Foreign Aid and Economic Growth in Sub Saharan Africa

A Dissertation

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by

Tamara Chilinkhwambe

CHLTAM001

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Supervisor: Abdul Latif Alhassan (Ph.D.)

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ABSTRACT

This paper seeks to examine the relationship between foreign aid and economic growth in Sub Saharan Africa (SSA). The study is based on a sample of 21 'low income countries' as defined by The World Bank, and used data covering a 25 year period from 1991 to 2015. The variables in the study are; growth measured by Gross Domestic Product (GDP) per capita as a dependent variable, foreign aid which is represented by Net Official Development Assistance (NODA); macroeconomic variables are trade openness, government capital formation and labour force. The study seeks to answer the question: Does foreign aid contribute to economic growth? The study explores the hypothesis that foreign aid does not promote economic growth in Sub Saharan Africa.

To empirically investigate the hypothesis, the approach taken was similar to that of Durbarry, Gemmell, & Greenaway (1998) by employing panel data techniques and cross-section methods and utilized the augmented Fischer-Easterly type model. Similar to Durbarry, Gemmell, & Greenaway (1998), the study sought to identify not only aid effects on growth using a set of conditioned macroeconomic policy variables, but also to test the significance of this set when aid is included as one of the determinants of economic growth. Given that the study employed panel data, the Hausman Chi-Square test was utilized to determine whether to use fixed effects or random effects model. The results favoured fixed effects over random effects hence the model was adopted for empirical analysis.

The study finds macroeconomic policy variables (gross capital formation and labour force) have a positive impact on economic growth, and trade openness has a negative impact as measured by annual GDP growth. These results support the theory which argues for the important role labour and capital play in the economic growth of a country. The results also show that foreign aid has a weak positive correlation to growth. These results are significant at 5% error level hence the hypothesis is rejected and it is concluded that foreign aid promotes economic growth in Sub Saharan Africa.

Further analysis of time effects test suggest that being in a specific time period has got an impact on growth in Sub Saharan Africa and country effects results indicate that being in a specific country does not have effects on economic of the growth of the country.

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LIST OF ABBREVIATIONS

Sustainable Development Goals	SDGs
Development Assistance Committee	DAC
Gross National Income	GNI
Official Development Assistance	ODA
Sub- Saharan Africa	SSA
Gross Domestic Product	GDP
Net Official Development Aid	NODA
Least Developed Countries	LDC
International Bank for Reconstruction and Development	IBRD
International Development Association	IDA
Economic Commission for Africa	ECA
Organization for Economic Corporation and Development	OECD
African Development Bank	ADB

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Chapter One:
Introduction

1.0 Background of the Study

The effect of foreign aid on the economic growth processes of developing countries cannot be overemphasized. There has been substantial debate, both at international and local level. Foreign aid has become an important subject given its perceived implications that it has an impact on economic growth. Previous studies on foreign aid and economic growth have produced mixed empirical evidence (Ekanayake & Chatrna, 2010). Some studies have found evidence of positive impact on economic growth. For example, Askarov and Doucouliagos (2015), Burnside and Dollar (2000), Njoupouognigni and Ndambendia (2010), Mekasha and Tarp (2013), Galiani, Knack, Xu, & Zou (2017), Arndt, Jones, and Tarp (2015). Others on the other hand such as Mallik (2008), found a negative long run effect on economic growth in most of the six poorest African countries, namely Central African Republic, Malawi, Mali, Sierra Leone and Togo. Even though Burnside and Dollar (2000) found a positive impact on economic growth, the conclusion was conditional on good macroeconomic policies. This conclusion resulted in donor countries allocating aid to countries with good policies even when countries with poor policies need aid the most.

This study aims to investigate the relationship between foreign aid and economic growth in the Sub Saharan African region. Aid is given for different purposes. The principal economic rationale is to promote economic growth in the recipient countries. New strategies and initiatives are continually being employed to mobilize resources that can be channeled towards supporting economic activities and programs in various sectors of the economy. Despite the increase in aid flow, the gap between the developed countries and developing Sub Saharan countries is still widening. Poverty is on the rise. People are living under the poverty datum line in most of the Sub Saharan region. The effects of foreign aid on economic growth remain inconclusive.

1.1 What is Foreign Aid?

Foreign aid is assistance given by one nation to another. It is categorized as either Official Assistance or Unofficial Assistance. Aid can be offered in different forms such as emergency, humanitarian, technical assistance, construction of economic infrastructural development or provision of social services like education, sanitation or improved health care to mention but a few.

1.2 Official Assistance

Official Assistance also known as Official Development Assistance (ODA) is aid flow provided by Development Assistance Committee (DAC) member states of the Organization for Economic Cooperation and Development (OECD). It is normally provided by one or more governments to another government or governments. The main purpose is to promote economic development and general standard of living in developing countries. The financing mechanisms of ODA are through loans or grants. The grant element of ODA is assistance advanced to the recipient government that is not expected to be repaid. Loans are expected to be repaid, but they are structured in a way such that the interest rate given is below what the market offers. A loan also comes with a long repayment period so as to ease the pressure that comes with quick repayment periods. The grant is the most used mechanism by which DAC members channel aid to recipient countries, accounting for 90% of ODA provided by DAC members (Keeley, 2012). Currently, there are 30 DAC members. These include USA, Australia, United Kingdom, New Zealand, Sweden, Spain, Portugal, France, Italy, Sweden, Finland and Germany. DAC members have committed to disburse 0.7% of their gross national income (GNI) towards ODA.

Official assistance may also be provided by countries that are non DAC members, collectively known as ‘new development partners’ (Keeley, 2012). These countries include the emerging economies like China, India, Brazil and other countries from the Arab world.

1.2.0 Unofficial Assistance

The other leg of aid is categorized as unofficial assistance. This is aid flow from High Net Worth Individuals (HNWI) and Non-Governmental organizations such as Oxfarm

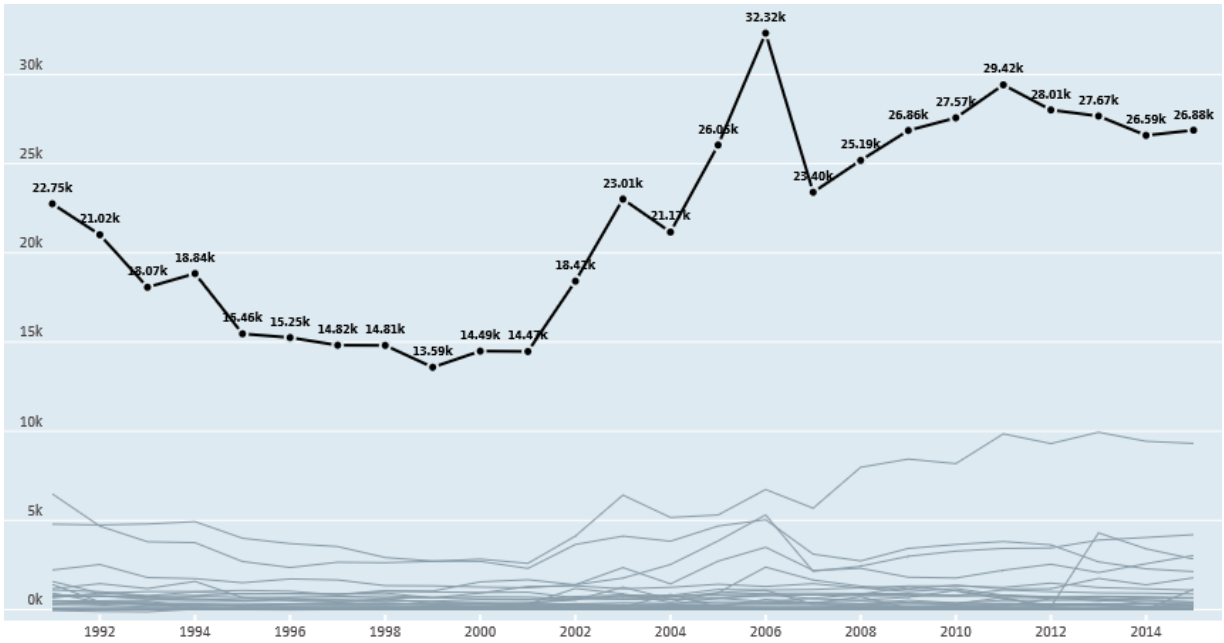
International. Like ODA, the objective of unofficial aid is to promote economic development work in the developing countries.

While unofficial assistance is smaller in amount and cannot be tracked easily, ODA forms a larger component of aid. It is estimated that between 1995 and 1998, ODA accounted for 82% of total aid flows to developing countries. The amount went down to approximately 61% between 2005 and 2008 (Keeley, 2012). ODA is also easily tracked and it can be relied upon as it is measured by statistical agencies of governments and the OECD. It is for these reasons that the foreign aid considered in this study is Official Development Assistance (ODA).

1.2.1 General Trends of Net ODA to Africa 1991-2015

Figure 1 shows trends in net official development aid to Africa. Since 1991, there has been a gradual decrease in aid volumes to the continent. The lowest recorded is in 1999 at USD13 billion, a drop of almost 45% compared to 1991 (USD22 billion). There was a clear upward trend thereafter, peaking at USD 23 billion in 2003. This was an increase of almost 43% from 1999. There was a temporary drop in the following year, followed by a sharp rise to USD32 billion in 2006. This was an increase of approximately 34% from 2004. Subsequently, there was a steep drop to USD 23 billion in 2007 due to the effect of the world economic crisis. Thereafter there has been a steady rise, up to USD 29 billion in 2011 followed by a slight decrease to USD 26 billion in 2015.

Figure 1: Distribution of net ODA to Africa, Million US dollars, 1991 – 2015



Source: OECD (2017), Distribution of net ODA (indicator).

According to Hjertholm and White (2000) the decline in aid flows in the 1990s was compounded by two notable changes. Firstly, there was disappearance of Eastern Europe and the countries of the former Soviet Union as aid donors, re-emerging as recipients. Secondly, donors had concerns about governance issues in recipient governments. It is also cited that the pressure on the national budgets of DAC members which had been operating on a large fiscal deficit (e.g. Italy, Finland and Sweden) contributed to the decline in aid flow.

1.3 The problem statement

The topic for this study is foreign aid and economic growth in Sub Saharan Africa. It seeks to investigate the impact of aid as a form of capital on economic growth in the low income countries.

In the last 60 years there has been substantial economic growth mainly in the formerly poor Asian countries such as India and South Korea. The same can also be said of China. These countries have grown at a rate much faster than the rest of the world (Aghion & Howitt, 2009).

What have these countries adopted or implemented that most of the poor Sub Saharan countries have not? Could it be because of limiting geographical location or the absence of strong institutions in the latter? Could it be because of lack of political leadership and subsequent corruption that leverage on it? Could it be because of lack of skills in the area of foreign aid management that Sub Saharan African countries are lagging behind despite accounting for substantial amounts of aid.

1.4 Research Objective and Hypothesis

Foreign aid is not a new phenomenon. Many studies on aid and growth have sought to establish whether aid has achieved its main objective of promoting economic growth and the welfare of developing countries. It is therefore necessary to further investigate the relationship between foreign aid and economic growth. This study therefore seeks to achieve the following objective:

- To establish the relationship between aid and economic growth in Sub Saharan Africa

The following null hypothesis will be tested:

- Foreign aid does not promote economic growth in Sub Saharan Africa.

1.5 Justification of the study

Foreign aid remains an important subject. Donors have spent substantial amounts as aid to Sub Saharan African countries and the trend is set to continue. The common objective is to promote growth in developing countries. This study therefore seeks to establish whether decades of aid flow has managed to achieve the intended objective.

The social economic challenges facing the traditional donor countries have impacted on their ability to maintain their aid commitments. This has led to more questions being asked about whether the underlying objective of the aid is being achieved or not. It is for this reason that a study on this topic is undertaken.

This study attempts to contribute to the existing body of knowledge on the effects of foreign aid on economic growth in Sub Saharan Africa. This will be achieved through an analysis of 21 low income countries from SSA, and will use more recent data over a longer time period.

The outcome of this research will provide answers that can influence economic policy formulation by aid recipient countries. The findings will also provide better knowledge to donor countries of how best to structure the aid funding.

1.6 Organization of the rest of the study

Previous sections of this chapter presented the background of the study so as to gain a better understanding of the type of aid that is being referred to in this study and the general trends of foreign aid in Sub Saharan Africa. The chapter also introduced questions to be answered by the empirical analysis, detailed the objectives of the study and outlined the research hypothesis. Last but not least, the chapter also presented the rationale and significance of the research to the existing body of knowledge and its impact on policy making.

The rest of the study will continue as follows: Chapter Two presents the literature review. The aim of this chapter is to provide a theoretical understanding of the topic, so that readers are able to grasp the latter part of the study. Following this section is Chapter Three which presents and discusses the methodology used in the study. This chapter defines the research methods and techniques that have been employed to empirically test the research hypothesis. Chapter Four presents the results of the empirical analysis and also provides interpretation thereof. Chapter Five provides the summary and conclusion of the study, as well as policy recommendations.

Chapter Two:

Literature review

2.0 Introduction

Chapter 1 presented the foundation of the study by discussing the background of the research, problem statement and research questions. It also presented the objectives of the research, the hypothesis to be tested, and the contribution the study will make to the existing empirical body of knowledge.

This section presents the literature review on the topic under study. The chapter will be presented in three parts. Firstly, the study will look at the history of foreign aid into Africa. The second part presents the theoretical review of foreign aid and economic growth so as to get an understanding of how aid impacts growth. The third section presents an empirical review on the aid and growth relationship as well as an appraisal of the recent research on the topic.

2.1 History of Foreign Aid

Foreign aid history can be traced back to the 19th century (Roland-holst & Tarp, 2002). Before the 1960s, colonial powers played a big role in the provision of aid to developing countries; but a more structured approach to aid provision began after the Second World War. As a result of the war, Europe faced a critical shortage of capital to fund reconstruction (Hjertholm & White, 2000). The critical need for capital by the war torn countries resulted into the establishment of The International Bank for Reconstruction and Development (IBRD) at the Bretton Wood Conference in 1944. Its mandate was to provide financial assistance for the reconstruction and economic development of less developed countries. During the time, IBRD paid little attention to poor countries, until the formation of the Economic Commission for Africa (ECA) in 1958, which was followed by the establishment of the International Development Association (IDA) in 1960. The ECA and IDA's main purpose was to direct resources to the poorest countries on soft terms (Hjertholm & White, 2000).

Other organizations that have played a major role in aid provision in Africa are the African Development Bank (ADB) formed in 1964, and the Development Assistance Committee (DAC) of the OECD.

Rather than exclusively focusing on promoting economic growth as was the case in the 1950s, there has been an increased focus on income distribution, employment, and poverty alleviation as these seem to be essential objectives of development aid (Roland-holst & Tarp, 2002) .

2.2 Aid and Economic Growth: A Theoretical Perspective

This part of the literature review presents a theoretical perspective on foreign aid and economic growth so as to help the reader understand how foreign aid potentially impacts on economic growth. The following are the leading growth paradigms which will be discussed in the section to follow;

(i) The Gap Model
(ii) The neoclassical growth models,
(iii) The AK Model,
(iv) Product variety models, and
(v) The Schumpeterian model.

2.2.0 Two Gap Growth models

Gap growth theories dominated the first generation of empirical studies between the 1950s and 1970s. The model is comprised of two components, hence the name two gap model (Mcmillan, 2011). One component is the relationship between growth and investment. Under this component the level of economic growth attained is assumed to have been linked to the level of investment. In order for the economy to achieve the desired level of growth, there is a certain level of investment that is required.The other component of the model is the relationship between savings and growth. The model stresses the importance of savings and investment as key determinants of growth. Growth would then be achieved by increasing the level of savings and investment.

According to Mcmillan (2011), gaps will occur when the level of investment is lower than the desired level to enable the economy achieve its targeted growth. These gaps are said to be savings/investment or trade gaps. If there are insufficient domestically generated savings to fill the financing gap, foreign aid inflows will then be needed to help the economy to grow much faster than it would have grown when completely relying on internally generated resources.

One of the criticisms surrounding the gap model is the assumption that investment is the only determinant of growth (Mcmillan, 2011). There are other determinants of growth such as technology, research and development, and education. The model also assumes that all aid inflows are treated as investments (Mcmillan, 2011). In reality not all aid inflows are invested by recipient governments. Some of the aid may be used for consumption as investment might not be considered a priority. This can be a common occurrence, especially in the poor countries that heavily rely on aid.

However, despite the levelled criticisms, defenders of the gap model argue that the model is transparent, flexible and ideal for examining a large number of countries (Mcmillan, 2011).

2.2.1 Neoclassical growth theory

The primary reference in growth economics remains the neoclassical growth models (Aghion and Howitt, 2009). Neoclassical growth theory argues that the economy converges to a steady-state growth path regardless of the initial savings rate. All long-run growth beyond the steady –state is explained by the progress of an exogenously technological process.

The model shows that if there were no technological developments, the effects of diminishing returns would eventually cause economic growth to cease. Beyond the point of diminishing returns, each additional unit of capital would yield fewer and fewer returns. Technological improvement is the exogenous factor that causes further growth and not the increases in capital.

The building block of neoclassical growth theory is the aggregate production function with constant returns to labour (L) and capital (K). The aggregate production function as a

function of capital K can be written as $Y = F(K)$, where Y is output and K is capital (Aghion & Howitt, 2009). This shows how much output (Y) can be produced from the aggregate capital stock, given the available techniques, knowledge, capital and labour. Capital accumulation is assumed to be the only driver of growth. Eventually capital accumulation will have diminishing returns to growth. Thus, if capital continues to increase, with a fixed amount of labour supply, the economy will eventually reach a point where there will be no increase in growth because the additional capital employed becomes redundant. Aggregated production is set to have diminishing returns to capital and labour. Technological improvements will increase production beyond the diminishing returns.

2.2.2 Endogenous growth theories

Economic growth is a two way interaction process involving technology and economic life (Aghion & Howitt, 2009). Technological innovations transform economic systems that created it; and human beings create technological innovations in an attempt to solve production problems and create a better way of doing things. Endogenous growth theories hence seek to understand the interplay between technology and the characteristics of the economy and how much such interaction results in economic growth (Aghion & Howitt, 2009). Endogenous growth models essentially provide ways of handling endogenous technological change and innovation within a dynamic general equilibrium setting (Aghion & Howitt, 2009). This facilitates flexible models that incorporate the vision of economic life as a continuous innovation and change that is brought about by competition. The AK model, Product Variety and Schumpeterian model form part of the endogenous growth models and are discussed below.

2.2.3 The AK Model

An earlier approach to endogenous growth theory is the AK model. The model stipulates that technology is intellectual capital which can be lumped together with other forms of capital into a single aggregate K (Aghion & Howitt, 2009). Unlike the neoclassical theory, the AK approach does not make a distinction between technology progress and the accumulation of capital. The model assumes that since technology is part of the aggregate capital accumulation, and technology progress raises the marginal product of capital, there will be no

diminishing returns, because the very entity that causes diminishing returns (that is technology) is part of the aggregated capital. This results in a production function Y= AK, where marginal product of capital is the constant A.

According to the AK growth approach, the way to maintain economic growth is by saving a large fraction of GDP that will eventually be used to finance technological innovations to counteract diminishing returns caused by lack of technological progress. The AK approach becomes useful when formulating government policies from an aggregate perspective (Aghion & Howitt, 2009).

The criticisms of the AK model are mostly centered on the limited empirical support of the assumption that there are no diminishing marginal returns of capital. Such criticisms are a challenge to counter because capital is viewed as an aggregate, including human capital and other intangible capital which are difficult to measure (McGrattan, 1998).

While neoclassical growth theories treat technology as an external factor to increase growth beyond the point of diminishing returns, AK growth models do not treat technology advancement as an external factor in the growth process, and hence assume no diminishing returns.

2.2.4 The Product-Variety Model

The Product –Variety Model forms the second wave of endogenous growth theory following the inability of AK models to produce a satisfying model of long run growth (Aghion & Howitt, 2009). This model is based on two parallel branches of innovation growth models. One of the branches is the product-variety model. This branch assumes that innovation is the driver of productivity growth as it enables the creation of new varieties of products.

The production function for the Product Variety Model can be expressed as $Y_t = N_t^{1-\alpha} K_t^{\alpha}$ (Aghion & Howitt, 2009) where N_t represents the varieties of intermediate products produced by K_t units of capital. The aggregate capital stock K_t will be divided up among the N_t existing varieties equally. According to this function, the degree of product variety N_t is the economy's aggregate productivity parameter, and its growth rate is the economy's long-run growth rate of per capita output (Aghion & Howitt, 2009). The variety of products

increases the economy's production potential as an environment is created that allows more products to be created with different uses, but each is confronted with diminishing returns over time. In this instance, growth is sustained by the availability of a variety of products. This type of growth is normally achieved by entrepreneurs who invest in research and development and are motivated by monopolistic market dominance should they succeed.

The product-variety model can be utilized in a number of scenarios where the importance of competition and turnover considerations are insignificant.

The other branch developed by Aghion and Howitt (2009) emanates from the modern industrial organization theory which is commonly referred to as "Schumpeterian". Its focus is on innovations that improve quality and render old products obsolete.

2.2.5 The Schumpeterian Model

The Schumpeterian model is another form of endogenous growth theory. The model is based on the assumption that growth is as a result of continuous innovation (Aghion & Howitt, 2009). The Schumpeterian model is commonly referred to as '*creative distruction'* because it focuses on quality improvement innovations that render old products obsolete by replacing them with new innovations (Aghion & Howitt, 2009). There are three main ideas that form the Schumpeterian model (Aghion, Akcigit, & Howitt, 2015). These are: (i) growth generated by innovations; (ii) innovations resulting from investments by entrepreneurs that are motivated by prospects of securing monopoly rents and (iii) old technology that becomes obsolete due to new technology (creative destruction).

The Schumpeterian growth theory begins with a production function specified at the industry level (Aghion & Howitt, 2009):

$$Y_{it} = A_{it}^{1-\alpha} K_{it}^{\alpha} \quad 0 < \alpha < 1$$

where *Ait* is a productivity parameter which is connected to the most recent technology used in industry *i* at time *t.* The *Kit* represents the flow of a unique intermediate product used in the sector, (Aghion & Howitt, 2009). The total output is the result of all industry specific output *Yit*. The most recent innovator exclusively produces and sells each intermediate

product. An innovator who has been successful in sector *i* will improve the parameter of technology *Ait* and hence has the ability to replace the old products in that sector, until such a time that it is also displaced by the next innovator. The Schumpeterian paradigm implies that there will be faster growth as the new innovators displace the old players. Further, due to the excitement the market has over the new products, there will be an increase in turnover.

From the reviewed growth theories, the main difference between the new models and the early growth "gap" models when applied to the impact of aid on growth is that, the new growth models allow for long run growth effects while earlier models allow for temporary growth effects. Also, early growth theories focused on savings and capital productivity as key determinants of growth, while new growth theories tend to focus on the importance of human capital and technology as main determinants of growth (Morrissey, 2001).

In summary, the main objective of ODA as defined in Chapter One is to promote economic growth. Aid is intended to finance investment that will in turn boost economic growth. Therefore, the different roles aid plays in the various growth theories and models include increasing investment in both physical and human capital, increasing the capacity to import technological innovations and capital goods and the transfer of technology which in turn increases productivity of capital and promotes endogenous technical change (Morrissey, 2001).

2.3 Theory of Aid and Economic growth

The general agreement is that the principal changes that can help transform the poor economies include increase in human skills, rise in the investment and saving levels, productive technology, substantial change in composition of output and development of new institutions, etc (Chenery & Strout, 1966). A country must generate sufficient domestic resources or through imports and exports, to finance all these requirements. Additionally, simultaneous success is thus required in human skills, domestically generated savings and earnings derived from exports, as well as optimal allocation of the resources in order to achieve growth. However, bottlenecks and constraints exist in the poor countries resulting in underutilization of resources such as labour or natural resources. These in turn limit growth. Foreign aid can help relieve these constraints or bottlenecks by making it possible to fully use domestic resources and hence accelerate growth (Chenery & Strout, 1966). Aid becomes a

source of additional resources which help to bridge the gap between domestic developmental needs and available domestically generated resources. By providing these additional resources, foreign aid is supposed to help accelerate the development process which in return will eliminate the long–term need for future aid transfers (Campbell, 1999).

2.4 Empirical Literature Review

This section proceeds with an overview of aid and growth from the perspective of two schools of thought, namely, Anti-aid and Pro-aid. It also presents empirical literature review on the aid / growth relationship, a review on some of the ground breaking studies and recent literature. It then proceeds by providing a conclusion based on the reviewed literature.

2.4.0 Overview

Questions surrounding the effectiveness of foreign aid in promoting economic growth date back to the 1950s. Aid critics Friedman and Bauer as cited by Mcmillan (2011) have called for an end to aid, claiming that foreign aid has increased the power of the elite in the recipient governments, which has resulted in corruption that has hindered economic growth. They argue that aid has no positive effect on economic growth but instead hurts the economies. Similar views are shared by Moyo (2009) who believes that foreign aid has done more harm than good to the continent of Africa. According to Moyo, aid has trapped African countries in a cycle of corruption, poverty and slow economic growth. Moyo (2009) suggests that cutting off aid would be far more beneficial for the continent as this will force the countries to use domestic resources to finance investment projects such as issuing of bonds.

On the other hand, pro-aid supporters maintain the view that anti -aid school of thought is partially incorrect. Aid can spur economic growth but its effectiveness decreases as the level of aid flow into the economy decreases (Mcmillan, 2011). They argue that foreign aid helps to increase productivity through improved health, education, knowledge transfer and technology from rich countries to poor countries. They also argue that foreign aid increases economic growth by augmenting domestic savings, financing investments, and is an addition to capital stock. Countries like Korea, Taiwan, Indonesia, Uganda and Mozambique are often cited as successful aid recipients.

2.4.1 Foreign aid and economic growth

A large number of empirical studies have been carried out examining the relationship between aid and economic growth. This requires a comprehensive review. Due to time and the scope of this study, a comprehensive review is not possible. Instead this section will focus on the work of few selected authors as discussed below.

A study by Ekanayake and Chatrna (2010) analyses the effects of foreign aid on the economic growth of developing countries. The study was based on 85 developing countries covering Asia, Africa, Latin America and the Caribbean. The authors used data covering the period 1980 to 2007. The hypothesis explored was that foreign aid can promote growth in developing countries. To test the hypothesis, they used panel data series for foreign aid, while accounting for regional differences as well as the differences in income levels. The results indicated that foreign aid has mixed effects on economic growth in developing countries. This conclusion was arrived at due to different results from different estimations. For instance, once the model was estimated for different time periods, the aid variable showed a negative correlation with growth in most of the cases in developing countries. When the model was estimated for different regions, foreign aid appeared to have a negative effect on growth, but showed a positive effect in African countries. Further, when estimated for different income levels, the aid variable appeared to have a positive effect on growth in developing countries but showed negative effect in low-middle income countries.

Upon reviewing the wealth of existing literature on aid and growth, Andrews (2009) and Mcmillan (2011) found insufficient evidence suggesting that decades of pouring foreign aid to poor African countries has changed their destinies. According to Andrews, people have fundamental belief systems and practices that influence their perceptions of what development should entail, and if these factors are ignored, one cannot have a holistic understanding of the dynamics of aid, politics and socio-economic development. He goes on to say that the internal dynamics of the aid recipient countries is more likely to influence the outcome of whether aid contributes to the sustainable socio-economic development or not.

Confusion continued on the effectiveness of foreign aid on economic growth. After decades of receiving development assistance poor conditions still prevail in Africa. Income per capita

has either stagnated or even declined. A study by Mallik (2008) examined the effectiveness of foreign aid for economic growth in the six poorest countries in Sub Saharan Africa, highly dependent on aid. The study was based on the Central African Republic, Malawi, Mali, Niger, Sierra Leone and Togo. For most of these countries Mallik (2008) found a negative long run effect of aid on economic growth. One possible explanation is that due to high poverty levels in the poor countries, more aid is directed towards humanitarian needs and social welfare such as basic education, basic health and other social services, instead of investment in energy, transportation, and communication, etc., that are essential in fueling economic growth. This results in most Sub-Saharan countries being continually dependent on aid and binding themselves into debt traps.

Moreira's (2005) empirical results are contrary to the findings of the authors discussed earlier. His study focused on assessing the impact of aid on the economic growth of the developing countries. Following an examination of a large panel data set, Moreira (2005) finds a positive impact of aid on economic growth. The author finds less effect in the short-run than in the long-run.

A study by Durbarry, Gemmell, and Greenaway (1998) examined the impact of foreign aid on growth on a large sample of 68 developing countries, using data from 1970 to 1993. The authors examined the relationship by augmenting two endogenous growth models of Fischer-Easterly and Barro model, and employing both cross-section and panel data techniques. The results of this investigation strongly support the view that foreign aid positively impacts economic growth and the positive results are conditional on environments with stable macroeconomic policy in the aid recipient country. However, the results showed that, to really effect growth, there is an optimal amount of aid allocation to a country. Low amounts of aid do not generate faster growth, and high ratios of aid/GDP also result in slower economic growth. The optimal ratio of aid/GDP was found to be around 40-45%. Sub Saharan Africa was yielding a value of 42% which is within the optimal ratio.

Zeb and Stengos (2010) re-examined the impact of foreign aid on economic growth by examining 42 countries, covering the period 1970-2000. They employed the threshold regression approach to empirically test whether there is a threshold in economic policies of a country above which aid's impact on growth changes. The authors found no evidence

indicating aid works better in good policy or geographical environments. However, they found strong evidence suggesting that large amounts of aid play an important role in spurring growth in the recipient countries.

A study by Doucouliagos and Paldam (2009) used meta-analysis covering 68 papers containing a total of 543 direct estimates, and found that the effect of aid on growth estimates scatter considerably and add up to a small positive, but insignificant, effect on growth. According to Doucouliagos and Paldam (2009), the part that foreign aid plays in stimulating economic growth is to act as a supplement to domestically generated resources such as savings so as to increase the amount of investment and capital stock.

Following decades of mixed findings on the aid/growth relationship, research has emerged focusing on conditions that make aid effective. The new wave of studies was partly sparked by the findings of Burnside and Dollar (2000) that aid works in good policy environments. This implied that, to achieve the economic objective of aid, donors should target low income countries with sound economic policies. Burnside and Dollar (2000) investigated a new hypothesis about foreign aid, that it affects growth, and that its impact is conditional to policies that affect growth. To empirically investigate the hypothesis, the authors used a new effective development assistance (EDA) database on foreign aid developed by The World Bank. Effective Development Assistance is defined as the sum of grants and grant equivalents of official loans whereas ODA as discussed in Chapter 1, includes both direct grants and concessional loans for which the grant element is above 25%. The study was based on a sample of 56 developing countries, and growth regression was estimated using four–year time periods, from 1970 to 1993. Unlike previous studies on the aid-growth relationship, the main innovation of the study was the introduction of policies in the aid/ growth equation. They constructed an index of policies, interacting with foreign aid, and instruments for both aid and aid interacted with policies. Macro-economic policies included fiscal, monetary and trade policies. Budget surplus was the measure for fiscal policy. Monetary policy was measured by inflation, and trade policy was measured by trade openness. Institutional/political variables included ethnic fractionalization, assassinations and broad money supply.

From the results of the empirical estimation, Burnside and Dollar (2000) found that the policies that have a large effect on growth are fiscal surplus, inflation, and trade openness. Their argument was based on the neoclassical growth theories which they used to expand the model to include aid as a variable. They found that aid has a positive impact on growth in developing countries with good fiscal, monetary, and trade policies. They argued that in the presence of poor policies aid has no positive effect on growth. This result was robust in a variety of specifications that included or excluded middle-income countries, included or excluded outliers, and in specifications that treated policies as exogenous or endogenous.

Following the influential paper by Burnside and Dollar (2000), other empirical studies followed to re-examine the link between foreign aid and economic growth. For example, Dalgaard and Hansen (2000) reassessed the results of Burnside and Dollar (2000) using the same data set. The authors found that the impact of aid on economic growth in good policy environments was not robust. While good economic policies may spur growth, at the same time, they may lead to decreasing the effectiveness of foreign aid. Dalgaard and Hansen analyzed the growth regressions of Burnside and Dollar (2000) using standard regression diagnostics. The purpose was to investigate whether the differing of the results was due to differences in data or differences in the modelling strategies. They concluded that the econometric results in the Burnside and Dollar (2000) study stressing the role of interactions between aid and good policies in the growth process are weak and extremely dependent on data.

Easterly, Levine, and Roodman (2003) assessed the link between aid, policy and growth to re-examine whether aid influences growth in the presence of good policies. The authors extended Burnside and Dollar's data time limit from 1993 to 1997, and also increased the sample size from 56 countries and 275 firm-year observations, to 62 countries and 356 firm-year observations. They maintained Burnside and Dollar’s specifications and methodology used. The authors adopted the Hadi method at a significance level of 0.05 to identify and eliminate outliers as the new data was being added into the regression. Adding new data created uncertainty about the conclusion by Burnside and Dollar that aid works in good policy environments. When the sample was extended to 1997, the authors found that aid no longer promoted growth in good policy environments. Similarly, when the Burnside and Dollar (2000) data was expanded by using the full set of data available over the original data

period, the authors still found that aid no longer promoted growth in good policy environments.

In another empirical study, Alvi, Mukherjee, & Shukralla (2008) assessed the importance of policy and foreign aid in generating economic growth especially when the aid, policy and growth relationship is nonlinear. The authors sought to determine if various aid-policy combinations can yield different returns to growth, and also to investigate if there is a meaningful pattern underlying aid-policy-growth. The authors found that policy is an important determinant of growth and aid does not work unless the policy is above a threshold. Reasonably good policies are therefore needed for foreign aid to be effective. The possible explanation is that good policies create a favourable environment ensuring that aid is used in the most efficient and effective way.

2.4.2 A Focus on Recent Studies between 2012-2016

This section of the literature review examines the findings of some of the most recent studies on the topic.

A study by Lessmann & Markwardt (2012) used panel data for 60 countries to examine the impact of aid on economic growth. The authors found that aid does contribute to economic growth in centralized developing economies and it is less effective or even harmful in decentralized countries. According to the authors, decentralization brings the government closer to the people on the ground. Officials at local level understand local needs better and hence they are able to provide an optimal mix of local policies. This results in increasing aid efficiency by selecting the most effective development projects.

In another study, Adams & Atsu (2014) examined the impact of foreign aid on economic growth in Ghana for the period 1970-2011. Using Autoregressive Distributed Lag (ARDL), the authors found that foreign aid has a positive effect on growth in the short run, but the effect was negative in the long run. According to the authors, the short run positive effect may be explained as due to inflow of aid that adds to the initial level of output.

Juselius, Møller, & Tarp (2014) conducted a study aiming to provide a broad and statistically founded picture on the effect of aid on macro economy of 36 SSA countries. In 27 of 36 SSA countries, foreign aid had a significant positive impact on either GDP or investment, or both. The findings suggest that aid has had a long run positive impact on GDP and investment in the majority of cases. And there is almost no support for aid having a negative effect on growth and investment.

Using a dynamic spatial framework, Nwaogu & Ryan (2015) examined the effect of foreign aid, foreign direct investment and remittances on economic growth of the developing countries of Africa, Latin America and the Caribbean. The results showed that foreign aid and FDI have a statistically significant contribution to economic growth in Africa.

A study by Abouraia (2014) recognizes that developing countries have continuously depended on foreign assistance to improve economic development. The authors carried out a study to establish the impact of foreign aid on the economic growth in the Philippines. The study was guided by three objectives which included identifying the types and forms of foreign aid in the Philippines; identifying the costs and benefits of foreign aid to the Philippines, and establishing the factors affecting foreign aid effectiveness. The study was also guided by the public choice and the public interest theory and also included empirical literature on the effectiveness of foreign aid. The authors employed the linear regression model for analysis. All the variables in the regression were significant at the 0.05 or 0.01 level, except for social aid. The coefficient of ODA per capita had a positive impact on GDP growth as was expected. According to the author, the system of allocating aid that is currently used tends to encourage developing countries to maintain their savings rate lower so that they can receive more foreign aid and this is not good for developing countries. Donors should give governments in the developing countries incentives that encourage increased savings by cutting unproductive government consumption. Incentives should also be given to encourage governments to eliminate corruption and implement effective policies. The study concluded that donor countries should reward governments by increasing aid if they increase their savings to GDP ratios, lower corruption, and implement good monetary, fiscal or trade policies.

2.5 Conclusion

Chapter 2 presented a theoretical and empirical review on the impact of aid on economic growth. From the theoretical review it can be concluded that capital plays a crucial role in economic development. It is also evident from the empirical review that there is no consensus regarding the contribution of foreign aid as a form of capital for economic growth. The controversy continues even as a new wave of research emerges focusing on how to make aid effective. This brings back the fundamental questions of this study: What is the role of aid to economic growth? How effective is aid to the development of backward economies?

The next chapter will present the methodology employed to help answer the questions raised in this thesis.

Chapter 3:
Methodology

3.0 Introduction

This chapter discusses the methodology used to empirically test the hypothesis. It also presents the data source, study sample and describes the variables that have been incorporated into the model. The empirical work seeks to answer the key question: What is the relationship between foreign aid and economic growth in the Sub Saharan countries?

In the empirical analysis, an augmented Fischer-Easterly growth model employed by Durbarry et al., (1998) was closely followed so as to simultaneously incorporate aid and macroeconomic policies. This allows the identification of not only the growth effects of aid using an established conditioning set of policy variables, but also the assessment of the robustness of this set to the inclusion of aid (Durbarry et al., 1998).

3.1 Empirical model

This study employed panel data techniques. An advantage of panel data techniques is that it contains "the information necessary to deal with both the intertemporal dynamics and the individuality of the entities being investigated," (Dielman, 1983). It allows the equation intercepts to vary as a way of representing country and/or time effects where these effects "are typically thought to arise from the omission of important variables whose explicit inclusion in the model was not possible" (ibid. p.49) (Durbarry et al., 1998). A modified general representation of Durbarry et al., (1998) model is:

$$Y_{it} = \mu_i + \beta X_{it} + \gamma Z_{it} + \varepsilon_{it} \quad (1)$$

where *t* denotes time, and where *i* denotes for country 1, 2,…21. Equation 2 can be rewritten as:

$$Y_{it} = \alpha_0 + \alpha_i + \lambda_t + \beta X_{it} + \gamma Z_{it} + \varepsilon_{it} \quad (2)$$

where α_0 is an overall constant, α_i represents the country effects (unexplained variations in the model) and it represents the time period effects. These represent non-measurable effects: for instance, α_i represents the net effect of omitted time-invariant variables such as political

instability, military governments, climatic conditions, etc., and λ_t represents the net effect of country invariant time effects such as world commodity prices or interest rates. Hence ε_{it} represents the net effect of omitted variables which vary over both country and time. Equation 2 is a two-way fixed effects model, usually estimated using dummy variables (hence, least squares dummy variables, LSDV) (Durbarry et al., 1998).

Due to missing of information in some periods the data has been averaged into four time periods: 1991-1997, 1998-2004, 2005-2011, 2012-2015, (i.e. t = 1… 4).

3.2 Description of variables

The panel data captures five variables. As noted earlier, the need for control of macroeconomic stability/instability and policy distortions is increasingly being recognized. The following are the variables used in the augmented Fischer-Easterly model. For a full definition of each variable, refer to Appendix 4.

Dependent Variable:

- **Growth:** Growth is the dependent variable and it is captured as annual percentage GDP growth rate.

Independent Variables:

- **NODA:** The study uses Net Official Development Assistance (NODA) received per capita to proxy foreign aid.
- **GCF:** Gross capital formation is presented as a percentage of GDP
- **Trade openness**: Trade openness is the extent to which a country permits trade with other countries. In this study, trade is captured as a percentage of GDP to represent trade openness.
- **Labour force**: Labour force is presented as the total labour force, comprising people of ages 15years and older.

The variables representing macroeconomic policy variables are government capital formation (GCF), trade openness and labour force.

The augmented Fischer-Easterly model to be estimated is given as follows:

$$Growth_{i,t} = \alpha_0 + \beta_1 NODA_{i,t} + \beta_2 GCF_{i,t} + \beta_3 Labourforce_{i,t} + \beta_4 Tradeopeness_{i,t} + \varepsilon_{i,t}$$

Similar to Durbarry (1998), the motivation for this model was to control for the macroeconomic policies and factors discussed above, which might be correlated with growth and omission of which might bias estimates of the effects of inflows on growth. In discussing results, the focus is not on interpreting the control variables, even though it is important to identify whether the model was appropriately specified.

3.3 Data and Sample

The empirical model that has been presented above was estimated by examining 21 low income countries from Sub Saharan Africa covering the period from 1991 to 2015. Sub Saharan Africa was the focus of the study because the region has accounted for a high percentage of ODA. The source of data was The World Bank. The data was analyzed using the Stata software version 14. In regard to the countries included, the focus on 21 countries in the SSA region was for specific reasons; some countries, for example South Sudan, did not have enough data and some countries such as South Africa were excluded to eliminate outliers. The list of countries is provided in Table 1.

Table 1: List of countries covered in the study

Burkina Faso	Mali
Burundi	Mozambique
Central Africa Rep	Niger
Chad	Rwanda
Comoros	Senegal
Congo, Dem Rep	Sierra Leon
Gambia	Tanzania
Guinea	Togo
Guinea-Bissau	Uganda
Madagascar	Zimbabwe
Malawi	

3.4 Estimation Approach

To test whether to use Pooled vs. Fixed Effects /Random Effect model, the LM test was used. Under the LM test, the null hypothesis was there were no variations among the data set as we moved along the time periods. The alternative hypothesis was that there were variations in the data set as we moved along the time periods. Since the data was varying based on the time periods, the study ignored the Pooled model and opted for either Random Effects or Fixed Effects.

Given that panel data was employed to carry out the study, it was necessary to determine whether to use fixed effects or random effects model by carrying out a Hausman test. The Hausman test results favoured fixed effects model over the random effects. After choosing the Fixed Effects, there were other model specific tests which were run, that is, the F-test (Pesaran test) to determine the significance of the period coefficients on the Fixed Effects model.

3.5 Limitations of the Study

The major limitation for the study was the issue of data. Some of the countries included were not keeping up to date records of their data. Some computations were done by the researcher to come up with variables.

3.6 Conclusion

This chapter presented the empirical model for examining data from 21 sampled countries. The chapter also discussed variables employed in the regression, data sources, and limitations of the study. The next chapter will present and discuss the results as derived from the methodology.

Chapter 4:
Discussion of Results

4.0 Introduction

The previous chapter presented the empirical model and discussed variables employed in the regression analysis. This section will begin by presenting results from descriptive statistics, followed by multicollinearity tests, regression analysis, country specific effects, and the time specific effects.

4.1 Descriptive Statistics

Before making inferences from data, it is important that all variables are examined. The analysis is done in order to identify mistakes, to observe patterns in the data, to find violations of statistical assumptions and to generate hypotheses. The major characteristics of a variable are distribution, central tendency and dispersion. Descriptive statistics therefore provide useful insights for each variable; the mean, median, maximum value, minimum value, standard deviation, skewness, kurtosis, Jarque-Bera statistic and its associated value. While the mean is the measure of central tendency, Standard deviation (Std.Dev.) measures on average how far spread out the values are from the mean. Minimum (Min) and maximum (Max) indicates the smallest and the largest values in the data set.

The descriptive statistics results in Table 2 generally suggest that data series for all the variables; Growth per capita, Labour force, Trade openness, Gross capital formation and Net Official Development Aid are spread out over a wider range of values as evidenced by the mean and standard deviation. NODA data are widely spread with a mean value of 50.0858 and standard deviation of 24.9453. This may be explained by aid volatility. Countries have fallen back on their aid commitments due to donor fatigue caused by the global economic crisis affecting traditional aid donors to Sub Saharan Africa (Museru, Toerien, & Gossel, 2014). It could also be due to responding to crises such as natural disasters as is often the case in the low income countries. Further reasons could be political status, governance and macroeconomic performance of the recipient country (Markandya, Ponczek, & Yi, 2011).

Table 2. Descriptive Statistics

Variable	Obs	M e a n	Std. Dev.	Min	Max
NODA	550	50.0858	24.9453	2.832705	156.5816
GDPGrowth	550	3.67638	6.31262	-50.2481	35.22408
GrossCapit~n	550	18.1927	8.62162	-2.42436	60.15617
Laborforce	550	5550380	5423524	123330	2.91E+07
TradeOpenn~s	550	56.2999	18.0999	20.43712	126.3508

4.2 Tests for Multicollinearity

In a regression model there is a need for the independent variables not to be correlated.

The Multicollinearity test is therefore carried out to determine whether the independent variables in the model are related to each other. A correlation coefficient of less than 0.5 is considered weak, while more than 0.5 may be considered strong.

The results from the correlation test in Table 3 show satisfactory weak dependency amongst the variables with almost all correlation coefficients below 0.70. The results indicate that the insignificant dependency amongst variables does not have much impact on the results. Based on these satisfactory correlation results, no further tests for multicollinearity were carried out.

Table 3. Correlation Matrix

	GDPG	NODA	LABORFORCE	GCF	Trade Openness
GDPG	1.00	0.42	0.56	0.60	0.47
NODA	0.42	1.00	0.45	0.39	0.52
LABORFORCE	0.56	0.45	1.00	0.55	0.48
GCF	0.60	0.39	0.55	1.00	0.40
Trade Openness	0.47	0.52	0.48	0.40	1.00

4.3 Regression Results

The results of the augmented Fischer-Easterly type model during the period 1991-2015 are presented in Table 4. The model generally performed well such that 57% of the variations in the dependent variable (growth) are explained by the independent variables.

The Pooled, Fixed Effects and random effects techniques were employed to estimate the regression equations. The results of the Hausmann Chi-Square test statistic (19.54) as shown in Appendix 1 fail in the rejection region on the Chi-square statistical distribution at a two-way error level of 0.01 (p-value = 0.0002 is less than 0.01). Based on these results the null hypothesis is rejected and the conclusion is that there is a relationship between unexplained

variations and the independent variable. Therefore, the fixed effects model is preferred over the random effects model, hence the discussion of the results focuses on fixed effects.

From the Fixed effects model in Table 4, the coefficients of macroeconomic variables (gross capital formation (GCF), labour force) are positive and significant at 5% error level (the p-values are less than error level of 0.05). Since the coefficients are positive, this means a unit increase in either Gross Capital Formation or Labour force leads to an increase in GDP growth.

The results of foreign aid (NODA) also suggest a positive but insignificant correlation with GDP growth. A unit increase of per capita net official development assistance will cause a negligible increase in annual percentage GDP growth by 0.000478. The results are statistically significant with a p- value of 0.0142 at 5%, suggesting that foreign aid has an impact on growth. This result is also supported by Askarov and Doucouliagos (2015), and Gomanee, Girma, and Morrissey (2002) who found a positive impact of aid on growth. One possible explanation for the positive relationship is that aid adds to physical capital stock of the recipient country which in turn positively contributes to the production capacity of the recipient economy and enhances economic growth (Tekin, 2012).

Trade Openness has a negative coefficient. This means a unit increase in Trade Openness leads to 0.0326 decrease in GDP growth. The results are contrary to the findings of Dao (2014) that trade liberalization has a significant impact on economic growth. According to the author, the key channel through which trade openness leads to growth is productivity growth. As countries liberalize trade and improve on research and development, over time they can evolve to producing products or services with high profit margins and achieve gains through comparative advantage. Trade openness can also speed up growth in the developing countries through accessing a larger pool of global human capital which is in short supply in the domestic market. Despite the argument supporting free trade, it should be noted that industries in the developing countries are still at an infant stage. They still need protection from foreign competition to survive.

Table 4. Regression results

VARIABLES	Pooled GDPGrowth	FE GDPGrowth	RE GDPGrowth
GrossCapitalFormation	0.217***	0.150***	0.217***
	(0.0337)	(0.0417)	(0.0337)
Laborforce	6.96e-08	5.50e-07***	6.96e-08
	(4.98e-08)	(1.82e-07)	(4.98e-08)
TradeOpenness	-0.0188	-0.0326	-0.0188
	(0.0153)	(0.0251)	(0.0153)
NODA	0.0122	0.000478	0.0122
	(0.0109)	(0.0142)	(0.0109)
Constant	-0.208	-0.285	-0.208
	(1.016)	(1.262)	(1.016)
R-squared		0.57	
Hausman χ^2		19.46***	
Countries	21	21	21
Observations χ^2	550	550	550

*Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1*

4.4 Country Specific Effects

The results from Table 5 indicate that most countries do not have specific effects on economic growth, and for the few countries such as Tanzania, Madagascar and Zimbabwe, the country specific effects/ impact is negative. This is explained as: being in a specific country in the SSA region might have an influence on economic growth, implying that growth in some instances depends on the country one is in.

Table 5: Country Specific Effects

VARIABLES	GDPGrowth
GrossCapitalFormation	0.150***
	(0.0417)
Laborforce	5.50e-07***
	(1.82e-07)
TradeOpenness	-0.0326
	(0.0251)
NODA	0.000478
	(0.0142)
Burkina Faso	-1.164
Burundi	-3.134*
Central Africa Rep	-2.026
Chad	1.599
Comoros	0.210
Congo, Dem Rep	-11.48***
Gambia	1.146
Guinea	-1.060
Guinea-Bissau	0.141
Madagascar	-4.322**
Malawi	-0.601
Mozambique	-0.350
Niger	-1.334
Rwanda	0.847
Senegal	-0.395
Sierra Leon	0.341
Tanzania	-8.079**
Togo	0.510
Uganda	-2.795
Zimbabwe	-3.277*
Mali	0.132
Constant	1.310
Observations	550
R-squared	0.147

*** p<0.01, ** p<0.05, * p<0.1

4.5 Time Specific Effects

After running the country effects on the panel data, time specific effects tests were also regressed to determine whether being in a specific period has an impact on growth. The results are tabulated below:

Table: 6 Time Specific Effects

VARIABLES	GDPGrowth
GrossCapitalFormation	0.156***
	(0.0413)
Laborforce	4.88e-07**
	(2.36e-07)
TradeOpenness	-0.0333
	(0.0261)
NODA	0.0219
	(0.0161)
1992.Year	-4.370**
1993.Year	-2.419
1994.Year	-2.776
1995.Year	2.301
1996.Year	2.606
1997.Year	2.147
1998.Year	0.789
1999.Year	0.692
2000.Year	-0.0747
2001.Year	1.666
2002.Year	0.853
2003.Year	1.016
2004.Year	2.473
2005.Year	1.323
2006.Year	0.934
2007.Year	0.870
2008.Year	0.127
2009.Year	-0.881
2010.Year	1.117
2011.Year	0.0709
2012.Year	0.837
2013.Year	-1.499
2014.Year	-0.318
2015.Year	-2.221
	(2.015)
Constant	-1.302
	(1.987)
Observations	550
Number of Countrycode	22
R-squared	0.134

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

The results indicate that being in a specific time period (year) has an impact on the economic growth of the SSA region. That is to say from the above results, there are some years which are associated with economic growth hence during such years the region or the SSA countries experienced economic growth. As a follow up to the period effects tests we had to run the

period coefficient test using the Pesaran test (Appendix 2), which is an F-test with the null hypothesis that the period coefficients are insignificant. Using the results from the Pesaran test, we rejected the null hypothesis that the period coefficients are insignificant implying that the time periods are significant to economic growth of SSA countries.

4.6 Conclusion

This chapter presented and discussed the results of the empirical analysis of the study. Based on this empirical study, regression results suggest a positive but insignificant correlation between aid and growth. Other tests carried out included multicollinearity and specific effects, so as to help come up with a reliable conclusion.

The next chapter summarizes the study and also provides both the conclusion and recommendations.

Chapter 5:

Conclusion and Recommendations

5.0 Introduction

The previous chapter presented the results of the empirical analysis. This chapter begins by presenting a summary and conclusion on the relationship between foreign aid and economic growth, and then proceeds by presenting recommendations on policies, limitations and further research.

5.1 Summary and conclusion

The purpose of this study was to investigate the relationship between foreign aid and economic growth in Sub Saharan Africa. The main objective of the study was to establish the relationship between foreign aid and economic growth. The Augmented Fischer-Easterly growth model was employed to investigate the relationship.

Results suggest that macroeconomic variables (gross capital formation and labour force) do have a positive impact on economic growth. These results are in line with the theory which postulates the significance of labour and capital on economic growth and hence emphasizes on the importance of controlling appropriate policies when looking at the impact of foreign aid.

The results also show that foreign aid contributes to economic growth and the results are statistically significant at 5% significance level. Furthermore, they also show most countries do not have specific effects on economic growth. However, time specific effects results indicate that being in a specific time period has got an impact on economic growth in Sub Saharan Africa. The results also show the coefficient of aid being higher at 0.0219 as compared to 0.000478 on regression results and country effects.

5.2 Recommendations

5.2.0 Policy recommendations on findings

Policy lessons from the study include the need to create stable macroeconomic conditions, with complementary macroeconomic policies. This will eliminate most economic and social

problems in the SSA region which have resulted in much of the aid being humanitarian rather than development aid. This implies that Sub Saharan African countries should mobilize domestic resources to sustain their own development rather than relying on aid from other developed countries. Most of these countries are richly endowed with natural resources which they can exploit for their own growth. They should also embark on value addition and beneficiation of their raw materials and export them as finished products rather than rely on exporting raw materials. This can be evidenced by a country like Botswana which has managed its natural resources in a more defined way with its partners such that beneficiation of their raw materials (Diamonds) has been included in their model. This has resulted in progress in their economic growth.

5.2.1 Recommendations on the limitations and further research

One of the major limitations faced by the study as highlighted in chapter three was the issue of data. Even though the researcher used current data as developed by The World Bank, some countries were still not keeping up to date records of their data. Some computation was done by the researcher to come up with the variables.

Another issue was the use of aggregate foreign aid data. There are different types of aid packaged to tackle different challenges in the society. Economic development aid is part of the aggregated data. The use of aggregate data may affect the results of the study. Further research is therefore recommended that will use filtered data channeled to economic growth only.

In addition, the study used cross country regression to determine the effectiveness of aid on economic growth. It should be noted that each country is unique with different cultures, and different geographical location. Different factors can affect growth such as climate, civil wars, and land locked position, to mention but a few. Further country specific research is therefore advisable that will take into account generic differences that exist.

Recent research trends investigating conditions that can make aid effective is a way forward. However, based on the literature review and also the results of this study, further research is still recommended on the topic so as to firmly establish the relationship between aid and economic growth.

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Appendix

Appendix 1: Hausmann chi-square test

```
. hausman fixed

Note: the rank of the differenced variance matrix (3) does not equal the number of coefficients being tested (4); be sure
        this is what you expect, or there may be problems computing the test.  Examine the output of your estimators for
        anything unexpected and possibly consider scaling your variables so that the coefficients are on a similar scale.

                 ---- Coefficients ----
                |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
                |    fixed           .          Difference          S.E.
----------------+----------------------------------------------------------------
GrossCapit~n    |    .1496623      .217071      -.0674088        .0245983
  Laborforce    |    5.50e-07     6.96e-08       4.80e-07        1.75e-07
TradeOpenn~s    |   -.0326322    -.0188309      -.0138013        .0199509
        NODA    |    .0004785     .0121621      -.0116836         .009062
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(3) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       19.46
                Prob>chi2 =      0.0002
```

Appendix 2: Pesaran test

```
. xtcsd, pesaran abs


Pesaran's test of cross sectional independence =     4.870, Pr = 0.0000

Average absolute value of the off-diagonal elements =     0.181
```

Appendix 3: Testpan

```
. testparm i.Year

 ( 1)  1992.Year = 0
 ( 2)  1993.Year = 0
 ( 3)  1994.Year = 0
 ( 4)  1995.Year = 0
 ( 5)  1996.Year = 0
 ( 6)  1997.Year = 0
 ( 7)  1998.Year = 0
 ( 8)  1999.Year = 0
 ( 9)  2000.Year = 0
 (10)  2001.Year = 0
 (11)  2002.Year = 0
 (12)  2003.Year = 0
 (13)  2004.Year = 0
 (14)  2005.Year = 0
 (15)  2006.Year = 0
 (16)  2007.Year = 0
 (17)  2008.Year = 0
 (18)  2009.Year = 0
 (19)  2010.Year = 0
 (20)  2011.Year = 0
 (21)  2012.Year = 0
 (22)  2013.Year = 0
 (23)  2014.Year = 0
 (24)  2015.Year = 0

       F( 24,   500) =    1.85
            Prob > F =    0.0088
```

Appendix 4: Variable definitions

Variables used in the analysis

Variable	Representation	Definition	Source
GDP growth (annual %)	Growth	Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.	World Bank databank
Net ODA received per capita (current US$)	NODA	Net official development assistance (ODA) per capita consists of disbursements of loans made on concessional terms (net of repayments of principal) and grants by official agencies of the members of the Development Assistance Committee (DAC), by multilateral institutions, and by non-DAC countries to promote economic development and welfare in countries and territories in the DAC list of ODA recipients; and is	World Bank databank

		calculated by dividing net ODA received by the midyear population estimate. It includes loans with a grant element of at least 25 percent (calculated at a rate of discount of 10 percent).	
Gross capital formation (% of GDP)	GCF	Gross capital formation (formerly gross domestic investment) consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales, and "work in progress." According to the 1993 SNA, net acquisitions of valuables are also considered capital formation.	World Bank databank
Trade (% of	Trade openness	Trade is the sum of exports and	World Bank

GDP)		imports of goods and services measured as a share of gross domestic product.	databank