-1}$, $CAPIMP_{t-1}$ and $ISGAP_{t-1}$

$$\text{EMGAP} = -4881.314 - 2.163628\text{NFT} - 2.284131\text{CAPIMP} +$$
$$\phantom{\text{EMGAP} = }(-0.259) \quad\quad (-4.868) \quad\quad\quad (-1.365)$$

$$0.360103\text{YG} - 1.411390\,\text{ECM}_{t-1}\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(5.4.2.2)$$
$$(2.557) \quad\quad\quad (-3.363)$$

*The figures in parentheses are student "t" statistics

$$R^2 = 0.767329$$

Durbin-Watson = 1.825

F-statistics = 15.223

Lists of instruments used for the regression are the followings:

NFT_{t-1}, $CAPIMP_{t-1}$, YG_{t-1}, and $EMGAP_{t-1}$

$$\text{BGAP} = 6732.470 - 1.828589\text{DOMSAV} + 0.931776\text{PUBINV} - 0.161011\text{NFT} +$$
$$\phantom{\text{BGAP} = }(0.642) \quad\quad (-2.226) \quad\quad\quad (1.715) \quad\quad\quad\quad (-7.346)$$

$$0.097483\text{YG} - 131.7214\text{GGDP} - 1.091739\,\text{ECM}_{t-1}\dots\dots\dots\dots\dots\dots(5.4.2.3)$$
$$(1.825) \quad\quad\quad (-0.361) \quad\quad\quad (-0.669)$$

*The figures in parentheses are student "t" statistics

$$R^2 = 0.896$$

Durbin-Watson statistics $= 2.189$

F-statistics $= 20.313$

Lists of instruments used for the regression are the followings:

$DOMSAV_{t-1}$, NFT_{t-1}, YG_{t-1}, $GGDP_{t-1}$, ISGAP (ECM_{t-1}) and EMGAP (ECM_{t-1})

$$YG = -115599.2 - 1.540759ISGAP - 0.044381EMGAP - 2.501212BGAP +$$
$$(-0.969)\quad\quad(-1.824)\quad\quad\quad(-0.664)\quad\quad\quad\quad(-2.186)$$

$$83.72066PCI + 53081.60LFORCE - 0.258171\ ECM_{t-1}\dots\dots\dots(5.4.2.4)$$
$$(4.843)\quad\quad\quad(1.233)\quad\quad\quad\quad(-2.949)$$

*The figures in parentheses are student "t" statistics

$$R^2 = 0.975$$

Durbin-Watson statistics $= 1.449$

F-statistics $= 56.104$

Lists of instruments used for the regression are the followings:

$INVRATE_{t-1}$, NFT_{t-1}, PCI_{t-1}, BGAP (ECM_{t-1}), ISGAP (ECM_{t-1}) and EMGAP (ECM_{t-1})

The overall measure of goodness of fit for each equation was very encouraging. The coefficient of multiple determination ranges from 0.68 for Investment-Savings gap. (ISGAP) equation to 0.98 for output gap (YG) equation. The above suggests that between 68.0 per cent and 98.0 per cent of variations in the dependent variables were explained by the explanatory variables.

All the computed F-statistics were significant at 5.0 per cent level of significance. The F-statistics ranges from 6.401 for the ISGAP equation to 56.103 for the YG equation. The computed F-statistics were greater than the theoretical F as given in statistical tables.

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The Durbin-Watson test statistics for the EMGAP and BGAP equations indicated the absence of autocorrelation. However, the Durbin-Watson test statistics for ISGAP and YG equations suggest that the autocorrelation tests were inconclusive. As a result of the inconclusiveness of the autocorrelation tests, Von Neumann ratio was computed as a supporting test. The Von Neumann ratio is given as:

$$r = d \left[\frac{n-1}{n} \right] \quad \text{..(5.3.2.5)}$$

where

r = Von Neumann ratio.

d = calculated Durbin-Watson value.

n = the number of observations.

The decision rule is that, if our result gives $1.4 < r < 2.7$, we conclude that there is no autocorrelation. Otherwise autocorrelation is present in our specification.

For the ISGAP equation we substituted into the formula and computed as follow:

$$r = 1.683992 \left[\frac{24}{25} \right] \quad \text{..(5.3..2.6)}$$

$$= 1.61663232 \text{ or } 1.6$$

For the YG equation we substituted into the formula and computed as follow:

$$r = 1.44860 \left[\frac{24}{25.} \right] \quad \text{..(5.3.276)}$$

$$= 1.3908096 \text{ or } 1.4$$

With the above results we concluded that our regression results from the ISGAP and YG equations were free from the econometric problem of autocorrelation.

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From the ISGAP equation, all explanatory variables except BGAP and the constant are statistically significant at 5.0 per cent level of significance. Also, the explanatory variables except BGAP give the expected signs. Increase in BGAP is expected to widen the ISGAP. Thus suggesting a negative relationship. However, the regression result gives a positive relationship. The reason for the obtained result could be as a result of high deficit financing of the government. Most of the times when public revenue is less than public expenditure, the government resorts to deficit financing. In fact, for almost all the years covered by the review, the Federal Government of Nigeria recorded overall deficit. The deficit reduces the negative impact the BGAP supposed to have on investment. If the deficit is used to finance capital expenditure, especially infrastructures, it could increase the level of investment thereby reducing the Investment-Savings gap, thus the positive relationship. This may come in form of the crowd-in and crowd-out mechanisms.

The lending rate of interest (LRATE) gives the expected negative relationship, but the size of the coefficient is large and therefore deserves explanation. The lending rates were given in percentages, whereas the ISGAP figures were given in millions of naira. Thus to normalise the LRATE coefficient it should be divided by 10000. This gives – 0.3607. The result suggests that a unit increase in lending rate of interest will reduce investment, and consequently increase the ISGAP by 36.0 per cent.

From the estimated results of the EMGAP equation, the constant and the CAPIMP were not statistically significant at 5.0 per cent. Also NFT did not give expected sign. NFT should close the EMGAP, suggesting a positive relationship. The result obtained gives a negative relation. This could be an indication that new investment had not been sufficiently directed to sectors that earn or save foreign exchange.

The YG a priori should carry a negative sign. This is because an increase in YG

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should widen the EMGAP. Increase in YG will suggest inadequate domestic production, which will reduce export and increase the imports, thereby widening the EMGAP. The obtained result is inconsistent with the a priori expectation as the result obtained suggests positive relationship. This might be due to the mono-cultural nature of the Nigerian economy. Oil sources of the revenue are the main stay of the Nigerian economy. The quantity of oil products to be exported is independent of the level of domestic production of goods and services (total output). Thus even if the country's domestic production is low such that it should discourage exports, more oil may in fact be exported. It should be noted that the quantity of oil exports is exogenously determined by the quota policy of Organisation of Petroleum Exporting Countries (OPEC).

At 5.0 per cent level of significance only GGDP was not statistically significant from the BGAP equation. Furthermore, only PUBINV gave the theoretically expected sign. Other explanatory variables did not. This is not surprising given the nature of Nigerian economy. For example, DOMSAV, which theoretically should give positive sign, gave negative sign. This might be due to the high poverty level, which discourages savings as well as the underdevelopment of the financial market in Nigeria. Thus, inadequate domestic savings will no doubt frustrate government efforts to raise fund from the domestic market to supplement its revenue. Furthermore, Obadan and Odusola (1999) argued that in an open economy domestic saving need not be used for domestic investment (close the BGAP), it may be invested abroad if the international private rate of return is promising. By implication, an increase in domestic savings (DOMSAV) rather than close the BGAP, may be reflected in larger current account surplus or reduced current account deficit.

As earlier argued above, NFT have not been encouraging. This is largely due to the unfavourable political climate, which has been making foreigners to be very cautious. In

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fact, the unfavourable climate has the tendency to increase the risk of financing projects in the country.

Higher GGDP should have positive impact on BGAP by reducing the gap. The obtained result is inconsistent with a priori expectation. This is not unexpected. The performance of the Nigerian economy has been rather unimpressive. In fact, for some of the years under study the growth rates recorded negative rates. By implication, unimpressive growth rates of GDP will no doubt result in further widening of the BGAP as given by the result.

The YG equation closes our system of equations. It also incorporates the three gaps. At 5.0 per cent level of significance all the explanatory variables were statistically significant, except EMGAP and LFORCE. However all the explanatory variables gave the expected theoretical signs. For example, the three gaps ISGAP, EMGAP and BGAP gave the expected negative signs. This suggests that they all have negative impacts. A unit increase in the ISGAP will worsen the YG by 1.5 units. A unit increase in the EMGAP will only worsen the YG by 0.04 unit. However, a unit increase in BGAP will worsen the YG by as much as 2.5 units. PCI and LFORCE give the expected positive signs.

5.5 ESTIMATES OF THE RELATIVE STRENGTHS OF THE RESOURCE GAPS

We used the formula given earlier above in chapter four, to estimate the relative strengths of the resource gaps. As specified in the formula, β_1, β_2 and β_3, represented the relative strength for Investment-Savings gap, Export-Import gap and Budgetary gap respectively. We computed and obtained the following results.

$$\beta_1 = -1.540759 \left(\frac{0.844901}{95269.6448} \right) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(5.5.1)$$

$$= -0.000001362.$$

$$\beta_2 = -0.044381 \left[\frac{0.66831}{95269.6448} \right] \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(5.5.2)$$

$$= -0.000000031$$

$$\beta_3 = -2.501212 \left[\frac{1.44196}{95269.6448} \right] \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(5.5.3)$$

$$= -0.000030039$$

From the indexes obtained above, we concluded that Budgetary gap was the most binding constraint on economic growth in Nigeria during the period under review, while Investment-Savings Gap and Export-Import Gap followed in that order of importance. Our results differed from those of some past authors already reviewed. For example, Chenery and Bruno (1962) found similarities between Investment-Saving Gap and Export-Import Gap. Our results showed that the two gaps were not similar, given the magnitude of the indexes of the gaps. Also, while El-Shibly and Thirwal (1981) reported that the indexes of Investment - Saving gap and Export - Import gap were roughly of the same magnitude, our estimation has shown that significant difference exists between the indexes of the two gaps. Furthermore, McKinnon (1964), Chenery (1967), Mwega et al (1994) reported that Export-Import gap poses greatest constraint, our results showed that budgetary gap poses greatest constraint in Nigeria.

However, our estimation results were consistent with the observed performance of the Nigerian economy. It should be noted from our earlier assertion that the performance of the Nigerian economy is tied to the fortune of the national purse. Thus, the years of boom corresponded with the years of impressive economic performance and vice-versa.

Furthermore, the Nigerian economy has been described as mixed economy. As earlier stated, in mixed economic systems, both the public sector and the private sector do engage one another in a seemingly endless struggle of supremacy. This notwithstanding, the activities of the public sector, in Nigeria as represented by the total expenditure has been found to be growing faster than the growth of the economy, (Olaloye and Abiola, 2000). Thus suggesting a sort of public sector dominance. The implication is that such situation could result in significant influence of public sector activities, usually through the public budget, on the whole economy.

Our results also validated the original Chenery hypothesis. Chenery and Bruno (1962) Adelman and Chenery (1966), Chenery and MacEwan (1966), Chenery and Strout (1966) and Chenery and Eckstein (1970) had argued that for countries in their pre-take-off stage of development Investment-Saving gap could predominate. Thus, suggesting that such countries are suffering from low monetized savings. The implication from our results is that, although Nigerian economy is less developed, the economy has gone beyond the pre-take-off-stage of development. Put differently, Nigeria economy showed no characteristics of suffering from low monetized savings.

Nevertheless, the fact that Investment-Savings gap (ISGAP) exerts the next greatest relative impact next to Budgetary gap (BGAP) suggests that it was very important and should deserve policy attention. It should be noted from our earlier argument that availability of savings does not automatically suggest that such savings would be invested. In other words, the enabling environment for transforming savings into investment is very crucial. In Nigeria the enabling environment has not been present in an encouraging manner. In fact, it had been argued that the absence of the enabling environment has exacerbated capital flight, (Ajayi 1991). This might have been largely responsible for the

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relatively wide Investment-Savings gap.

The relatively small index for Export-Import gap from our results deserves some explanation. We know that Nigerian economy is monocultural, relying heavily on crude oil. Whenever, the receipts come in, majority goes for financing the budgetary activities of the government. Thus, crude oil in Nigeria is principally seen, both, as a means of earning foreign exchange, and as a source of revenue to the government. However, if anything happens to the inflow of fund from crude oil, as it normally happens during oil glut, its impact is usually felt the more on the budgetary activities of the government than on the foreign sector of the Nigerian economy. This is because the government first spends the money. This situation would most likely not be the same for countries that are not monocultural. This probably could be part of the underlining reasons for the other studies that had reported the predominance of the Export-Import gap.

5.6 SOURCES AND THE RELATIVE MERITS OF FINANCING THE RESOURCE GAPS.

It has been established that output gaps exist as a result of existence of resource gaps in Nigeria. Also we have found that budgetary gap is the most binding constraint on economic growth in Nigeria. The next question that readily comes to mind is how had the gaps been financed in Nigeria especially during the period under review (1970-1997)? To finance any resource gap will call for marshalling of fund outside the known sources of revenue open to a country. In Nigeria three sources of revenue are opened to the government. These are oil sources, non-oil sources and miscellaneous sources.

Oil sources of revenue include, Petroleum Profit Tax, Rent, Royalties and

Nigerian National Petroleum Corporation (NNPC) Earnings, National Economic Recovery Fund (NERFUND) and Accretion to Oil Revenue Surplus Account. Non-oil sources revenue include, Company Income Tax, Customs and Excise Duties, NERFUND (Non-oil), Federal Government Independent Revenue and Value Added Tax (VAT). Miscellaneous sources of revenue include earnings, sales, license and reimbursements. Thus, to obtain fund outside the above sources would largely call for deficit financing (culminating into public debt internal and external borrowing) and grants.

Financing of deficit can come from internal borrowing or external borrowing. Internal debt refers to borrowing from within the country. This comes notably from the banks and the non-bank public. External debt on the other hand refers to borrowing outside the shores of Nigeria. Grants refer to financial assistance given to a country. For example section 164(2) of the 1999 constitution of the Federal Republic of Nigeria states that: the Federal Government may make external grants to a foreign state or any international body in furtherance of the foreign policy objectives of Nigeria. A major distinguishing feature between public debt and grant is that the latter is supposed to be paid back: principal plus interest, while the former is not supposed to be paid back. Nevertheless, grant could have strings attached to them depending on whether they are matching or non-matching. Each of the above sources of financing resource gaps has relative merits with respect to one another. Furthermore, grants are not sustainable because mostly political rather than economic considerations influence their being given to any country.

For the purposes of this study we looked at the size, and growth of public debts. We also looked at the severity of debt burden as it affects fiscal stability and economic growth as well as the implications for improved quality of life for Nigerians. To discuss

the debt burdens we looked at the indicators of debt burdens, as well as conditions for fiscal stability.

Economic theory has established that borrowing can serve as a means of promoting economic growth. Thus, whenever an ambitious developing country is confronted with a problem in which dis-equilibrium exists between what should be spent and what is available, borrowing may be the way out to bridge the gap, (Iyoha and Iyare, 1994). Thus, the argument has been that it is to ameliorate such economic predicaments that explain the strong desire by Nigeria to accumulate huge public debt.

Unfortunately, instead of public debt to achieve its intended purposes, the economies have been plunged into macroeconomic dis-equilibrium characterized by grim economic and social conditions. The dis-equilibrium manifested itself in the form of enormous reduction in per capita income (increased poverty), sizeable decline in investment, production and consumption, escalating unemployment. Public debts, in a nutshell, have a profound effect on various dimensions of the economy – distribution, capital accumulation, economic growth, income and employment stability, etc. Thus public debts could be both a source of problem as well as a tool of economic management in the hands of the authorities.

Total public debt in Nigeria comprises internal and external debts. The focus of discussion and policy action has tended to be on the external component because of its greater complexity. Note that foreign factors and institutions are much more involved in the causation and regulation of the external debt problem. Also, the adverse effects of the foreign debt on the economy are more apparent compared to those of internal debts. Although not given adequate attention, Nigeria's internal debt problem is quite severe and could have significant implication for the country's economic growth and

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development. It has also been argued by Fajana (1993) that important linkages exist between the internal and external debt components as well as their impacts on the economy. Thus, a holistic approach to the two is very imperative.

Once public debt is incurred, both the principals as well as the interest payable have to be paid. This is referred to as debt servicing. Edelman (1983) argued that critical factors affecting debt service capacity are returns on investment, cost of borrowing and rate of savings. Note that a major essence of incurring public debt is to bridge resource gaps, (Iyoha and Iyare, 1994). However, as argued by World Bank (1990) and Onah (1994), debt servicing could absorb resources, which could have been, devoted to investment. This could be as a result of debt service obligation that is well in excess of sustainable levels, (Flood, 1993).

Servicing of external debt swallows a disproportionate large amount of foreign exchange earnings. Thus it could constraint domestic savings and consequently investment. Low investment capacity could slow down economic growth and impair production for export thereby causing decline in foreign exchange earnings. Dearth of foreign exchange earnings in turn could lead to reduction in the capacity to service the external debt, save and invest. These consequently may result in the development of Investment-Savings gap and Export-Import gap. These could in turn stimulate the desire to incur more public debts either to service the existing debts or for investment purposes or both. Thus, the vicious circle of public debt overhang is complete.

Similarly, the same process is valid for internal public debt. Some people may wish to contest this argument on the ground that we owe internal debt to ourselves and it therefore poses no serious economic problem. This contention seems deficient, as due consideration, has not been accorded to the nature of the economy in question. If the

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economy in question were free market oriented, crowding-out of private sector investment would not be a serious economic problem. This is because the economy is private sector led, to service public debt would involves transfer of resources from the public sector to the private sector.

However, if the economy is mixed as we have in Nigeria or command oriented as operated elsewhere, the contention becomes invalidated. For example, in mixed and command economies, government is the chief agent that influences economic activity. Thus, availability of resources at the disposal of the government varies directly with the growth of the economy. Therefore, to service the internal debt could swallow disproportionately large proportion of the resources at the disposal of the government and thereby constrain domestic saving and consequently investment. Thereby, setting in motion the vicious circle: from high internal public debt overhang to low saving to low investment to low capacity to service the internal debt to increase urge to incur more internal debt. The implication deducible from the above explanation is that subsequent or successive borrowing will be made to pay existing domestic debt, which will increase disposable income and induce growth from which more tax can be generated.

On the burden of public debt the impacts of internal and external public debts vary. To service external public debt constitutes withdrawals from the domestic economy, whereas to service of internal public debt constitutes injections into the domestic economy. It needs not be over-emphasized that external public debt servicing could reduce the amount of foreign exchange available to purchase imports. This has the tendency to lead to severe import strangulation, (Killick and Martin, 1989). Ojo (1994) also argued that external debt has become a burden to African countries including Nigeria, because contracted loans were not optimally deployed. The implication being

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that returns on investment has not been adequate to meet maturing obligations and leave a favourable balance of payments to support domestic economic growth.

Internal public debt repayment could increase base money, especially if it is Central Bank financed. The increase in base money, without a corresponding increase in the domestic level of output, could stimulate inflation. Friedman (1963) argued, "Inflation is always and everywhere a monetary phenomenon". The type of holders of such internal debt could influence the extent to which base money could rise. For example if a considerable proportion is held by the banking system relative to the non-bank public, the base money could rise faster. In Nigeria, however, a considerable proportion of internal debt is held by the banking system, relative to the non-bank public, with the Central Bank at the forefront. Furthermore, if taxes are imposed to pay interests, this transfer could carry a dead weight loss, just as do other taxes and this place some burdens on the domestic economy. The severity of such burden is likely to rise as the ratio of tax revenue needed to service the public debt to Gross Domestic Product increases.

Fiscal instability emerges whenever a debtor country becomes unable to meet the condition for debt sustainability. Put differently, whenever a country is incapable of servicing its debt in the long run, (Ajayi, 1991). There are three basic conditions for measuring fiscal instability as stipulated by Cline (1984), and supported by Cohen (1985), Ajayi (1991), and Iwayemi (1995).

The first condition for fiscal instability is that the nominal rate of interest (r*) minus export growth (e*), minus rate of change of export prices (p*), be equal to or less than zero (r*-e*-p* < 0). The second condition stipulates that nominal rate of interest (r*), minus export prices (p*) be less than export growth (e*) that is (r*-p*<e*).

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However, if the above conditions could not hold such that the inequality is reversed and becomes positive, external debt crisis would emerge. The third condition is that the difference between net debt (total indebtedness and foreign reserves) and export earnings could also be used as indicator of liquidity problem.

The implication from the above is that ultimately, the capability of any economy to prevent fiscal instability depends largely on the extent to which the productive capacity of the economy can generate output that exceeds domestic consumption. Iwayemi (1995) has argued that a growing world economy that supports considerable export growth (particularly in indebted countries), and that is also characterized by low real interest rate provides the most desirable path for eliminating global debt crisis. It would further enhance faster economic growth or recovery in Less Developed Countries under severe stresses from public debt overhang.

The two most important indicators of burden of debt are the ratios of debt service to export or debt to Gross Domestic Product, (Osei, 1993) and (Iyoha and Iyare, 1994). The higher these ratios, the greater the burden of debt. Another measure is to consider economic hardships the public debt imposes. This may be in form of productive efficiency or undesirable economic burdens. Furthermore, burden of debt could be measured by considering estimated effects that the debts have inflicted upon incentives to work, to save and to take risks. Hockley (1979) viewed debt burden from the effect of the current use of real resources, the stock of capital aimed at bequeathing to future generations and effects on incentives. However, dearth of data could pose serious problem to adoption of most of the above measuring options burdens of debt. To ameliorate the above shortcoming, some ratios have been universally accepted. The World Bank has determined critical points for the ratios, thus providing suitable

yardsticks. The table below from Annual Reports and Statement of Account of the Central Bank of Nigeria presents the ratios.

World Bank Debt Burdens Critical Points Ratios

Ratios	Critical Levels %
Debt Stock/Exports	275
Debt Stock/GDP	50
Debt Service/Exports	30
Interest/Export	20

Source: Annual Reports and Statement of Account of the CBN (various issues)

For **internal debt**, the basic indicators include the following:

    (i)   the ratio of the internal debt to GDP;

    (ii)   the ratio of current fiscal deficit to GDP;

    (iii)   the ratio of internal debt service to GDP; and

    (iv)   the ratio of internal debt service to federally collected revenue.

Source: Annual Reports and Statement of Account of the CBN

On the other hand for **external debt** the indicators include:

    (i)   ratio of total external debt to GDP;

    (ii)   ratio of total external debt to export of goods and services; and

    (iii)   ratio of interest payment to export of goods services.

Source: Annual Reports and Statement of Account of the CBN.

For **total debt**, the indicators include:

    (i)   total debt service to export of goods and services;

    (ii)   total debt outstanding and disbursement to GDP; and

    (iii)   interest payment to GDP.

Source: Annual Reports and Statement of Account of the CBN.

5.5.1 Debt Stock/GDP

Debt stock refers to the total public debt outstanding. It may also be sub-divided into internal and external public debt depending on to whom the debt is owed. From the above table, the ratio should not exceed 50.0 percent. From Tables 5.5.1, 5.5.2 and 5.5.3 below, total public debt/GDP ratio was relatively low until the 1980s. For example, the ratio which stood at 2.92 per cent in 1970 rose to 10.17 per cent in 1980. However, the ratio attained a crisis dimension in 1984 when it exceeded the critical limit of 50.0 per cent as it stood at 63.52 per cent. By 1995 the ratio had risen to 1091.35 per cent. Thus the trend of the ratio has been on the increase since 1970. The 1995 ratio suggests that for Nigeria to liquidate her total indebtedness she would need about 11 years Gross Domestic Product!

The situation above is very similar to what obtained while considering the total external debt/GDP ratio. The ratio however attained a crisis magnitude in 1986 when the ratio stood at 112.19 per cent. The ratio exceeded the critical level between 1986 till 1995. What we obtained under internal public debt/GDP ratio is not very different from what we obtained in respect of external public debt. The only observed difference being that the ratio attained the critical level a year later than under the external public debt situation. Nevertheless, one silent issue we could observe is that external public debt is more severe than its internal counterpart.

Table 5.2:

Indicators of Total Public Debt Burden in Nigeria: 1970 – 1997.

Year	Total Public Debt (N'million)	Total Debt Serv. Total Export	Total Pub. Debt GDP	Total Debt Serv. GDP	Growth Rate of Total Public Debt
1970	1,579.8	13.3792	2.9175	0.2188	-
1971	1,441.5	7.0357	2.1938	0.1385	-8.75543
1972	1,576.2	6.6492	2.2741	0.1354	9.3444
1973	1,700.0	4.0706	2.3047	0.1264	7.8543
1974	1,803.1	2.3038	2.1876	0.1620	6.0647
1975	2,218.6	3.7066	2.7736	0.2312	23.0436
1976	3,062.3	5.1613	3.4464	0.3847	38.0285
1977	3,903.4	2.4310	4.0619	0.1994	27.4663
1978	6,079.2	11.4348	6.8290	0.8196	55.7411
1979	8,825.5	5.2590	9.6781	0.5996	45.1754
1980	9,782.4	5.9132	10.1702	0.8729	10.8424
1981	13,793.8	7.4136	19.5947	1.1620	41.0063
1982	23,664.0	41.1422	33.7301	5.3930	71.5553
1983	32,799.1	19.6832	49.4040	2.2983	38.5033
1984	40,211.6	15.7298	63.8217	2.4266	22.5997
1985	45,242.6	24.6024	65.6488	4.1842	12.5113
1986	69,903.1	33.2103	98.3499	4.2275	54.5073
1987	137,579.7	20.8986	194.4848	8.7381	49.1908
1988	180,987.4	27.6190	232.7743	11.8822	31.5509
1989	247,443.7	22.8971	356.2413	15.8976	64.3450

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Table 5.2 Contd.

1990	382,707.4	21.6791	423.6207	26.3670	28.6655
1991	414,696.5	21.7342	466.8400	27.9180	15.4136
1992	738,298.28	17.4906	778.2894	36.9110	71.6786
1993	828,556.62	89.0683	831.4734	48.8841	9.2653
1994	990,703.27	95.7911	981.0653	48.9201	19.5698
1995	1126,463.6	27.2905	1091.3504	49.4669	13.7034
1996	960994.1	NA	897.96	NA	-17.22
1997	954961.0	NA	865.001	NA	-0.63

Source:

    (1) Statistical Bulletin of CBN, Abuja (various issues)
    (2) Partly computed by the author.

Note

NA = Not Available

Table 5.3:

Indicators of Total External Public Debt Burdens in Nigeria: 1970 – 1997.

Year	Total External Debt (N'million)	Total Ext. Debt GDP	Total Ext. Debt Total Export	Total Ext. Debt Serv. Total Export	Growth Rate of Total External Debt
1970	405	0.75	43.73	-	-
1971	426	0.65	33.09	4.73	5.68
1972	482	0.70	34.13	1.86	12.62
1973	793	0.08	34.81	1.35	64.52
1974	785	0.95	13.55	0.50	-1.01
1975	716	1.90	14.35	0.66	-8.79
1976	572	0.64	8.64	0.46	-20.11
1977	2049	2.13	26.00	0.46	258.22
1978	3296	3.70	51.66	2.52	60.86
1979	3508	3.85	33.74	1.76	6.43
1980	4865	5.06	34.26	1.96	38.68
1981	7729	10.98	70.05	4.27	58.87
1982	8682	12.38	94.41	9.51	12.33
1983	13878	20.90	179.03	14.80	59.85
1984	14983	23.78	163.96	8.31	7.96
1985	19543	28.36	166.74	8.37	30.43
1986	79741	112.19	881.36	5.90	308.03
1987	130749	184.83	442.05	8.00	63.97
1988	171060	220.01	548.41	16.14	30.83
1989	251501	301.22	433.84	12.52	47.03

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Table 5.3 Contd.

1990	297894	329.74	271.09	13.98	18.45
1991	326457	345.04	268.61	13.09	9.59
1992	610715	626.82	297.02	5.45	87.07
1993	649919	652.21	1188.34	19.93	6.42
1994	644084	637.82	1248.92	40.57	-0.90
1995	713154	690.92	381.18	9.22	10.72
1996	617320.0	NA	47.14	NA	-15.52
1997	595931.9	NA	48.00	NA	-3.58

Source:
    (1) Statistical Bulletin of CBN, Abuja (various issues)
    (2) Partly computed by the author.

<u>Note:</u>

NA = Not Available.

Table 5.4:

Indicators of Internal Public Debt Burdens in Nigeria: 1970 –1997.

Year	Total Internal Debt (N'million)	Growth Rate of Total Internal Debt	Internal Debt GDP	Overall Deficit GDP	Int. Debt Serv. GDP	Int Debt Serv. Fed. Collected Rev.
1970	1,040.0	-	1.92	1.41	-	-
1971	1,074.8	3.35	1.64	0.39	0.05	2.55
1972	1,000.7	-6.89	1.44	0.66	0.10	4.82
1973	1,061.2	6.05	1.44	0.53	0.08	3.68
1974	1,266.6	19.36	1.54	0.44	0.13	2.30
1975	1,578.9	32.55	2.10	4.73	0.19	2.76
1976	2,630.0	56.65	2.96	4.59	0.35	4.60
1977	4,636.0	76.27	4.82	5.44	0.16	1.93
1978	4,713.7	1.16	5.30	6.97	0.64	7.72
1979	7,114.0	50.92	7.80	4.74	0.40	3.33
1980	10,399.0	46.18	10.81	12.02	0.58	3.68
1981	11,445.6	10.06	16.26	19.84	0.49	2.85
1982	14,847.5	29.72	21.16	2.65	4.15	24.73
1983	22,224.2	49.68	33.48	7.97	0.57	3.60
1984	25,675.0	15.53	40.75	7.44	1.22	6.87
1985	27,952.0	8.87	40.56	7.41	2.76	12.96
1986	28,451.2	1.79	40.03	12.39	3.48	20.09
1987	36,790.6	29.31	52.01	8.33	5.39	15.10
1988	47.031.1	27.83	60.49	15.72	5.41	15.24
1989	57,051.1	21.31	68.33	18.13	7.20	12.58

Table 5.4 Contd.

1990	84,093.1	47.40	93.08	24.48	9.37	9.93
1991	116,200.2	38.18	122.81	37.79	11.10	10.40
1992	161,900.2	39.33	166.17	40.39	25.41	13.00
1993	261,093.6	61.27	262.01	107.56	37.94	19.61
1994	341,266.3	30.71	337.95	69.59	28.20	13.70
1995	409,598.0	20.02	396.83	6.54	32.75	7.35
1996	343674.1	NA	321.13	NA	-19.18	NA
1997	359029.1	NA	325.21	NA	4.28	NA

Source:

(1) Statistical Bulletin of CBN, Abuja (various issues)
(2) Partly computed by the author.

Note:

NA = Not Available.

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5.6.2 Debt Stock/Exports

The critical level for Debt stock/Export is that it should not be greater than 27.0 per cent. From the tables (5.2 and 5.3), certain observations are noteworthy. For example, during the period 1970 through 1975 the ratio was high but did not exceed the critical limit. It would be recalled that this was the period before oil boom. Also the then federal military government had to spend more because of re-habilitation and re-construction of the war affected areas. However, on arrival of the oil boom, the ratio fell drastically, as stood at 31.12, 44.48. 46.24, 49.52 per cent for the years 1974, 1975, 1976 and 1977 respectively. Since 1982, the critical level has been exceeded. The ratio recorded its highest level in 1994 when it stood at 1921.04 per cent. This suggests Nigeria would need about 20 years exports to liquidate her total public indebtedness! If we consider the external debt/export ratio, the tables show that the ratio stood below the critical limit from 1970 − 1985. It skyrocketed to 1248.92 per cent in 1994.

5.6.3 Debt Service/Exports

The critical level for this ratio is that it should not exceed 30.0 per cent. From the tables, the ratio of total public debt to export was relatively low in the 1970s. In 1982 it stood at 41.14 per cent thereby exceeding the critical limit of 30.0 per cent. It dropped to 33.21 per cent in 1986 and remained relatively high. It stood at 89.06 per cent in 1993 and further rose to 95.79 per cent in 1994.

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5.5.2 Debt Stock/Exports

The critical level for Debt stock/Export is that it should not be greater than 27.0 per cent. From the tables (5.5.1 and 5.5.2), certain observations are noteworthy. For example, during the period 1970 through 1975 the ratio was high but did not exceed the critical limit. It would be recalled that this was the period before oil boom. Also the then federal military government had to spend more because of re-habilitation and re-construction of the war affected areas. However, on arrival of the oil boom, the ratio fell drastically, as stood at 31.12, 44.48. 46.24, 49.52 per cent for the years 1974, 1975, 1976 and 1977 respectively. Since 1982, the critical level has been exceeded. The ratio recorded its highest level in 1994 when it stood at 1921.04 per cent. This suggests Nigeria would need about 20 years exports to liquidate her total public indebtedness! If we consider the external debt/export ratio, the tables show that the ratio stood below the critical limit from 1970 – 1985. It skyrocketed to 1248.92 per cent in 1994.

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5.5.4 Growth Rate of Debt Stock

Total public debt stock in Nigeria has been growing over time. For example, in 1972, the growth rate stood at 9.34 per cent, and rose to 55.74 per cent in 1992. For the

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external debt, the rate of growth is more worrisome relative to its internal counterpart. For example, external debt stock grew at 64.52 per cent in 1977 and only to further skyrocket to 308.03 percent in 1986. The internal debt stock too had been recording increasing trend, for example, it grew at a rate of 19.36 per cent in 1974, rose to 56.65 per cent in 1976, stood at 49.68 in 1983 and skyrocketed to 1.27 per cent in 1993.

The above analyses have pointed to some facts. The years of oil boom had been observed as years of lower debt stock and debt service, as well as years of higher exports and relatively impressive economic performance. Also, higher debt stock, debt service, low exports as well as unimpressive economic performance characterized the years of relatively poor receipts from oil. This had no doubt been threatening the sustainability of the efforts to fill the resource gaps through borrowing. Furthermore, comparing the relative merit of internal and external debt as sources of financing the resource gaps, in Nigeria, external debt has imposed more severe burden. This suggests that while the country may not be able to do without borrowing to finance resource gaps, contracting external debt needs to be considered with utmost caution.

CHAPTER SIX

SUMMARY AND CONCLUSION

6.1 INTRODUCTION

This chapter provides a summary of major findings from the study. We highlighted some policy recommendations before concluding the study. Furthermore, the chapter highlighted some of the limitations encountered by the study and possible areas of further research.

6.2   SUMMARY OF MAJOR FINDINGS FROM THE STUDY

The study determined the existence of output gap; examined the causal relationships among the resource gaps; determined the effects of the resource gaps as well as, which had been the most significant and binding constraint on economic growth; and examined how the resource gaps had been financed as well as the relative merits of each source of financing in Nigeria between 1970 and 1997. A three-gap model was specified. Some of our equations were estimated using the Ordinary Least Squares estimating technique, while some others were estimated simultaneously using the Two Stage Least Squares (2SLS) estimating technique, alongside Error Correction Modelling (ECM) technique. The results showed that Nigerian economy recorded output gap throughout the period under review suggesting that there has been the existence of substantial capacity under-utilization.

The Granger causality tests conducted found that the three resource gaps combined together to impose negative effects on output. Also, Investment-Savings gap causes the Export-Import gap and Budgetary gap. However, Budgetary gap causes Investment-Savings

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gap, while Export-Import gap causes Investment-Savings gap.

The results further found that one unit increase in Investment-Savings gap will worsen the output gap by 1.5 units. Also a unit increases in Export-Import gap will worsen the output gap by 0.04 unit. However a unit increases in Budgetary gap will worsen the output gap by 2.5units.

We obtained −0.000030039, -0.000001362, and −0.000000031 as indexes for the relative strengths of Budgetary gap, Investment-Savings gap, and Export-Import gap respectively. Thus suggesting that Budgetary gap had been the most binding constraint on economic growth in Nigeria, while Investment-Savings gap and Export-Import gap followed in order of importance. This result was however different from what was reported by Chenery and Bruno (1962), Mckinnon (1964), Chenery (1967), El- Shibly and Thirwall (1981), and Mwega et al (1994), who reported the predominance of Export-Import gap. Nevertheless, our result was consistent with observed performance of the Nigerian economy. Furthermore, our result invalidated the original Chenery hypothesis, Chenery and Bruno (1962), Adelman and Chenery (1966), Chenery and MacEwan (1966), Chenery and Strout (1966) Chenery and Eckstein (1970) to the effect that countries in their pre-take-off stage of development usually have Investment-Savings gap predominance. This would suggest that such economies are suffering from low monetized savings. Thus, the Nigerian result suggested that although it is a less developed economy, it has gone beyond the pre-take off stage of development and it is not suffering from low monetized savings.

To finance the gaps, Nigerian government had been incurring both internal and external debts and at times relying on meagre grants, though not reliable. The huge public debts with its burdens had been posing threats to fiscal stability. We obtained that external

debt burdens had been more severe than internal debts, as the latter has been impairing capital accumulation, economic growth and fiscal stability.

6.3   POLICY IMPLICATIONS AND RECOMMENDATIONS

It is very important to put in place policy or support measures to address the economic problems of resource gaps and the attendant impacts on output gap. In this regard we like to highlight some policy implications and suggest the following recommendations.

One, given the desirability of ensuring that resources are adequate to reduce output gap and promote sustainable economic growth, it is imperative that the authorities cultivate the habit of monitoring the relationships between desired and available resources. This would be a positive change away from the hitherto practice whereby policy makers usually attempted to fill some gaps the depth and magnitude they did not have any quantitative measure, the predictable end result of which had been failure and its attendant consequences. If the relationships between desired and available resources as well as potential and actual output were well monitored, more optimal utilization of resources would be guaranteed. The advantages inherent in the above are numerous. Prominent is that the economy would by this set the stage for meaningful economic development that would increase capacity utilization and total output.

The fact that budgetary gap is the most binding constraint on economic growth calls for policy action. The severity of the gap is further underscored by the monoculturality of the Nigerian economy. It is therefore imperative to diversify the economy away from the over reliance on crude oil. Crude oil prices are exogeneously determined therefore making the revenue from it highly unreliable. Nigeria should put in place efforts to generate more revenue, for example, introduction of super taxes notably on sports men and women earning huge income as well as defining new tax bases in the society. Also the country

should take another look at development of agriculture, which is a prerequisite to sustainable industrial development.

We recognise the fact that inflow of fund may not correspond with outflow of fund all the time. Thus, the need to run deficit could not be totally ruled out. In running fiscal deficits, therefore, high degree of caution should be exercised such that two issues are given considerations. One, fiscal deficit should be run on productive ventures. Put differently, investment projects that are self-liquidating should be considered. Two, utmost restraint should be exercised in borrowing from outside the country. External borrowing, it has been established carries much more severe burdens than internal borrowing.

The relatively large size of the investment savings gap index no doubt calls for policy action. The problem with saving and investment as argued earlier is that different economic agents usually undertake each. This has an important policy implication. This is to the effect that the measures to address savings mobilisation are not necessarily the same measures to stimulate would-be-investors to invest. It should be noted that a saving is a function of two main variables, namely, level of disposable income and the marginal propensity to save. The latter could be further influenced by factors namely interest rate, resource distribution and institutional mobilisation. Policies should be put in place to enable more labour to be employed, incentives should be given to labour to produce more and earn more. In fact, at a higher level of income, people would be willing to save, as the opportunity cost of benefits forgone would be lower if basic consumption needs could be easily satisfied.

Similarly, whether or not to invest in new physical capital, such as machinery, equipment, factories, stores, and warehouses, depends on an important factor. The factor is whether the expected rate of profit on the new investment is greater or less than the interest

rate that must be paid on the funds that need to be borrowed to acquire these assets. In fact, if the funds were readily available, a decision would have to be taken between the alternatives of using the funds to purchase the new physical asset and of lending the funds to someone else at the existing market rate of interest. Thus, policies should be directed at creating investment friendly environment notably by ensuring stable and relatively low interest rate, reduce income inequality and unemployment. Also, effort should be made to ensure political stability; this is with a view to ensuring the sustainability of the investment friendly environment.

The above policy implications and recommendations have no doubt reiterated the imperativeness for the economic management authorities to always attempt to pursue two issues vigorously. The first is economic growth, while the second is the sustainability of the growth. During the period of the review, we could observe that Nigerian economy recorded some positive economic growth, but the growth could not be sustained. The reason for the above was largely due to inability of the economic management authorities to maintain the variables of economic growth in their desired quantity and quality. The consequences have manifested in terms of increased poverty as observed in the low per capita income.

6.4 CONCLUSION

The study found that output gap existed in Nigeria between 1970 and 1997. This suggests that the economy was producing below what it could produce, if all resources were in their desired state (adequate). We therefore hope that relevant economic management authorities will make use of the findings of this study as inputs into any programme of economic development, with a view to enhancing better performance. If the economic problem of resource gaps is addressed, output will increase and this will help to

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alleviate poverty, reduce unemployment and income inequality.

6.5 LIMITATIONS OF THE STUDY AND

POSSIBLE AREAS OF FURTHER RESEARCH

The study encountered some limitations. The limitations were essentially methodological in nature. In the first instance, the data used for the study were the official figures given by the Federal Government and were provisional figures. Inasmuch as we did not compute the data by ourselves we could not guarantee the total reliability of the data. It was also not possible to extend the scope of the study beyond 1997 as at the time of analysis. This was because the required data were not available.

Also, during the period covered by the study, policy changes could have influenced the resource gaps. We could not build the possible effects of the policy changes into our modelling, used for the measurement of the relative strengths of the resource gaps. This could be to ascertain the proportion of the index of the gap arising from policy changes and the proportion arising from other factors. This would be better appreciated if we realise that during the twenty-eight year period covered by the study seven different regimes ruled the country. This gave an average of four years per regime. In most cases, in Nigeria, because of the method of changing power usually through violence, continuity of policies suffers.

Furthermore, the study concentrated on only three types of resource gaps: Investment-Savings gaps, Export-Import gap and Budgetary gap. However, we recognised the fact that some other gaps, notably employment and inflation gaps, could constraint potential output. We could not address the other gaps because of time, data and other logistic constraints.

Finally, for any model to adequately explain the behaviours of the variables used in its specification, many a priori assumptions are unavoidably built into it. Therefore it is essential to find out how sensitive the conclusions and policy implications are to changes in these assumptions. For example, if we relax some or all of the assumptions, this may change our conclusions and policy implications. This is however, beyond the scope of this thesis. Nevertheless, some of the above limitations may be interesting areas for other researchers to work on.

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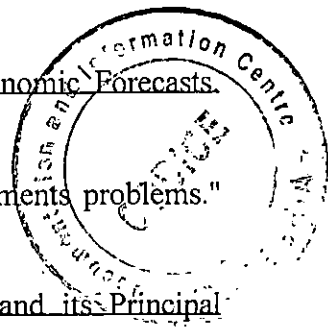
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