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EFFECTS OF FOREIGN AID ON ECONOMIC GROWTH IN NIGERIA (1974 – 2005)

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EFFECTS OF FOREIGN AID ON ECONOMIC GROWTH IN NIGERIA (1974 – 2005)

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A THESIS SUBMITTED TO THE DEPARTMENT OF ECONOMICS, FACULTY OF SOCIAL SCIENCE, OBAFEMI AWOLOWO UNIVERSITY, ILE-IFE, NIGERIA, IN PARTIAL FULFILLMENT OF THE CONDITIONS FOR AWARD OF THE MASTERS DEGREE (M.SC) IN ECONOMICS.

2010

CERTIFICATION

This research study by Ojo Segun Michael was carried out under my supervision and being approved for the Department of Economics, Obafemi Awolowo University, Ile-Ife. Nigeria

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DEDICATION

This research study is dedicated to **JESUS CHRIST OF NAZARETH** the great **GOD** for his faithfulness in my life.

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ABSTRACT

This study investigated the effects of foreign aid on economic growth in Nigeria for the period 1974 to 2005. The aggregate aid transfers were disaggregated into productive and non-productive aid flows, whereby we examined the trend in the productive and non-productive aid flows using the graphical approach, determined the degree of aid volatility using Autoregressive Conditional Heteroskedasticity (ARCH) and Generalized Autoregr essive Conditional Heteroskedasticity (GARCH) analytical technique, determined the cyclicality and the stability of aid inflow with growth using correlation technique, evaluated the effects of productive and non-productive aid on growth and also evaluated the Dutch disease effects of productive and non-productive aid flows in Nigeria through growth models, using Generalized Method of Moment analytical technique.

The study used secondary data, spanning 1974 to 2005. Data on aid flows were obtained from the Organization for Economic Cooperation and Development (OECD) Credit Reporting System (CRS) data base. While other time series data were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin, and the World Bank's World Development Indicators (WDI) data base.

The results of our analyses revealed that aid inflows to Nigeria are volatile, pro-cyclical and destabilizing. Analysis of the differential effects of productive and non-productive aid flows revealed that both productive and non-productive aid flows are growth enhancing in Nigeria. But, the volatilities of productive and non-productive aid flows are negatively related to growth. Moreover, the Dutch disease analysis revealed that both productive and non-productive aid flows engender Dutch disease. Therefore, we concluded base on the foregoing results that Nigeria can utilize aid income if the variability of the foreign aid inflows is mitigated and the Dutch disease effect aid flows is controlled.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Foreign aid as a means of promoting growth and development particularly, in the low – income countries has been a subject of controversy over the past few years. While some studies argued for increased aid flow to less-developed countries because it complements inadequate domestic resources and hence stimulates growth (Chenery and Stout, 1966; Papanek, 1973; Gulati, 1975; Over, 1975; Levy, 1988; and Islam, 1992), others argued to the contrary on the ground that aid flows to less–developed countries could be damaging to recipient economies (Griffin, 1970; Griffin and Enos, 1970; and Easterly, 1999). In short, the literature is better characterized as inconclusive and required further empirical study.

In Nigeria, for over forty years the country has consistently received aid from both bilateral and multilateral donors. For instance, in 1970, United States' grant to Nigeria was $30 million. This accounted for about 0.3 percent of the country's Gross Domestic Product. However, aid inflows to Nigeria waned following the discovery of crude oil at commercial scale in the southern part of the country in 1973, because donors felt that Nigeria with the help of the newly discovered source of income could adequately cater for her needs with little or no aid. The resultant decline in the level of aid inflow persisted till late 1970. But starting from 1980 aid inflows began to rise. For example, in 1980, aggregate aid inflow was $55 million which amounted to about 0.6 percent of the nation's Gross Domestic Product.

Moreover, aid inflow to Nigeria increased more noticeably from mid-1980s to early 1990s, because many bilateral donors who had fled Nigeria returned to support the Structural Adjustment Program (SAP). By 1991, the United States' grant to Nigeria was $44 million, while the total aid in 1992 and 1993 were $253 million and $276 million respectively. Quite unfortunately, this impressive growth in the level of aid inflow was hampered amidst the collapse of the then political and economic reforms (SAP), because donors were disappointed and consequently withdrew from Nigeria. Worst still, when General Sani Abacha assumed power, the tyrannies and the general misrule that characterized his administration further scared the donors and the country became increasingly isolated from the international communities.

As a corollary, aid inflow was on the decline until Nigeria returned to civilian rule in 1999 under the Obasanjo led administration. In other words, aid inflows to Nigeria had started increasing since Nigeria transition from military to civilian rule in 1999. For instance, from 2001 to 2005, the total official development assistance to Nigeria was $168 million, $294 million, $308 million, $578 million and $6437 million respectively.

The above historical overview of aid flow reveals among other things that Nigeria is a typical aid recipient who had consistently received aid for quite a number of years, which motivated the conduct of this study and the desire to know how past aid inflows had influenced growth in Nigeria, so as to know how the country can make best use of future aid inflows.

1.2 STATEMENT OF PROBLEM

Despite the huge amount of aids that the country had received in the past decades, over 70 percent of Nigerians still live on less than a dollar a day; the number of children that die before the age of five was estimated as 207 per 1000 in 2005, 194 per 1000 in 2006 and 189 per 1000 in 2007 which gives an average of one out of every five children that dies before the age of five (world bank, 2008). About 2.6 million people are leaving with HIV/AIDS in 2005, 2.7 million in 2006 and 2.6 million in 2007 (World Bank 2008). Average life expectancy in Nigeria is put at 47 years for 2005, 2006 and 2007 (World Bank 2008). This condition of life casts doubts on the efficacy of foreign aid in getting the economy out of the woods. In view of this, this study examined how the past aids had affected growth in Nigeria and how future aid can be utilized so as to get more desirable outcome for the country. Moreover, the imperative need for growth in Nigeria couple with the probable beneficial role to be played by foreign aid in the process, basically inform the conduct of this study.

Similarly, many studies have been done on aid effectiveness at different times and places from various perspectives. The central issue common to most studies on foreign aid has been the need to understand the relationship between aid flows and the growth of the recipients (Papanek, 1973; Gulati, 1975; Griffin and Enos, 1970; and Easterly, 1999; Over, 1975). However, the empirical analysis of aid effectiveness dates back to mid 1960s. The development came at the wake of the agitation raised by the development economists about knowing the impacts of aid transfers on the developing countries' growth. This concern about aid growth nexus was particularly motivated by the two-gap

model's assertion that aid flows supplement domestic savings and foreign exchange; hence stimulate growth (Chenery and Strout, 1966).

Early studies on aid effectiveness practically examined the effects of aid flows on savings. Where, some studies found negative relationship between aid flows and savings (Rahman, 1968; Griffin, 1970), while a study by Gupta, (1975) observed a zero or neutral relationship between aid flows and savings. However, the early 1970s marked the beginning of another series of studies that examined the nexus between aid inflow and economic growth in the recipient countries. In which case, Dowling and Hiemenz, (1982), Gupta and Islam, (1983) and Papanek (1992) found positive relationship between aid and economic growth, while Voivodas, (1973), Mosley et al, (1987), and Boone (1996)], found negative relationship between aid and growth. Indeed, the literature is better classified as inconclusive.

However, in mid 1980s, some studies digressed to verify the effects of aid flows at microeconomic level, in which case, all the studies unanimously agreed that aid is positive at that level as against the failure of macro studies to reach a consensus. This disparity between micro and macro studies in the literature is termed 'micro-macro paradox'. (Mosley, 1987).

However, starting from late 1990s, some turning point publications emerged that marked a remarkable change in the general line of reasoning on aid effectiveness. This includes (Burnside and Dollar, 1997, 2000; World Bank, 1998; Collier and Dollar, 2002; Guillamont and Chauvet, 2001). All these studies broke out of the initial circle of argument that centres on 'aid works' or 'aid does not work' polarity, by sharing a common view that aid effectiveness depends on specific features of the recipient

countries. In other word, aid may work, if certain measures are put in place by the recipients to facilitate aid effectiveness. This development nearly resolves the enduring aid-growth relationship controversy, to the extent that (McGillivray 2003) said that end has come to 'micro-macro paradox'. However, the robustness of those studies has been criticized on various grounds. For instance, Burnside and Dollar (2000), was criticized particularly for the way policy variable issue was handled in the study. For instance, the study used inflation rate as a measure of monetary policy which is problematic, because inflation rate is an outcome, and never a policy in itself. Because government policy measures (such as tight monetary policy) can influence inflation rate; inflation rate can be determined by factors (such as changes in demand and supply, changes in the term of trade etc) that are outside the direct control of the government. Therefore, inflation rate may be a poor reflection of monetary policy. So, this essentially undermined the empirical model of the Burnside and Dollar's study and the analysis in general.

In any case, the achievement of this new stream of studies is that they succeeded in shifting the focus of aid-growth-nexus analysis from the traditional line of argument that revolves around "aid works" or "aid doesn't work", to a new line of thought that says, "aid may work, but depends on". In other words, in what policy context would aid flow be growth-enhancing? In the same vein, researchers have made several efforts to formulate a policy framework for aid effectiveness which has also resulted in diverse opinions regarding factors that condition aid effectiveness which means that the matter remains inconclusive. However, this study filled this gap for Nigeria through the following approaches.

One, having noticed that much have not been done on aid-growth nexus in Nigeria and also that the overwhelming majority of the studies in the literature are cross-country studies, including the few ones that included Nigeria. This study examined the effect of aid inflow on economic growth in Nigeria as a country-specific study. Essentially, this approach enables us to circumvent the difficulties that borders on the interpretation of panel result for individual countries due to parameter invariance.

Two, emerging studies have shown that aid could work and even help the developing countries to achieve the Millennium Development Goals (MDGs) by the year 2015, if aid flows are properly utilized. Hence, this study examined the utilization of aid transfers in productive and non-productive uses in Nigeria. In this regard, aid data was disaggregated into productive aid (aid tie to investment project) and non-productive aid (lump-sum income transfer), to examine the effect of productive and non-productive aid, as well as their respective volatilities on economic growth in Nigeria. The 'Dutch disease' effects of productive and non-productive aids are investigated to find out if the effects observed between each of the two types of aid flows and growth follow from their respective Dutch disease effects. The cyclicality and the stability character of aid flow with growth are examined. The cyclicality test is not an end in itself; rather it helped us to predict the effect of aid volatility on growth.

All these analyses are aimed at identifying the factors conditioning the performance of aid flows in Nigeria, directly answering the questions, what are the factors conditioning aid effectiveness in Nigeria? Is there any macro economic policy that could dampen the Dutch disease effects associated with large aid inflows? And can more aids be spent effectively in Nigeria?

1.3 JUSTIFICATION OF THE STUDY

The significance of this study at this point in time lies principally on three reasons; One, Nigeria has been receiving aids for quite some decades. In which case, the effects of the past successive aid transfers on the economy can either be positive or negative. So, for proper clarification on how the past aid flows have been influencing the economy, the country needs a study like this, to clarify the interrelationship between foreign aid inflows and the Nigeria economy and also identify the factors conditioning aid growth outcomes

Two, there is an up-surge in the level of aid inflow to Nigeria in the recent time. This may be connected with the seriousness with which the past administration solicited for aid, including debt relief from the development partners, For instance in 2005, the total aid transfers amounted to £489 million, the debt relief of 2005 created annual savings of $1 billion for Nigeria; in 2007/2008 financial year Department for International Development [DFID] had committed to spend up to £100 million in Nigeria. Given all these, an empirical investigation into the intricacies of aid-growth nexus in the economy is necessary.

Three, since Nigeria returned to civil rule in 1999, the number of both bilateral and multilateral donors pledging support for the country has been on the increase. Therefore, the country is likely to witness more influx of aid inflow subsequently. So, a study like this, which examined the productiveness, Dutch disease effects and the variability of aid transfers in Nigeria, is not only important but timely.

Moreover, the management of aid and its variability in Nigeria is also very important in the light of the on-going campaign for Millennium Development Goals (MDGs). Studies assessing the feasibility of the goals and targets set under the scheme (MDGs), had recommended different amounts of aid to be given to the concern countries before they can meet the goals within the set time-frame. For instance, the 2005 group of eight (G-8) Gleneagles declaration called for raising annual aid flows to Africa by US $25 billion by 2010, while the UN Millennium Task Force had argued for US $70 billion of annual additional resources to achieve the MDGs in Africa, Nigeria inclusive. Therefore, efforts must be made to assess the likely effects of such a huge aid inflow on the recipients' economies.

1.4 OBJECTIVES OF THE STUDY

The broad objective of this study is to examine the effect of aid transfers on economic growth in Nigeria. The specific objectives are to:

(i) Examine the trend of productive and non-productive aid in Nigeria.

(ii) Determine the degree of aid volatility in Nigeria.

(iii) Determine the cyclicality of aid inflow with growth in Nigeria.

(iv) Determine the stability character of aid inflow in Nigeria

(v) Evaluate the effects of productive and non-productive aid as well as their respective volatilities (productive aid volatility and non-productive aid volatility) on economic growth in Nigeria.

(vi) Evaluate the Dutch disease effects of productive and non-productive aid in Nigeria

1.5 HYPOTHESES

The hypotheses to be tested in this study are as follows:

(i) Foreign aid flow is positively related to economic growth in Nigeria.

(ii) Productive aid influences growth positively in Nigeria.

(iii) Non-productive aid influences growth negative in Nigeria

1.6 PLAN OF STUDY

This study contains five chapters. Chapter one introduces the subject matter of the study while chapter two presents the literature review. In the first part of literature review, we reviewed the theoretical literature and in the second part empirical literature was reviewed. The methodology of the study is presented in chapter three. Chapter four contains the empirical analysis, interpretation and the policy implications of results while chapter five contains summary, policy recommendation and conclusion of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter of the study covers basically the review of theoretical literature, review empirical literature and the summary of gaps. In the review of theoretical literature, we looked into the economic theories that fundamentally spell out the theoretical framework of the study. In the review of empirical literature, we reviewed the empirical studies that researchers have done on the subject matter of aid effectiveness with a view to establishing the gaps that are yet to be addressed given the available literature.

2.2 Review of Theoretical Literature

The first and the most well known model that argued that growth is constrain by availability and the productivity of capital is the Harrod-Domar growth model. According to the model, the availability of capital or the level of investment is determined by the level of savings. Therefore, to achieve a targeted growth rate, the government must increase the level of savings or increase the productivity of capital. So, the disparity between savings and the desire level of investment that often characterized the developing countries due to low level of income is therefore identified as savings gap. In addition to the savings gap, Chenery and Bruno (1962) and Chenery and Strout (1966), identified a foreign exchange gap, noting that developing countries might not have the enough export earnings to import capital goods for investment. According to Shenery and Strout, foreign aid can help fill this gap, thus developed a dual-gap model; savings gap

and foreign exchange earnings gap. A third gap was identified by Bacha (1990) and Taylor (1990). They recognized that developing countries governments often do not have the revenue raising capacity to finance the desired level of investment. In view of this, they suggested that if the foreign aid provided is given to the government and it's used for investment purposes, it will fill the fiscal gap; savings gap, foreign exchange earnings gap and the fiscal gap.

However, the two-gap models by Chenery and Strout (1966) shared the view of the Harrod-Domar growth model around its argument that physical capital formation is the central driving force of economic growth. According to the Harrod-Domar model, investment rate determines output. In which case, investment is financed by savings, and in an open economy total savings equal the sum of domestic and foreign savings. A savings gap is said to arise when domestic savings are not sufficient to finance the investment required to attain the targeted growth rate (Fei and Paauw 1965).

Trade-gap arises, when the export earnings are not sufficient to carter for the import bills, because all investment goods cannot be produced domestically. Therefore, certain level of import is required to attain the desire level of investment. So, shortfalls in the export earnings create the trade-gap (foreign exchange gap) to be filled by inflow of foreign capital (foreign aid). Mathematically the model can be stated as

$$g = \frac{s}{k} + \frac{b}{k} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(1)}$$

Where, g= growth rate

s = savings rate

k= capital to output growth rate

b = foreign trade

The model assumed that

- There exist a one to one relation between aid inflows and investment
- Capital-output ratio is constant which means a constant average and marginal productivity of capital.
- Production factors are not substitutable.

Therefore, foreign aid fills two gaps. Foreign aid provided as foreign exchange can be used to buy imported capital goods and can supplement domestic savings directly

The two-gap model sees imports and the capital accumulation as the major constraints on investment. Whereas, the three-gap model revealed that output may be constrained by low capacity utilization due to lack of intermediate goods rather than lack of investment. (Taylor 1993).

However, some other gaps have been propounded, such as the, technology gap, food gap, gender gap and the environment gap which all built on the foundation of the two gap model. However, closer to the two-gap model is the third fiscal gap between government revenue and expenditures, as illustrated in the three-gap models by Bacha (1990) and Taylor (1993).

The salient features of the three-gap model are:

The conventional national income identity is;

$$\left(Y_p - C_p\right) + \left(T - C_g\right) + \left(M - X\right) = I \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

Where, Y_p is private income, C_p is private consumption, T and C_g are current revenues and current consumption of the government respectively. M and X respectively total imports and exports of goods and services, and I is the gross investment.

The three terms on the left represent, respectively, private savings (S_p), public savings (S_g), and foreign savings (S_f).

Equation (1) becomes

$$S_p + S_g + S_f = I \qquad \text{.......................................} (3)$$

So, in addition to the two gaps identified in the two gap model, we have the third gap which is the fiscal gap.

However, the general conclusion in the gap models is that, there exist a positive relationship between foreign aid and economic growth, via the positive impacts on domestic savings, exchange earnings and government revenue. Whereas the position widely held in the empirical literature raise doubt against the prediction in the gap-models. In other word, a number of macroeconomic complications have been discovered that show why there is no one-to-one relationship between aid flows and investment.

2.3 REVIEW OF EMPIRICAL LITERATURE

The desire to understand the systematic relationship between aid and growth had resulted in acute volume of empirical studies which has taken different dimensions of policy relevance in the literature. Some studies focus on the impact of aid on growth (Rajan and Subramanian, 2005; Alvi, Mrkherje and Shukralla, 2006; Hatemi-J and Irandoust, 2005; Vu MinhDue, 2003; Burnside and Dollar, 1997). Some concentrated on how aid influences macroeconomic variables (such as inflation rate, employment level, exchange rate, consumption, savings and investment) which include studies by [Prati and Tressel, (2006); Prasad, Rajan and Subramanian, (2006); Durbarry, Gemmell and Greenaway, (1998)]. Also, some studies focus on the alternative perspectives of aid flow

like volatility, cyclicality, scaling up-scenario and absorptive capacity, to evaluate the effectiveness of aid at achieving the country's economic goals and objectives [Neanidis and varvarigos, (2005); Bulir and Hammann, (2003). Arellano, Bulir, Lane and Lipschitz, (2005); Fielding and Mavrotas, (2005);

Table 2.1: Summary of Empirical Findings on aid-growth relationship

Aurthor and Date	Scope and sample period	Methodology	Findings/conclusions
Rajan and Subramanina (2005)	107 aid recipients (1960-1980)	GMM estimation of panel data	Advocated that, there exist little robust evidence of a positive (negative) relationship between aid inflows into a country and its economic growth. But they suggest that for aid to be effective in the future, the aid apparatus will have to be rethought.
Aliv, Markherjee and Shukralla (2006)	48 aid recipients countries (1970-2001)	OLS and GMM technique on panel of 48 countries	Observed that good policy is mostly important in determination of growth, and aid works in the presence of a good policy though with diminishing return.
Hatemi-J and Irandoust (2005)	66 developing countries (1794-1996)	OLS panel regression	Find that foreign aid has a positive and significant effect on economic activities of recipients
Vu MinhDuc (2003)	Developing countries (1975-2000)	OLS techniques	found evidence that foreign aid significantly and negatively correlates with growth in developing countries.
Burnside and Dollar	Developing	OLS of panel	Find that aid has a positive impact on

(1997)	countries (1970-1993)	regression	growth in developing countries with good fiscal, monetary and trade policy.
Rajan and Subramanian (2006)	22 Industrialized and 61 non-industrialized countries (1970-2000)	OLS regression technique	The result does not imply that there is no role for foreign finance in the process of economic development. However there is no evidence that providing additional financing in excess of domestic savings is the channel through which financial integration delivers its benefits.
Neanidis and Varvarigos (2005)	74 aid-recipient countries (1972-1998)	OLS and GMM of panel study	On the one hand, devoting aid inflows into productive public spending promotes growth while related volatility has a damaging effect on the other hand; the non-productive use of aid transfers has an adverse effect on growth while their volatility is growth enhancing.
Prati and Tressel (2006)	58 aid-receiving countries (1960-2003)	OLS and GMM Panel study	Observed that in aid-receiving countries, monetary and fiscal policies help achieve optimal spending and current account paths and have persistent effect on real variables in the presence of externalities.
Fielding and Mavrotas (2005)	66 aid recipient (1973-2002)	OLS regression technique	The quality of institutions and the degree of openness in aid recipients are not important factors concerning the volatility of programmed assistance.
Bulir and Hammann	72 aid recipient	VAR Model	Found that aid is volatile than

(2003)	countries (1975-1997)	technique	revenue, particularly in countries with a high aid-to-revenue ratio.
Arellano, Bullir, Lane and Lipschitz (2005)	73 aid receiving countries (1981-2000)	OLS and GMM technique of panel analysis	Find that aid shocks result in substantial welfare losses, suggesting that aid variability should be taken into account in designing aid architecture
Bulir and Hammann (2006)	78 aid-receiving countries (1975-2003)	Ordinary least square (OLS) regression technique.	Find that the positive impact of foreign aid is limited by erratic behaviours of aid flows
Gomanee, Girma and Morrissey (2005)	Sub-Saharan African countries (1970-1997)	Ordinary Least Square (OLS) and Generalized Method of Moment (GMM)	Aid flow enhances growth in African, particularly in the Sub-Saharan region of the area.
Durbarry, Gemmell and Greenaway (1998)	Sixty-eigth aid-receiving countries (1970-1993)	Ordinary Least Square (OLS) technique	Aid flow does have positive impact on growth, though to an extent conditioned on the macroeconomic environment
Issa and Ouattara (2005)	Syria (1965-1997)	ARDL approach to cointegration	Aid flow does not engender Dutch disease in Syria
Neanidis and Varvarigos (2007)	Sixty-six aid receiving countries (1973-1998)	Ordinary Least Square (OLS) and Generalized Method of Moment (GMM)	The question of whether aid inhibits growth or not depends on the variability of aid

		techniques	
Guillaumont (2005)	Selected aid receiving countries (1980-2001)	Generalised Method of Moment(GMM) and Ordinary Least Square (OLS) techniques	Aid is effective mainly in vulnerable countries

2.4 SUMMARY OF GAPS

The above literature review reveals among other things that, the aid literature is bereft of any consensus concerning the fundamental question about the systematic relationship between aid and growth in the recipient economies. For instance, Rajan and Subramanian (2005) said that the question of whether aid helps poor countries to grow is still engulfed in controversy. Easterly (1999), said that the aid literature is inconclusive regarding aid and growth. While, Hatemi-J and Irandoust (2005) said that the literature has produced inconsistence and elusive results concerning the potential relationship that subsists between aid and growth. However, very thoughtful was the conclusion arrived by Rajan and Subramanian (2005) that there is no evidence that aid has worked in the past neither does any evidence say that aid cannot work in the future, but evidence show that for aid to work in the future the aid apparatus must be rethought. In other word, this statement is envisioning a non-traditional new approach to the management and disbursement of foreign aid in order to make aid mechanism benefit –enhancing

CHAPTER THREE

METHODOLOGY

3.1 Introduction

In this chapter, the methodology adopted in this study is discussed. The first section considered the conceptual framework, followed by model specification, technique for data analysis, types and sources of data and measurement of variables.

3.2 THEORETICAL FRAMEWORK

The theoretical framework of this study is based on the Harrod-Dommar growth model, as expanded by Chenery and Strout (1966) two-gap model that growth process depends on accumulation of physical capital. According to Harrod-Dommar model, investment is the key to growth. Chenery and Strout, introduced the foreign sector, on the ground that, savings from foreign capital inflow can be utilized by developing countries to supplement the domestic savings and the foreign exchange. Indeed, Chenery and Strout in the two-gap model may be right that foreign aid serves as catalyst in growth process. However, the technicality of how foreign savings and the domestic savings translate into growth in the long-run is lacking in the model. In view of this, this theoretical framework cultivated in principle the framework of a simple A.K. growth model (Rebelo, 1990). In the model, growth is endogenous, that is, the entire growth process is determined by the actions of the economic agents described in the model. This characteristic of A K model, gives it edge over the exogenous models such as the Solow's growth model that described the process leading to economic growth as a function of improvement in total factor productivity (technological progress) without

concrete explanation about where the improvement comes from which economists term 'exogenous growth'. Moreover, the exogenous growth models shared a common implication that changes in government policies, such as subsidies to research or capital investments, do not have long-run growth effects. In contrast, the term endogenous growth can be further interpreted as:

(1) The economy long-run growth is not influenced by any exogenous factor, such as exogenous technological progress. Rather the long-run growth rate depends on the decisions of the economic agents.

(2) Government policy can influence the economy's long-run growth rate.

Moreover endogenous growth model assume there is no population growth. Therefore, the overall output is equal to per capita output. The model production function is linear in capital; hence diminishing marginal returns to capital is absent, which means the entire growth process is endogenised. However, aid transfers will be incorporated into the model to establish a relationship between aid flows and the economic growth. The model production function can be given as

$$Y_t = A_t K_t^{\alpha} L_t^{1-\alpha} \quad \text{.....(1)}$$

If we assume 'A_t' to be constant but greater than zero (A>0) and $\alpha = 1$ we have

$$Y_t = A_t K_t \quad \text{.....(2)}$$

Equation (2) implies that, the production function is linear in capital, therefore the neoclassical convergence does not hold

Taking logs and derivatives, the growth rate of output can be expressed as

$$\frac{\dot{Y}_t}{Y_t} = \frac{\dot{A}_t}{A_t} + \frac{\dot{K}_t}{K_t} \quad \text{.....(3)}$$

The capital accumulation process is giving by

$$\Delta K_t = sY_t - \delta K_t \quad \text{.....(4)}$$

$$sY = I \quad \text{.....(5)}$$

sY = aggregate savings, I = aggregate investment, ΔK_t = change in capital stock

δK = depreciation in capital

The Role of Aid Flows

However, to introduce aid inflow into this analysis, the following assumptions would be made.

(i) Total investment is made up of public investment and private investment.

$$I = G_I + P_I \quad \text{.....(6)}$$

I =aggregate investment, G_I =public investment, P_I.=private investment

(ii) Government invests revenue from income tax and aid transfers. Hence government investment is given as

$$G_I = tY_t + (1-\omega)Aid \quad \text{.....(7)}$$

t = is the tax rate imposed by the government, tY_t =tax income invested by the government, $(1-\omega)$ =the fraction of aid income invested by the government

(iii) The private sector investment equals the private sector's incomes not spend on consumption. Therefore the private sector consumption is given as

$$C = C_o + c(1-t)Y_t \text{ …….. (8)}$$

(iv) The fraction of aid inflow that is not invested by the government is spent on consumption and general income transfers (non-productive aid). Therefore the private sector consumption can finally be given as

$$C = C_o + c(1-t)Y_t + \varpi Aid \text{ ……. (9)}$$

ϖ =fraction of aid income provided to the private sector for consumption purposes

Since the private sector invest the fraction of their income not spend on consumption, private sector investment can be given as

$$P_t = Y_t - [\,C_o + c(1-t)Y_t + \varpi Aid\,] \text{……. (10)}$$

P_t = private investment,

Given the foregoing assumptions, equation (4) can be re-written as

$$\Delta K_t = [tY_t + (1-\omega)Aid] + \{Y_t - [C_o + c(1-t)Y_t + \varpi Aid]\} - \delta K_t \text{.....(11)}$$

The growth rate in capital stock can be expressed as

$$\frac{\Delta K_t}{K_t} = \frac{[tY_t + (1-\varpi)Aid]}{K_t} + \frac{[Y_t - \{C_o + c(1-t)Y_t + \varpi Aid\}]}{K_t} - \delta \text{.....(12)}$$

At the steady state $\frac{\dot{A}_t}{A_t} = 0$, hence the growth rate in output is equal to the growth rate in capital stock.

$$\frac{\Delta Y_t}{Y_t} = \frac{\Delta K_t}{K_t} = \frac{[tY_t + (1-\varpi)Aid]}{K_t} + \frac{[Y_t - \{C_o + c(1-t)Y_t + \varpi Aid\}]}{K_t} - \delta \text{.....(13)}$$

If '$\frac{\Delta Y_t}{Y_t}$' is denoted by 'm', growth rate in output can be given as

$$\text{m} = \frac{[tY_t + (1-\varpi)Aid]}{K_t} + \frac{[Y_t - \{C_o + c(1-t)Y_t + \varpi Aid\}]}{K_t} - \delta \ldots\ldots\ldots\ldots(14)$$

Differentiate equation (13) with respect to aid [aid is measured as the ratio of aid to (GDP)]

$$\frac{\partial m}{\partial (aid)} = (1-\varpi)\frac{Y_t}{K_t} - \varpi\frac{Y_t}{K_t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(15)$$

Equation (14) shows that change in the growth rate in output expressed in terms of change in aid flow is a positive function of the proportion of aid inflow invested by the government (productive aid), and a negative function of the fraction of aid flows spend on consumption (non-productive aid).

The key implications of this theoretical analysis are:

(i) Growth process is endogenous, that is, determinable within the framework of the model, so we don't revert to an exogenous machinery of growth.

(ii) The growth rate of the economy depends positively on the investment rate. Hence, any government policy measure (like productive aid) that increases the investment rate accelerates growth.

3.3 MODEL SPECIFICATION

The model was based on the previous section on theoretical framework, in the spirit of [Neanidis and Valvarigos (2005)], drawing the link between the use of aid in productive and non-productive uses.

Basically, the model can be stated as

$$g_t = \alpha + \beta_o \log gdp_{t-1} + \gamma_1 aid_t + \delta_1 volaid_t + \varepsilon_t \text{ ....(16)}$$

Where,

g_t = represent the model dependent variable and the growth rate of the economy.

Explanatory variables:

$\log gdp_{t-1}$ = log of initial level of GDP

aid_t = described the foreign aid inflows in the economy

$volaid_t$ = volatility of foreign aids inflows in the economy

However, there is need to blow-up the above model to test the implication of our theoretical framework to assess the effects of productive and unproductive aid flows and their respective volatilities on growth.

Thus:

$$g_t = \alpha + \beta_o \log gdp_{t-1} + \sum_{k=1}^{2} \gamma_k (pnaid)_t + \sum_{k=1}^{2} \delta_k (volaid_k)_t + \varepsilon_t \text{ .... (17)}$$

In the final step, we expand the set of control variables with the vector X, which consist of variables that have been identified in previous studies as important conditioning variables in growth regressions. The variables are; human capital, capital stock, openness, and democracy.

$$g_t = \alpha + \beta_o \log gdp_{t-1} + \sum_{k=1}^{2} \lambda_k (pnaid)_t + \sum_{k=1}^{2} \eta_k (volpnaid)_t +$$
$$\sum_{j=1}^{m} \beta_j X_{jt} + \varepsilon_t \text{ ....(18)}$$

Where,

g_t = represent the model dependent variable and the growth rate of the economy.

$\log gdp_{t-1}$ = log of initial level of GDP

$pnaid_t$ = vector of productive and non-productive aid flows.

$volpnaid_t$ = vector of the productive and non-productive aid volatilities.

X_{jt}, = is a vector of control variables which are human capital (HC), openness (OPN), capital stock (CS), and dummy for democracy (DEM).

Our choice of the above control variables is supported by the following theoretical underpinnings. For instance human capital as a growth variable has a secured foundation in economic theory. In the words of Jonathan Temple (2001), *on the claim that education plays a central role in growth, the most prominent and influential contributions is that of Lucas (1988), which is in turn related to previous work by Uzawa (1965). In these models, the level of output is a function of the stock of human capital. In the long run, sustained growth is only possible if human capital can grow without bound*

According to Ch. Kamran Naseer (2010), Capital formation is the process through which productive assets like machinery are created in an economy. Capital formation plays a key role in achieving economic growth and prosperity. It expands the productive capacity of different economic sectors by increasing the number of firms or working units. As a result, employment opportunities are increased which helps to break the vicious cycle of poverty. Furthermore, economies of scale are obtained which leads to low production cost and high quality commodities resulting in high economic returns. This not only attracts domestic and foreign investors but also reduces the trade gap and inflationary pressures in an economy.

About democracy, economic theorists believed that only governments with some legitimacy will be able to implement and sustain policies that can foster long-run growth. Besides, the various institutional characteristics of democracy, like an independent legal system, are also required for a successful liberalization. North (1993) put it as, "well specified and enforced property rights, a necessary condition for economic growth, are only secure when political and civil rights are secure; otherwise arbitrary confiscation is always a threat."

During the last decade, the new theories of growth pioneered by Romer (1986) and Lucas (1988) have provided persuasive intellectual support for the proposition that openness affect growth positively. Romer (1992), Grossman and Helpman (1991) and Barro and Sala-I-Maarti (1995), among other, have argued that countries that are more opne to the rest of the world have a greater ability to absorb technological advances generated in leading nations to motivate growth.

3.3.1 *Dutch Disease Effects*

This section will make a further enquiry into the intricacies of aid growth nexus by examining the Dutch disease effect attach to the effects of productive and non-productive aid on growth. The empirical model is given as

$$REER_t = \alpha_O + LREER_{t-1} + aid_t + \varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (19)$$

Where, $REER_t$ = the real effective exchange rate, $LREER_{t-1}$ = is the log of the initial level of the real effective exchange rate, aid_t = the aggregate aid inflow and ε_t = is the error term.

However, the relationship between the productive aid and the non-productive aid, along side with some control variables is stated as follows:

$$REER_t = \alpha_o + LREER_{t-1} + \sum_{k=1}^{2} \lambda_k (pnaid)_t + \sum_{j=1}^{4} \beta_j Z_{jt} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots (20)$$

Where, $REER_t$ = the real effective exchange rate. According to Issa and Ouattara (2005) $REER_t$ can be calculated as $REER_t = 100 \times \left[\frac{NER \times CPI_{US}}{CPI_{nig.}} \right]$, where NER is the nominal exchange rate (expressed as the number of Nigeria currency per unit of foreign currency), CPI_{US} and $CPI_{Nig.}$ are consumer price indices for United State and Nigeria respectively. aid_t = described the foreign aid inflows in the economy, $pnaid_t$ = represent the vector of the two types of aid flows that is, productive aid ($proaid_t$) and non-productive aid ($nproaid_t$), Z_t= is a vector of control variables which include, gross domestic product (GDP), openness (OPN), term of trade (TOT), gross capital formation (GCF) and ε_t is the error term.

The above control variables are some of the variables identified in the literature as the fundamental determinants of the exchange rate of the economy. In the words of Imed and Christophe (2001), *Equilibrium real exchange rate is denoted in the Edwards model (one of the most prominent exchange rate models) as the relative price of traded and non-traded goods which insures simultaneously the internal and external balances of the economy with underlying capital flows. Long term real exchange rate depends exclusively on real variables, called by the author fundamentals: the terms of trade,*

public expenditures, and openness of the economy, technical progress and capital flows. The expected theoretical effects of the variables are as follows.

GDP (-) the expected effect of this variable on RER is to be negative. According to the Balassa-Samulson (1973) hypothesis, as development takes place the productivity improvement in the tradable goods sector exceeds that of non-tradable goods sector. This implies that the decrease in the price of the former is relatively bigger than that in the later, thus, causes appreciation of the RER.

OPEN (?) Openness of the economy would cause real depreciation (appreciation) if it reduces (increases) the demand for non tradable, (Issa and Ouattara, 2008).

TOT (?) The effect of the terms of trade on the real exchange rate depends on whether the substitution or the income effect dominates. If the income (substitution) effect dominates then a deterioration of the TOT tends to cause real depreciation (appreciation), (Issa and Ouattara, 2008).

GCF (?) the effect of capital flows on the exchange rate depends on the kind of shock that hit the economy. This could be demand shock or productivity shock. For instance, Pavlova and Rigobon (2003) argued that, if a positive home equity return has been caused by a productivity shock at home, the response of the home currency is depreciation along with a fall in bond prices (the Ricardian effect, since good news for home production means that home goods become relatively less scarce and hence their price has to fall). A fall in the domestic currency implies that the foreign currency appreciates

On the other hand, if instead of a productivity shock a country had a positive demand shock, then home consumers will want to consume more (biased toward the

home good) and bid up the price of the home good relative to foreign. The terms of trade of home improve and its exchange rate appreciates.

3.3.2 *Test for Aid Volatility*

In this section, ARCH and GARCH (1, 1) model was used to estimate the degree of volatility of aid flows in Nigeria economy. Where, the two terms in parenthesis refer to the first-order of GARCH term and the first order of ARCH term respectively. The model can be stated as;

$$\sigma_t^2 = \varpi + \alpha\varepsilon_{t-1}^2 + \beta\sigma_{t-1}^2 \quad \text{..... (21)}$$

Where,

σ_t^2 = is conditional variance

ϖ = is a constant term

ε_{t-1}^2 = (The ARCH term) is news about volatility from previous period, measured as the lag of the squared residual from the mean equation.

σ_{t-1}^2 = (The ARCH term) is the last period's forecast variance.

According to Yinusa (2004), the rule of thumb for determining the presence of volatility is that, we find the sum of the root of the autoregressive model;

In which case,

If $\alpha + \beta < 0.5$, there is no volatility.

If $\alpha + \beta \rightarrow 1$, there is volatility

If $\alpha + \beta > 1$, this is a case of overshooting.

3.3.3 *Test for Cyclicality*

In this section, the cyclicality of aid flows in Nigeria was determined. The rationale for this is basically that the cyclicality test will help us to determine the effect of volatility on growth. According to Bulir (2005), *the volatility of aid would be a less significant problem if aid receipts were countercyclical—that is, if surges in aid compensate for shortfalls in GDP*

This can be measured by the correlation between the "cycle" of aid (i.e. its deviation from its trend) and the "cycle" of the GDP (Guillaumont, 2005). This can be estimated with:

$$r_{vaid,vgdp} = \frac{\sum vaid_t vgdp_t}{\sqrt{\sum vaid_t^2}\sqrt{\sum vgdp_t^2}} \quad \text{..... (22)}$$

Where, $vaid$ = represent the variance in the aid flows

$vgdp$ = represent variance of GDP

The correlation coefficient 'r' is the measure of the degree of co-variability of the variable 'aid' and GDP'. The value which can be assumed by the correlation coefficient ranges from -1 to +1. When r is positive, it implies that aid and GDP increase or decrease together, which implies pro-cyclicality. When r is negative, aid and GDP move in opposite directions, and this implies counter-cyclicality.

3.3.4 Test *of Stability*

A pro-cyclical aid and a counter-cyclical aid can be stabilizing or destabilizing. The stability character depends on the relative volatility of the aid flow. In other word, a pro-cyclical aid can destabilize the economy, if its volatility is lower than that of GDP while,

a counter-cyclical aid can be destabilizing if its volatility is higher than that of the GDP. So, to assess the stability character of aid we built an index which is the difference between the instability (volatility) of GDP and that of the aid plus GDP (Guillaumont, 2005). The formula is given as;

$$S_{aid} = \text{Var (GDP)-Var [(GDP) +Aid]} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (23)$$

S_{aid} = stability of aid flow in the economy.

If the difference is positive, aid is stabilizing; if it is negative, aid is destabilizing.

3.4 TECHNIQUE FOR DATA ANALYSIS

The empirical models was analyzed using Generalized Method of Moment (GMM), the validity of the instruments was tested using Hansen's J-statistics of over-identifying restrictions. ARCH and GARCH technology was used to measure the degree of aid volatility. While the cyclicality of aid transfer with growth was measured by the correlation between the "cycle" of aid (i.e. its deviation from its trend) and the "cycle" of the gross domestic product (GDP) using correlation technique. The volatility of aid is commonly measured as the standard deviation of aid flow [Nianidis and Varvarigos (2005)] which is the approach we adopted in this study. Finally, descriptive statistics was used to make pictorial presentation of the trend in productive and non-productive aid

3.5 TYPE AND SOURCES OF DATA

The study utilized secondary data spanning over the periods 1974-2005. Non-aid data came from the World Bank's World Development Indicators (WDI), Central Bank of Nigeria (CBN) Statistical Bulletin, while all aid data was sourced from the

Organization for Economic Cooperation and Development (OECD) Credit Reporting System (CRS) data source. The classification of aid transfer into productive and non-productive aid flows was based on Neanidis and Varvarigos (2007) at the three-digit level based on the OECD's Credit Reporting system (CRS) frame work. Table 2 below presents more details.

Table 3.1: ***CLASSIFICATION OF AID FLOWS***

Productive aid "P"	***Unproductive "U"***
152 Conflict, Peace and Security	520 Developmental Food Aid/ Food Security Assistance
210 Transport and Storage	710 Emergency Food Aid
220 Communications and Reproductive Health	720 Other Emergency and Distress Relief
230 Energy Generation and Supply	730 Reconstruction Relief
240 Banking and Financial Services	
250 Business and Other Services	
311 Agriculture	
312 Forestry	
313 Fishing	
321 Industry	
322 Mining and Mineral Resources	
331 Trade Policy and Regulations	
510 General Budget Support	
530 Other General Program and Commodity Assistance	
600 Action Relating to Debt	
110 Education	
120 Health	
130 Population Policies/Programs	
140 Water Supply and Sanitation	
151 Government and Civil Society	
160 Other Social Infrastructure and Services	
410 General Environmental Protection	
420 Women in Development	
430 Other Multi-sectoral	
920 Support to NGO's	
998 Unallocated/Unclassified	
323 Construction	
332 Tourism	

Source: OECD's Credit Reporting system (CRS)

3.6 MEASUREMENT OF VARIABLE

The variables of our models were measured as follows:

g_t represents average rate of growth of per capital GDP which shall be measured as,

$$\partial \log g_t = \partial \log \frac{GDP_t}{POP_t}$$

'aid_t' described the aid–to–GDP ratio, that is, the proportion of the GDP accounted for by aid. This can be expressed as,

$$aid_t = \frac{aid}{GDP}$$

'Volaid,' measures the volatility of aid as the deviation from the mean square of the aid-to-GDP ratio each year. For instance, let aid-to-GDP be denoted β_t

Thus, the deviation from the mean formula can be given as;

$$\sigma_t = \Sigma\left(\beta_t - \bar{\beta}\right)^2$$

CHAPTER FOUR

ANALYSES AND INTERPRETATION OF RESULTS

4.1 Introduction

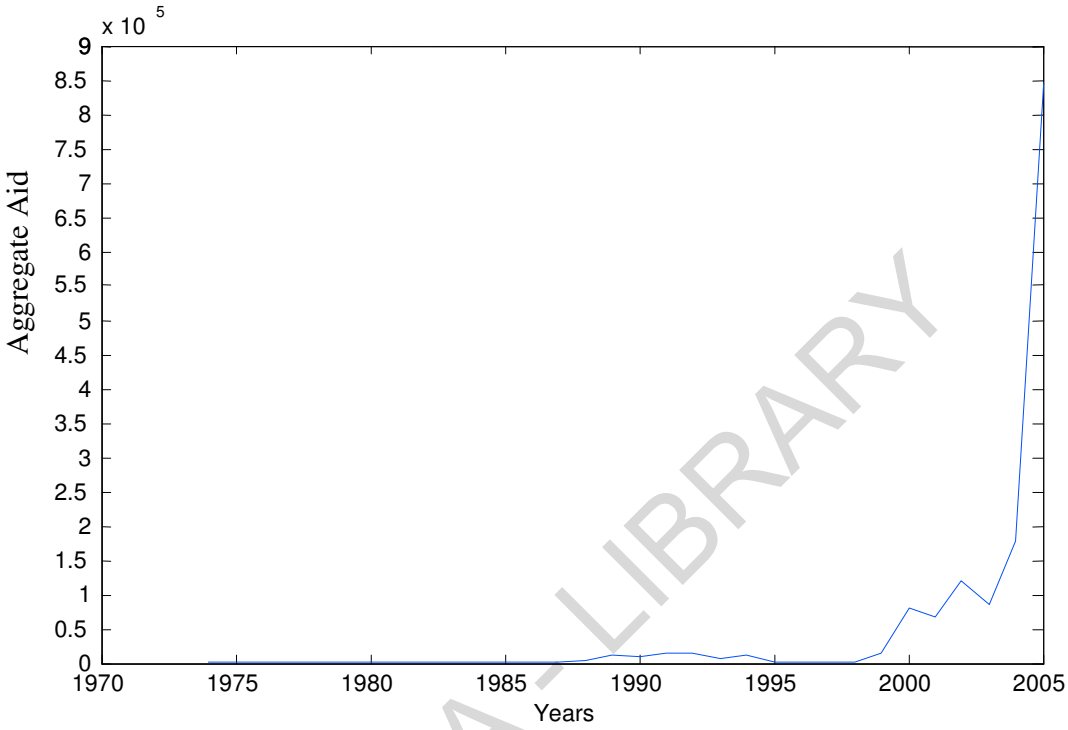
This chapter presents the model results and interpretations. The empirical analysis of the study was segmented into different sections base on the stated objectives of the study. Moreover, the sequencing of the various analyses was patterned according to the sequential order in which the objectives are stated in the chapter one of the study. On this note, we examined the trends of the various forms of aid flows, follow by the variability test (test of volatility, cyclicality and the stability character of aid flows), the analysis of the differential effects of productive and non-productive aid flows on growth and the Dutch disease effects of productive aid and non-productive aid flows.

4.2 Trends in Aid Flows

4.2.1 *Aid Flows*

This section of the study examines the trends in the various forms of aid flows as classified in this study. Figure 1 presents the aggregate aid flows into Nigeria for the period 1974 to 2005. Aid flows to Nigeria as shown on the graph had a consistence flow throughout the period. Although there were periods of meager inflows, yet we did not record a year of zero inflow which shows the level of consistency of the aid flows into Nigeria.

Figure 4.1: Aggregate Aid Flow

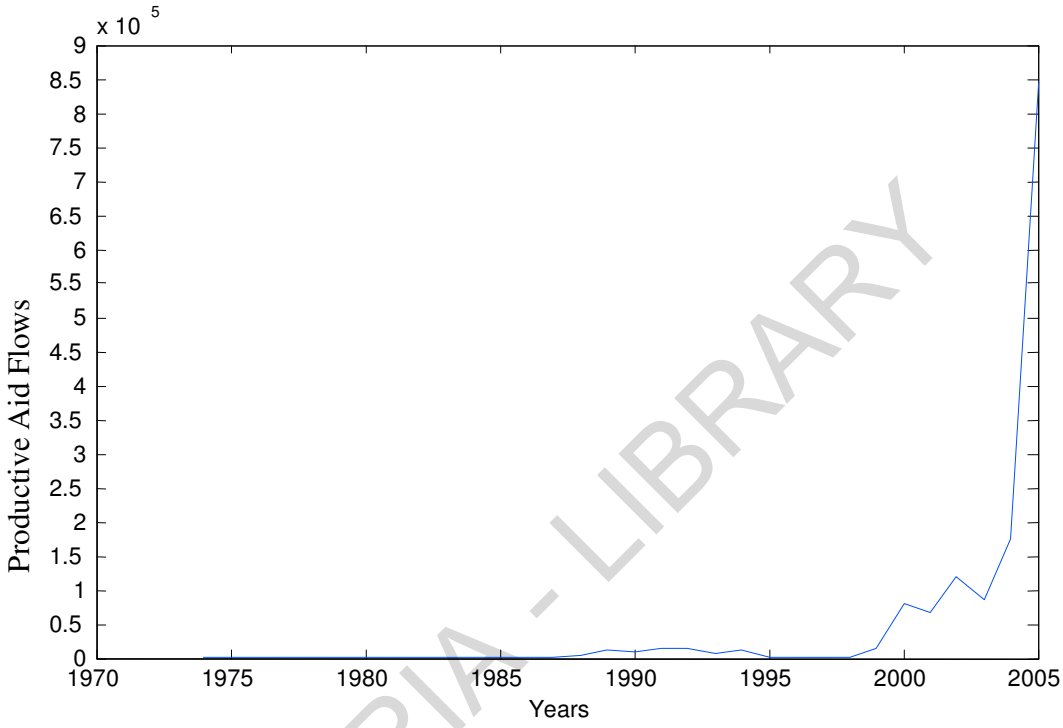


Source: OECD's Credit Reporting system (CRS)

The graph shows that the aggregate aid flows to Nigeria from 1974 to mid-1990s was quite low. This can be attributed to the discovery of crude oil in Nigeria in 1973 coupled with the military misrule that characterized the periods. Although, there was little rise in the level of aid inflows during 1986 to 1995 which coincided with the periods of the Structural Adjustment Program (SAP) reform, the reform attracted quite a number of donors who later withdrew when the reform collapsed. However, starting from 1998, Nigeria has been recording unprecedented increase in the level of aid inflows.

When the aggregate aid is disaggregated into productive and non-productive aid, the values obtained is as presented in figure 2 and figure 3.

Figure 4. 2: Productive Aid Flows

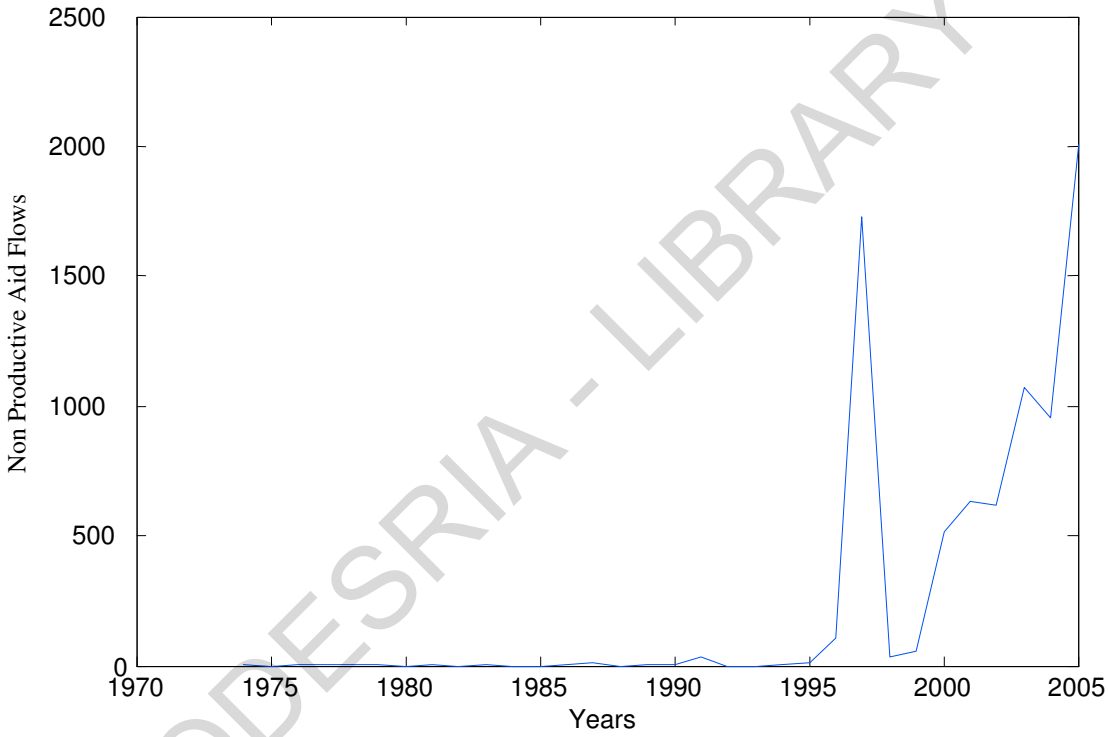


Source: OECD's Credit Reporting system (CRS)

Productive aid as shown on the above graph is symmetric to the aggregate aid both in trend and in swings which show that productive aid dominates the aggregate aid flows to Nigeria over those periods. In other word, the overwhelming proportions of the aid inflows to Nigeria over the years were productive aid, therefore the trend in the aggregate aid is the trend in the productive aid. However, non-productive aid as presented in figure 3 differs significantly both in trend and swings. The swings in the trend of the non-productive aid are more frequent and lengthier than that of productive aid which implies higher volatility. Besides, non-productive aid unlike productive aid has several

years of zero supply. All these characteristics of non-productive aid invariably confirmed that non-productive aid is an occasional aid flow which does not follow any regular pattern of disbursement. Rather, it comes when the need arises.

Figure 4. 3: Non-productive Aid Flows

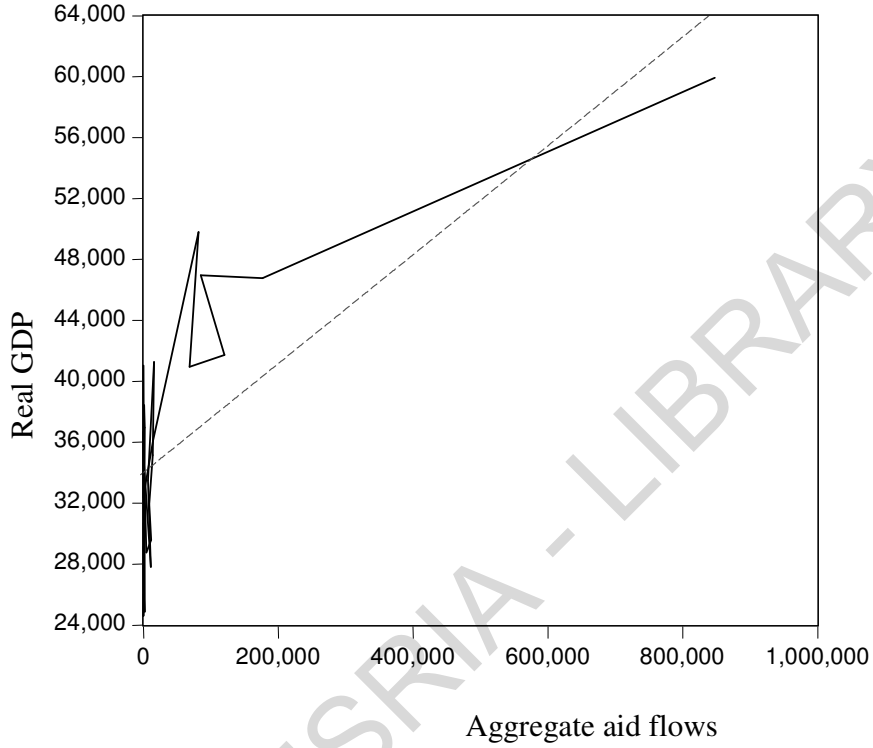


Source: OECD's Credit Reporting system (CRS)

4.2.2 Aid and the Real GDP

To examine the trends in the various aid flows in relation to the trend in Gross Domestic Product, we plot the GDP growth rate against the aid flows. In figure 4, the thick line represents the graph of the relation between the real GDP and aid, while the thin doted lines represent the regression line

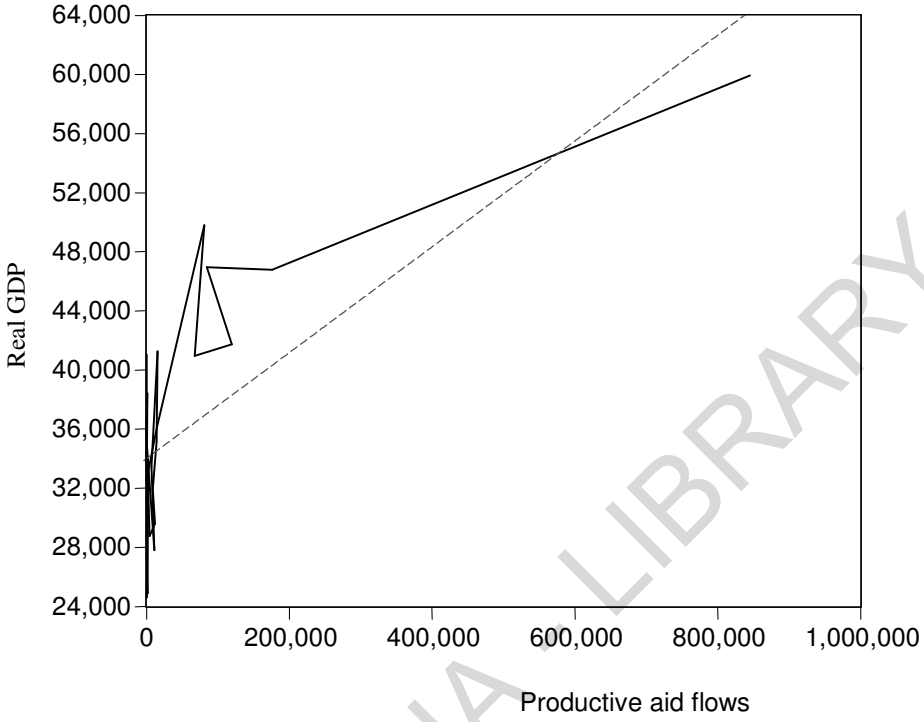
Figure 4. 4: Real Gross Domestic Product and Aggregate Aid



Source: OECD's Credit Reporting system (CRS)

The relationship between aggregate aid and the RGDP as shown in the above graph initially was zigzag in nature. But after a short while, it transformed to an upward slope straight line which revealed the direction of the coexistence between aid flows and the GDP. However, the graph of the productive aid and the real Gross Domestic Product in figure 5 shows the same pattern of trend with the graph of the aggregate aid and the RGDP.

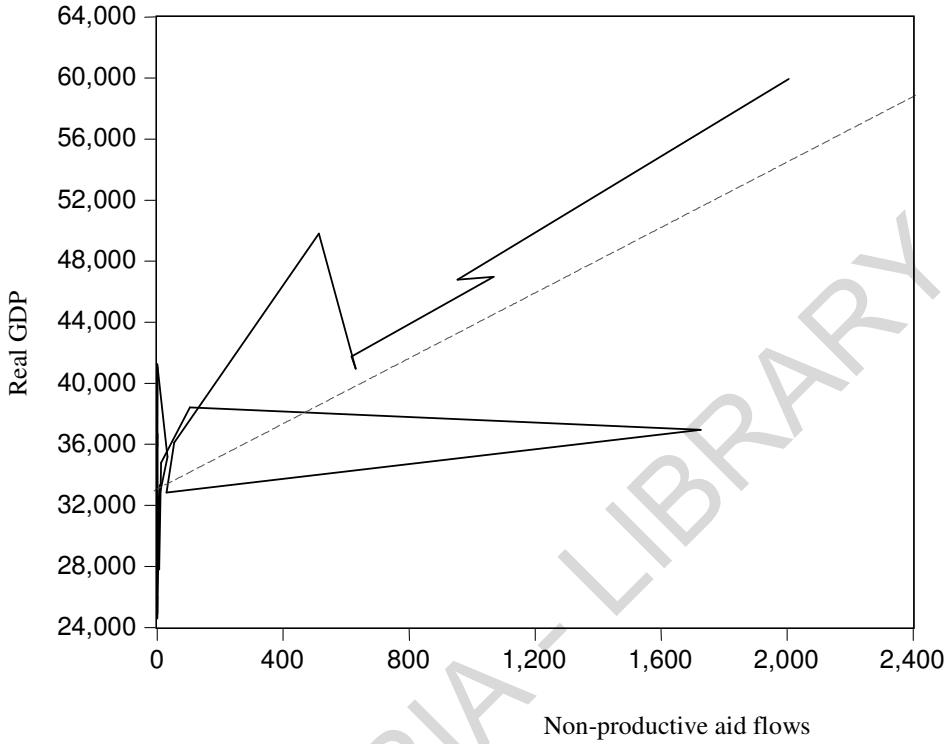
Figure 4.5: Real Gross Domestic Product and productive Aid



Source: OECD's Credit Reporting system (CRS)

The graph of the non-productive aid and the real Gross Domestic Product also revealed a positive trend between the GDP and the non-productive aid flows. though the graph is shapeless due to the supply nature of non-productive aid but the trend is obviously upward. The regression line is upward sloped but the gradient is lower relative to the gradient of productive aid's regression line. In other word, the magnitude of the positive relationship between non-productive aid and the GDP is lower relative to the magnitude of the relation between productive aid and the GDP

Figure 4.6: Real Gross Domestic Product and non-productive Aid



Source: OECD's Credit Reporting system (CRS)

4.3 THE VARIABILITY TEST OF AID FLOWS

4.3.1 Degree for Aid Volatility

Using the specified analytical technique as indicated in the study methodology, the degree of aid volatility in Nigeria is estimated at 0.82. This implies that aid flows to Nigeria are volatile. That is, disbursement of aid to Nigeria tends to fall short of donors'

commitments. A volatile aid flow reinforces consumption at the expense of investment. The resultant demand effect, therefore leads to increase in the prices of goods and services which deter growth. The result supports the finding by Bulir and Hamann (2003), that aid flows to developing countries are volatile.

4.3.2 Test of Aid Cyclicality

The cyclicality test revealed a positive value (0.723575) which implies pro-cyclicality. This implies that Nigeria receives more aid when the economy is booming than when it is otherwise. The major concern regarding aid cyclicality is centered on its stability effect. Since, both pro-cyclical and counter-cyclical aid flows can be stabilizing or destabilizing. However, counter-cyclical aid flow is preferred to pro-cyclical aid because pro-cyclical aid is prone to disability effects on the economy than counter-cyclical aid, due to the timing of pro-cyclical aid flows. That is, a pro-cyclical aid flow has a high tendency to distort growth due to its destabilizing effect which means a pro-cyclical aid is not a good gesture because it does not portend well for the economy. The result supports the studies by Bulir and Hamnn (2003, 2006), Arellano, Bulir, Lane and Lipschitz (2005); that aid flows are pro-cyclical in many countries.

4.3.3 Test for Stability of Aid Flows.

The result of our stability test is negative (-0.829156) which implies that aid flows to Nigeria are destabilizing. The stability character of an aid flow is the major parameter by which the effects of both the volatility and the cyclicality behaviours of aid flows on growth are being determined. However, this result has shown that the high volatility and the pro-cyclicality behaviours of aid flows in Nigeria as revealed in the preceding sections, hurt growth, and it is an indication of how erratic the supply of aid to Nigeria

has been. A destabilizing aid flow is undesirable because it undercut the welfare of the recipient, undermines the potential benefit of aid transfers and ridicules the efforts of the donors

4.4 Analysis of Productive and Non-Productive Aid Flows

Analysis of the differential effects of productive and non productive aid flows on growth is our focal point in this sub-section. However, for better clarifications on aid-growth nexus we shall also analyze the homogeneous effect of the aggregate aid flows.

Table 4.1: Result of the Homogenous Effect of Aid Flows

Variables	**coefficients**
$Loggdp_{t-1}$	0.05661*
	(3.079484)
Aid_t	0.999357*
	(6.079187)
$Volaid_t$	-0.323281**
	(2.356156)
R-square	0.519557
Adjusted R-square	0.466175
J-statistic	0.029315
Durbin-Watson stat.	1.874995

* shows significant at 1%, ** significant at 5% and *** significant at 10%, values in brackets are the t-values

The result, revealed a positive relationship between aid flows and the economic growth in Nigeria. In other word, the coefficient for aggregate aid variable is positive (0.999357), and it is significant at one percent level. The coefficient for the volatility of the aggregate aid is negative (-0.323281), and significant at five percent level. The model is good fit with R^2 of fifty-one percent (51%), The Hansen's J-statistic confirms the validity of the instrument set at 5% level for the regressions. This means that aid transfer

is growth enhancing in Nigeria. However, the potential benefit obtainable from the aid flows can be lost to its volatility, because the volatility hurt growth. This result supports the finding for Nigeria by Durdarry, Gemmell and Greenaway, (1998).

The heterogeneous effects of aid flows on growth are examined by investigating the differential effects of productive and non productive aid on growth. The results of the analyses are as follows;

Table 4.2: Result of the Heterogeneous Effects of Aid Flows

Variables	**Coefficients**
$Logrgdp_{t-1}$	0.394312**
	(2.435497)
$Proaid_t$	1.55E-05***
	(1.604845)
$Nproaid_t$	0.004602*
	(5.444726)
$Vnproaid_t$	-2.198247*
	(4.716696)
$Vproaid_t$	-0.660275
	(0.592334)
DEM	-0.376532**
	(1.926068)
OPN	1.674022***
	(1.524040)
CS	-0.003585*
	(3.394913)
HC	0.012058
	(0.093033)
R-squared	0.526987
J-statistic	0.065017
Adjusted R-squared	0.324267

* shows significant at 1%, ** significant at 5% and *** significant at 10%, values in brackets are the t-values

The coefficient of productive aid variable is positive (0.000016), while the coefficient of non productive aid is also positive (0.004602). Both are statistically significant, productive aid at ten percent level and non-productive aid at one percent level. The volatility of productive aid is negative (-0.660275), and the volatility of nonproductive aid is also negative (-2.198247), the volatility of non-productive aid is significant but the volatility of productive aid is not statistically significant. The model is good fit with R^2 of 52 percent. The Hansen's J-statistic confirms the validity of the instrument set at 10% level for the regressions. The result implies that both productive and non-productive aid enhance growth in Nigeria because they boost investment and reinforces the provision of infrastructural facilities and other growth enhancing public projects that promote growth and development. The result contradicts the proposition of our theoretical framework that envisage that productive aid promotes growth while non-productive aid deterred growth because in the analysis both aid flows promote growth in Nigeria. However, both the productive aid and the non-productive aid volatilities dampen growth due to the adverse effects of aid volatility on investment (the shock of volatility is felt on investment due to consumption smoothing) and the planning efforts of the government.

These results contradict the finding by Neanidis and Varvarigos (2005), in a panel study of seventy-two aid recipients where they found productive aid flows to be positively related to growth while non-productive is negatively related to growth. But in Nigeria, this study shows that both aid flows are positively related to growth. Moreover, in Nigeria, non-productive aid flows account for very insignificant proportion of the aggregate aid flows and the little non-productive aid flows come when it is needed to take

care of urgent needs. Therefore, non-productive aid is not substantial in size, to the level that could generate damaging demand effect on the economy. So, in Nigeria, non-productive aid does not exert negative effect on growth as postulated in some studies for some other countries.

Two of our growth variables are wrongly signed which are democracy and capital stock. Democracy is negative to growth in Nigeria according to our result which contradicts the result of most studies on democracy; however, why it is so in Nigeria is not far fetched because democracy in Nigeria is still under formation. In which case, all the institutional factors that supposed to enable the democratic process impact positively on growth are not yet in place. So, our democracy in Nigeria is not yet on any positive link to the economy. Francisco L. Rivera-Batiz (2007) said, *democracy is a key determinant of growth but only in so far as it is associated with improved governance. As our theoretical model implies, the key influence of democracy on growth is through its effects in raising the quality of governance in the economy, which is then closely linked to greater factor productivity growth.* So, this shows that without good governance there is no how democracy can have impact on the economy. Human capital variable is positively signed which means that it's favourable to growth, the result supports the study by Gomanee, Girma and Morrissey (2005).

4.5 Analysis of the Dutch Disease Effects

Analysis of the Dutch disease effect of aid flows was done in two folds namely; the homogenous Dutch disease effect of aid flows and the heterogeneous Dutch disease effects of aid flows.

Table 4.3: Result of the Homogenous Dutch Disease Effect of Aid Flows

Variable	**Coefficient**
$LREER_{t-1}$	0.538938^{*}
	(2.791386)
Aid_t	0.028041^{***}
	(1.705089)
R-squared	0.538825
Adjusted R-squared	0.504663
Durbin-Watson stat	1.258607
J-statistic	0.033311

* shows significant at 1%, ** significant at 5% and *** significant at 10%,
values in brackets are the t-values

The homogenous effect of aid flows on the real effective exchange rate revealed a positive relationship between aid flow and the real effective exchange rate. In other word, the coefficient of the aggregate aid variable is positive (0.028041) and significant. The model has good fit with R^2 of 51 percent. This means that aid inflow to Nigeria does not engender Dutch disease.

The analysis of the differential effects of productive and non-productive aid on the real effective exchange rate therefore yields the results as follows.

Table 4.4: Result of the Heterogeneous Dutch Disease Effects of Aid Flows

Variables	**Coefficient**
REER(-1)	0.443230*
	(5.180597)
PRV	-2.04E-06
	(0.963546)
NPRV	-0.000462***
	(1.779848)
TOT	1.427042*
	(2.229775)
OPN	2.186283*
	(2.772311)
GDP	0.007043***
	(1.982981)
GCF	-0.002283*
	(2.671458)
R-squared	0.534026
Adjusted R-squared	0.392207
Durbin-Watson stat	1.582860
J-statistic	0.056138

* shows significant at 1%, ** significant at 5% and *** significant at 10%, values in brackets are the t-values

The coefficient of the non-productive aid variable is negative (-0.0002.04), and the coefficient of the productive aid variable is also negative (-0.000462), but productive aid coefficient is not significant while that of non-productive aid is significant. This result implies that aid inflows in Nigeria engender Dutch disease effect in the economy. Put differently, both aid flows generates Dutch disease problem due to their demand effect. In other word, aid flows increases the demand for non-tradable goods which in turn leads to increase in the prices of non-tradable goods. The resultant higher profit realised by the producers of non-tradable goods enables them to offer higher wages and interest to the

workers and the capitals employed in the tradable sector and consequently drain resources from tradable sector to the non-tradable sector. As a corollary, export will fall due to the resultant higher domestic prices and loss of competitiveness, which imply the Dutch disease problem.

The coefficient of openness, GDP and the term of trade in this study are positive and significant. This implies that trade liberalization and productivity growth do not lead to the appreciation of the real effective exchange rate in Nigeria. The capital flows variable is negatively signed which implies that capital flows lead to appreciation of the exchange rate as a result of it overwhelming demand shock.

4.6 policy implication

The graphical representation of the various forms of aid flows revealed among other things that the underlying trend in the aggregate aid is symmetric to the trend in the productive aid flows. This shows that aid flows to Nigeria over the years have been predominantly productive aid. However, both productive and non-productive aid flows shared positively trend with GDP. The variability tests showed that aid is being disbursed to Nigeria in a destabilizing manner. In other word, aid is volatile, pro-cyclical and destabilizing which are all growth deterrent features of aid flow, because instability makes growth less. The analysis of the differential effects of productive and non-productive aid flows in Nigeria revealed positive relationship between the two classifications of aid flows and growth. In other word Nigeria can utilize both productive and non-productive aid flows. However, the result of the differential effects of both aid flows volatility showed that both productive aid and non-productive aid volatility

deterred growth in Nigeria. This implies that Nigeria can utilize future aid flows because aid flows promote growth but measures must be put in place to counter the effects of aid volatility on the economy because the attendant instability does not portend well for the economy.

Our Dutch disease analysis shows that aid flows both productive and non-productive lead to appreciation of exchange rate in Nigeria. This shows that the economic managers should be sensitive to the macro-economic environment so as to know the right time to absorb or spend the aid income received which is the direct policy implication of the Dutch disease menace. In other word, Dutch disease problem of aid flows basically required that aid incomes should be spent under control because it shows that aid income can not be absorbed into the economy indiscriminately otherwise it will result in damaging effect on the economy. But a careful study of the macro-economic environment will reveal the appropriate time to absorb such aid income.

However, the potential benefits of aid flows accruable to the economy can be maximized if the variability of the aid flows is regulated to minimize the loss of gains to instability. Put differently, Nigeria can utilize aid transfers provided it is carefully handled and the variability is controlled. Field and Mavrotas (2005) argued that; "volatility in sector aid, which is designed to promote investment in physical and human capital, is more likely to be detrimental to long term economic and social development".

CHAPTER FIVE

Summary, Policy Recommendations and Conclusion

5.1 Summary

This study examined the effect of aid transfers on growth in Nigeria. Aid was disaggregated into productive and non-productive aid flows, the trends in the disbursement of productive and non-productive aid flows in Nigeria was examined. The degree of aid volatility was also measured and the cyclicality of aid inflow with growth was determined. In addition, the stability character of aid inflows was determined while the effects of productive and non-productive aid flows on growth was analyzed and the Dutch disease effects of productive and non-productive aid flows in Nigeria was equally examined.

The study use descriptive techniques to analyze the trends in aid flows, while ARCH and GARCH (1,1) technique was used to estimate the degree of aid volatility, correlation techniques were used to analyze cyclicality and the stability characters of aid flows and finally, Generalized Method of Moment (GMM) was used to estimate the empirical models of the study.

The study is made up of five chapters. Chapter one introduces the subject matter of the study and chapter two contained the literature review. In the first part of literature review, we reviewed the theoretical literature and in the second part empirical literature was reviewed. The methodology of the study is presented in chapter three. Chapter four contains the empirical analysis, interpretation and the policy implications of results while chapter five contains summary, policy recommendation and the conclusion of the study.

The results revealed that aid inflows to Nigeria are volatile, pro-cyclical and destabilizing. The analysis of the differential effect of productive and non-productive aid flows on growth revealed that both productive and non-productive aid flows are growth enhancing in Nigeria. In the same vein, the analysis of the Dutch disease effects of productive and non-productive aid flows revealed that the productive aid and the non-productive aid flows engender Dutch disease.

5.2 POLICY RECOMMENDATIONS

This study seeks to determine the factors conditioning aid effectiveness in a developing economy like Nigeria. However, the study revealed that both productive and non-productive aid flows promote growth in Nigeria. But potential gain from aid flows are being loss to instability of aid flows and the ditches effects of the aid on the economy. So, it follows that aid inflows are beneficial to growth in Nigeria if they are utilized properly. Concerning, the variability of aid flows. The following are the measures we can use to minimize the negative shocks of aid variability on the economy.

One, the government should be conservative in planning by leaving some cushion of international reserves to serve as shock absorber in case of any negative shock or shortfall in aid. This will enhance smooth implementation of development projects and plans in pursuit of growth and development in the country.

Two, government could adjust spending plans in response to aid receivable that materialized. In other word, aid should not be factored into our plans as source of financing while preparing a plan rather all plans should be based on domestic finance so

that whatever becomes of the aid promised will not be of any serious negative effect on the implementation of our plans and actualization of our goals.

Furthermore, concerning the Dutch disease effects of aid flows, we should be cautious about the spending and absorption of aid received. We run into dutch disease problem when aid receive is not utilize with adequate understanding of the state of the macroeconomic environment of the economy. It is not in all situations that aid received can be absorbed without it resulting in some damaging effects on the economy. Put differently, when the macroeconomic environment is not conducive for aid absorption (that is when absorption can result in a destabilizing effect on the economy), such aid received can be diverted to foreign reserves tentatively till when it is convenient to spend or absorb such.

Finally, donors too have their roles to play in ensuring aid effectiveness in recipient economies. Donors can help by delivering more reliably on their aid commitments and eschewing unnecessary conditional ties. The burning issues of volatility and cyclicality which jointly determine the stability character of the aid flows can be best control through sincerity of purpose and mutual understanding between the donors and the recipients to mitigate aid variability and make aid works. In other word, if aid is delivered at the right time by the donors and the recipient utilize it well (productively), going by the result of this study such aid flow will work.

5.3 Conclusion

This study have examined the aid-growth nexus from various perspectives such as the empirical analysis of the homogenous effects of aid flows on growth, the

heterogeneous effects of aid flows through the differential effects of productive and non-productive aid on growth, the Dutch disease effects of productive and non-productive aid and the variability of aid flows which cuts across volatility, cyclicality and stability of aid flows.

Using data on Nigeria aid flows from 1974 to 2005. The study improves upon earlier works in some important areas by disaggregating aid flows into productive and non-productive aid to examines the effects of productive and non-productive aid on growth, focused on the Nigeria economy as a country specific study to prevent loss of details and facts to parameter invariance which often occur in cross country studies and we also examined the Dutch disease effects of productive and non-productive aid .

We found that both productive and non-productive aid flows are positively correlated to growth in Nigeria. But the volatility of both productive and non-productive aid flows are growth deterrent. Aid flows to Nigeria are volatile, pro-cyclical and destabilizing. However, the negative effect of the instability of aid flows on the economy is not a sufficient ground to condemn the use of aid flows in Nigeria because the growth analyses revealed positive relationship between aid flows and growth which means the variability does not offset the potential benefits of aid productivity. Besides, if the policies recommended are adopted to buffer the economy against the shock of the volatility, the dutch disease menace and the resultant destabilizing effect, the country will spent and absorb future aid inflows with full benefits. Thus, Nigeria can utilize aid transfers.

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