

# **Foreign aid for economic growth: A case study of Uganda**

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## **ABSTRACT**

Poverty remains, despite efforts by the advanced economies to address it, a constant challenge in the world, particularly in Africa. The African continent has been riddled with poverty for decades. The factors that lead to and sustain poverty in African countries are varied and differ from country to country. However, historical factors, political instability, poor economic policies, a lack of education, disease, population growth, as well as climatic and environmental factors are key examples of some of these contributing factors. Today, Uganda is considered to be one of the poorer countries on the African continent, and for decades, despite large amounts of foreign aid inflow, there has been no significant improvement in relation to poverty reduction. The purpose of this study was to evaluate whether foreign aid contributed to economic growth in Africa, with Uganda serving as a case study. Using data from 1987 to 2011, the Autoregressive Distributed Lag was employed to test for the existence of the long-run Augmented Dickey-Fuller test for stationarity and the Ordinary Least Square regression analysis was used to test for the relationship between the variables. The results show that foreign aid has a significant negative effect on economic growth in the long run. The lesson for policymakers is that aid can improve economic growth in the long run, if and when facilitated by quality institutions. Other policy recommendations are included.

**Keywords:** Foreign aid, economic growth

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## **GLOSSARY OF TERMS**

### **Abbreviations and Acronyms**

ADF	Augmented Dickey-Fuller
ARDL	Autoregressive Distributed Lag
CUSUM	Cumulative sum
CUSUMSQ	Cumulative sum of squares
DAC	Development Assistance Committee
ECM	Error Correction Model
GDP	Gross domestic product
MDG	Millennium Development Goal
NGO	Non-Governmental Organisation
ODA	Official Development Assistance
OLS	Ordinary Least Square
TCG	Technical Cooperation Grant

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Finally, I dedicate this dissertation to my parents Dr Wilson Kisubi and Ms Edith Nakku for the foundation instilled in me and sacrifices made to get me to this point in my life.

# 1 INTRODUCTION

## 1.1 Background to the Study

Poverty remains, despite efforts from advanced economies to address it, one of the world's major development challenges. The African continent and particularly the sub-Saharan region is still severely affected by poverty owing to a variety of factors including but not limited to historical factors dating back to the colonial period, political instability, poor economic policy, lack of education, disease and population growth as well as climatic and environmental factors. Despite the large amounts of foreign aid inflow into sub-Saharan Africa, there is no significant economic improvement. According to poverty data from the World Bank (2012), 47.5% of the sub-Saharan African population lives in poverty, with South Asia a distant second, with 36% of the population in poverty. The purpose of this study is to evaluate and establish whether foreign aid contributes to economic growth. Uganda is used as a case study. Uganda is one of the countries in sub-Saharan Africa that has been receiving foreign aid over a long period of time, yet at the same time is still regarded as a low-income and poor country by world bank.

Economists use economic development as a measure for the general development of a country. As countries try to establish which structures and systems they can use to spur development, they also need to appreciate the variables that come with economic growth that will, in turn, lead to economic development. According to a study undertaken by Sachs, McArthur, Schmidt-Traub, Kruk, Bahadur, Faye, and McCord (2004) on low-income countries, these countries lag behind simply because, they are unable to mobilise savings that could be invested in the productive areas. This, in the end, leads to the inability of these countries to grow economically. According to Chenery and Strout (1966), Hansen and Tarp (2000) and Dalgaard and Hansen (2001), the poor status of these countries translates into poor savings, which in turn affect investments, leading to stunted economic growth. Foreign aid makes up for the deficit in savings that are needed for investment. However, in countries with good institutional policies, such as Botswana and more recently Rwanda, the outcome of economic growth from foreign aid seems to differ from other African countries that score low on institutional quality<sup>1</sup>. This

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<sup>1</sup> The scores from the World Bank (2016) country policy and institutional assessment show that Rwanda is on top for the Sub-Saharan region.

leads to the conclusion that effective institutions can have an influence on the economic growth rate.

Some observers have expressed concerns about the capacity of low-income states to absorb large new inflows of aid in addition to the inflows they already receive. These commentators have pointed to the weak management capabilities of governments, the dearth of good new projects and programmes to fund, and the ambiguous association between aid and measurable development outcomes (Burnside & Dollar, 2000; White, 1999). In 1970 the United Nations General Assembly agreed to increase their contributions of development assistance, also known as foreign aid, in order to alleviate poverty and promote economic growth in developing countries. In 2000 the United Nations, other multilateral organisations and developed countries decided to pursue the Millennium Development Goals (MDGs) that were to be achieved by 2015.

Uganda, being one of the poorest African countries, is also one of the major recipients of foreign aid as per the statistics from the World Bank development indicators (2018). Overall, the foreign aid that has been received was meant to address known factors that compound poverty, including political instability, low literacy levels and inadequate health care amongst others. While some level of improvement has been recorded in some sectors, how Uganda has sustainably addressed the issue of economic growth as a function of foreign aid remains to be seen.

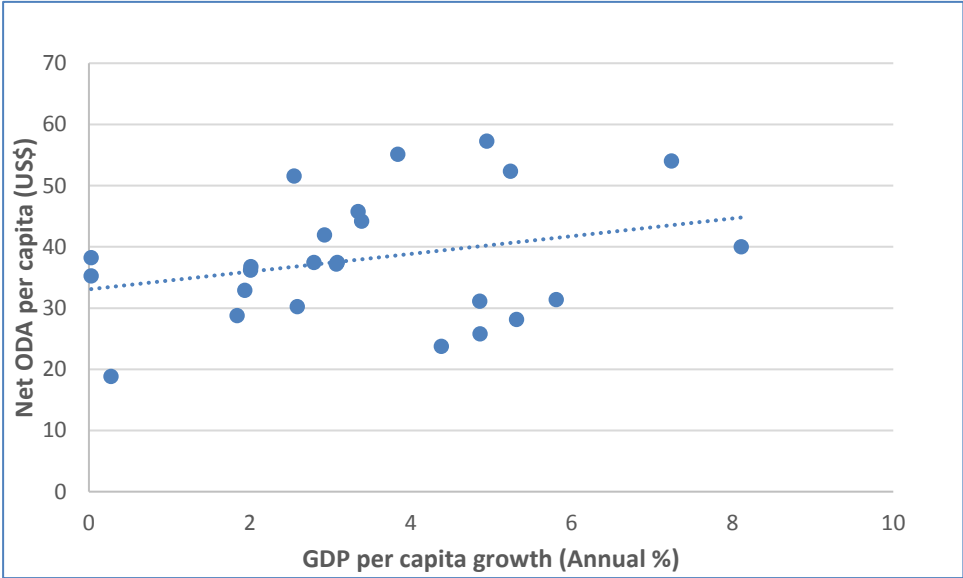
## **1.2 The Ugandan Economic Perspective**

As from the end of the 1980s, the Ugandan HIV/AIDS infection rate had been reduced from 30% to 5% Anon (1999), while the infection rates of its neighbouring countries were still relatively high, foreign aid started flowing to Uganda. Donor support accounted for about 26% of Uganda's budget in the 1990s, and it even increased to as high as 46% between 2003-2004 (Driscoll, R., K. Christiansen, and D. Booth, 2005). The 1990s included initiatives such as the 'big push', in which Uganda was selected among developing countries to receive large amounts of aid. However, the anticipated take off out of a poverty trap into self-sustainability failed to come about.

Figure 1 shows the relationship between Official Development Aid (ODA) per capita and the annual Gross Domestic Product (GDP) per capita growth rate of Uganda over a period of 25 years, from 1987 to 2011. The vertical axis represents the ODA per capita in US dollars and

the horizontal axis represents the average GDP per capita growth, as a percentage. The overall trend shows a positive relationship between ODA per capita and economic growth.

**Figure 1: Official Development Aid (ODA) per capita and the annual Gross Domestic Product (GDP) per capita (1987-2011)**

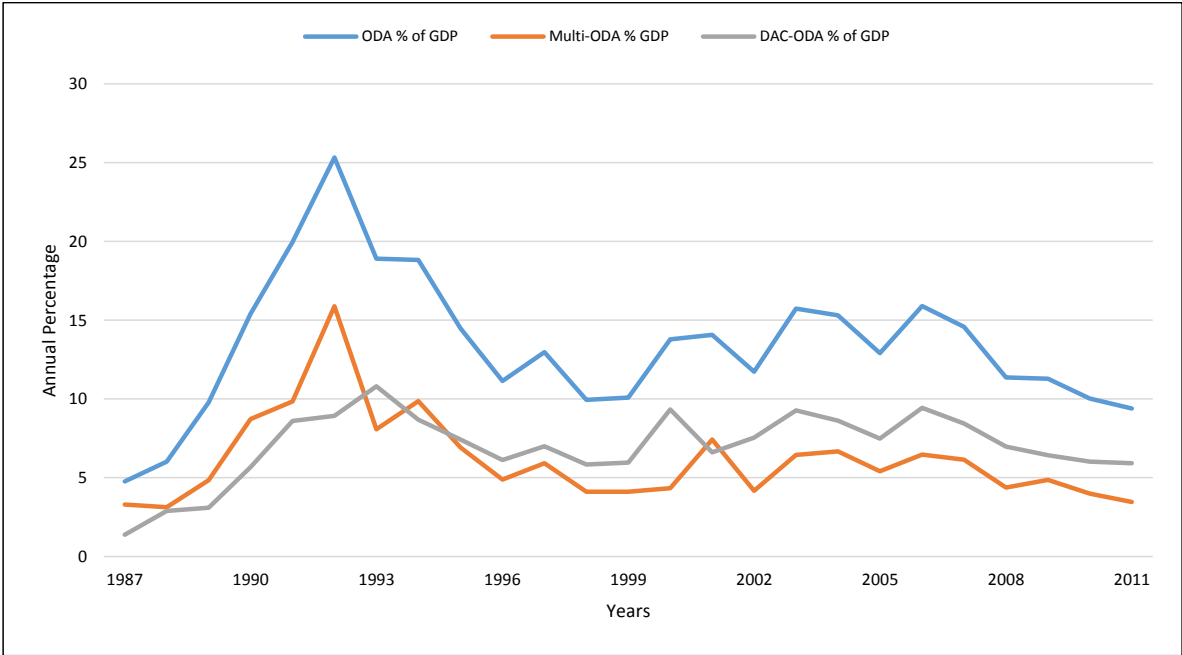


In the 1990s the Ugandan government decided to implement some reforms regarding aid expenditure management. This required proper record keeping of aid transactions and incorporating aid in its national planning strategies. Donors were encouraged to shift the focus from project aid to budget support, so that aid could be aligned with Uganda’s national priorities (Brownbridge, 2010) and for the following 25 years, aid bridged the gap created by low tax income, to support government spending.

In this study, the focus is on three difference aid sources, namely; Official Development Assistance (ODA), ODA from multilateral organisations, and ODA from the Development Assistance Committee (DAC) countries. Figure 2 shows a gradual increase in foreign aid from all three sources, which peaked in 1992, owing to the ‘big push’ initiative, then a drop and fluctuations until 2011. The 2010 drop in aid flow can be explained by a group of eight<sup>2</sup> development partners who cut aid to the Ugandan government, citing the lack of government action on cases of corruption involving foreign aid. This lack of government intervention highlights the effects that the government as an institution, can have on aid’s ability to influence growth.

<sup>2</sup> European Union, World bank, United kingdom, Austria, Belgium, Germany, Ireland, Sweden

**Figure 2: ODA, multilateral ODA and DAC ODA (1987-2011)**



Despite the fact that aid was bridging budget shortfalls, the large amounts of aid inflow became difficult to track due to the different channels of entry, namely through project aid that goes directly to non-governmental organizations (NGOs), aid to commercial banks, individual aid and aid that goes through the central bank (where the intention is to cover the budget deficit). With the lack of proper tracking methods in place, it became difficult for the government to control the inflow. Average estimates from the World Bank (2012) show that between 2005 and 2006 Uganda received amounts close to 989 million US Dollars in bilateral and multilateral aid.

The huge amounts of aid inflow distorted the macroeconomic environment, leading to an increase in demand for goods and services, which in turn led to an increased risk of higher inflation. Because of this, the Ugandan government was forced to increase the interest rates on treasury bills issued to third parties, and the interest rates that had normally been between 10 and 12%, rose as high as 20% (World Bank, 2012)<sup>3</sup>. With the ‘artificially’ inflated Ugandan Shilling, small-scale exporters that were trying to build their businesses experienced a negative impact, as summed up by a Ugandan columnist: “But if we can’t build our export base, then the productivity of the country has been undermined. And once our productivity is undermined, then we’ll never get out of debt.” (Kabushenga, as cited in Sheikh, 2005, 1).

<sup>3</sup> International Monetary Fund, International Financial Statistics and data files using World Bank data on the GDP deflator.

Uganda has also been experiencing a civil war in the northern part of the country for the last 20 years. In addition, during the 'big push' large amounts of aid were sent through resettlement and rehabilitation programmes, but this did not push economic growth to the point of self-sustainability. This could simply be due to the fact that the government in place failed to address the root cause of the problem. Many Ugandans are of the view that the government influenced aid expenditure, and instead of using it for its intended purpose diverted the funds to regions supportive of the prevailing political regime.

### **1.3 Problem Statement**

Since about 1970, a large amount of foreign aid has flown into Africa. Some African countries such as Morocco and Egypt are no longer entirely dependent on foreign aid, thanks to their well-implemented institutional policies. Most of the other countries, however, have shown no improvement over the years, even though more and more foreign aid continues to flow into these countries.

Policymakers and economists have debated whether foreign aid leads to economic growth of the recipient country. According to Burnside and Dollar (2000), foreign aid is successful in countries where the institutions and macroeconomic policies (trade, monetary and fiscal) are conducive. Addressing the issue of good governance, these authors state that the recipient government can either choose to use aid for productive investment, or just merely consume it. These findings prompted the United States government to increase its funding to the Millennium Challenge Corporation. According to the World Bank (2008), Uganda scored fairly well in the institutional quality index, at 3.9%, which scored Uganda 10 million US dollars in aid, as a reward for good policy.

Economists such as Shleifer Andrei (2009) and Milton Friedman (1995) argue that aid does not lead to economic growth, but instead ruins the recipient economies. According to Bauer (1976), aid will create dependency instead of depending on human effort and institutions. Other scholars, though, are of the opinion that foreign aid can lead to economic growth. Sachs (2005), wrote that foreign aid will initiate economic growth in developing countries, and once this has been set in motion, the country will be motivated to sustain it independently. He goes on to say that if these countries are not given the initial push, they will be stuck in a poverty trap forever. Sachs (2005, p. 71) further states: "When countries get their foot on the ladder of development, they are generally able to continue the upward climb. If a country is trapped below the ladder,

with the first step too high off the ground, the climb does not even get started. The main objective of economic development for the poorest countries is to help these countries get a foothold on the ladder. The rich countries need to invest enough so that these countries can get their foot on the ladder. After that, the tremendous dynamism of self-sustaining economic growth can take hold”.

According to Illife (2007), Africa’s economic growth rate was equal to that of the rest of the world at 4.8%. However, from 1980 to 2000 the economic growth rate decreased to 2.1%. Every year international financial institutions and developed countries provide approximately 70 billion United States dollar to developing countries around the world (Organisation for Economic Co-operation and Development, 2009). However, the effect of the aid to these countries is still in doubt. Kasper (2006, 67) argues that for the past 50 years sub-Saharan Africa has received 50 trillion United States dollar, but this aid has not shown any significant positive effect on economic growth. Despite receiving large amounts of foreign aid directed towards development programmes, some countries’ real GDP per capita has actually declined, compared to decades earlier. This has led scholars to believe that aid might be ineffective and damaging to these countries, as it might have pushed them into a dependency trap, since aid gets incorporated into the national expenditure. Zambia, for example, had its average income fall from 540 to 300 United States dollar between 1964 and 2000, even though it was getting more foreign aid than any other country (Werlin, 2005, 517–527). Uganda, on the other hand, has had a steady average income increase over the same years with an increase in aid. With the two inconclusive results above, this study seeks to answer the questions outlined in the following section.

## **1.4 Research Objectives and Hypotheses**

### **1.4.1 Research objectives**

The study objectives are as follows:

- a. To examine the relationship between aggregate foreign aid and economic growth, and if the source of aid might cause a different reaction to economic growth.
- b. To examine whether the presence of quality institutions is necessary for aid to have a significant impact on growth.

## **1.4.2 Research hypotheses**

Consistent with the above objectives, the hypotheses are as follows:

*H<sub>1</sub>*: There is a significant positive relationship between aid and economic growth.

*H<sub>2</sub>*: Quality institutions are impacted on by the relationship between aid and economic growth.

## **1.5 Purpose and Significance of the Research**

The impact of foreign aid on development has been the subject of extensive discussions. The key question that both the donor and the recipient countries raise is whether aid has any effect on the developing countries' growth. The purpose of this study is to evaluate whether there is an impact of foreign aid on economic growth, with Uganda as a case study. The source of aid is a possible factor, as not all aid can have an effect on economic growth. Institutions play a big role in how the aid is allocated, and in this study an assessment will be made to determine if there is any impact on growth.

Previous studies have generated inconclusive results. For example, some scholars (Burnside & Dollar, 2000; Dalgaard, Hansen, & Tarp, 2004; Dowling & Hiemenz, 1982; Gomanee, Girma, & Morrissey, 2005; Gupta & Islam, 1983; Hansen & Tarp, 2000; Karras, 2006; Papanek, 1972) found some evidence of a positive impact of foreign aid on economic growth. Brautigam and Knack (2004) on the other hand found evidence of a negative impact between foreign aid and economic growth. Several others (Boone, 1996; Jensen & Paldam, 2003; Morrissey, 2001; Mosley, 1980; Mosley, Hudson, & Horrell, 1987) found evidence that suggests that foreign aid has no impact on economic growth.

Using Uganda as a case study, this study demonstrates to stakeholders whether foreign aid contributes to a country's economic growth or whether it just stunts it. Some believe that this has gradually made the country dependent on aid, or that the government played a big role in the current state of the Ugandan economy.

## **1.6 Research Assumptions**

A few assumptions have been taken into consideration during the analysis in order to come to proper conclusions. When assessing the link between foreign aid and economic growth, the different variables had to be simplified due to the multiplicity that exists between them. Foreign

aid has been considered as one-dimensional in this study and has not taken into consideration the micro- and macro-effects that foreign aid has on economic growth. Secondly, the issue of individual interventions, such as growth in savings and consumption, and what their impact is on economic growth has not been considered. It is quite complex if one considers causality of economic growth in a particular geographical area, right down to the individual level. With that in mind, the focus is on donor investments, since Uganda has experienced a high level of individual intervention, compared to other developing countries, and this will lead to biased analysis outcomes. Thirdly, there are high-income inequality levels, and a lack of income sustainability in most developing countries, including Uganda. Because of the existence of many inconclusive debates on the above factors, a decision was taken not to address them.

### **1.7 Organisation of the Study**

This study is divided into five chapters: the introduction; the literature review; research methods; research findings, analysis and discussion; and the research conclusion and recommendations for future research.

Chapter 1 is the introduction. It gives an overview of the background of the study, namely Uganda's economic perspective with regard to aid, the purpose of the study and the questions that will be answered at the end of the study.

The literature review is the second chapter. In the chapter, theoretical and empirical arguments about the topic at hand are raised, how they relate to one another and how this study intends to contribute to previous studies and research work done.

The research methods in Chapter 3 introduce the methodology to be used, which includes: the models that will be used to carry out the empirical analysis, the data and data source, and the procedures to be followed while undertaking the analysis.

A presentation of the research findings is found in Chapter 4. It also includes a discussion of the findings and their implications.

In Chapter 5, the study is concluded. The chapter also assesses whether the purpose of the study has been fulfilled.

The final chapter shows the lessons learned. Policy recommendations from the study and areas for further studies are also discussed.

## **2 LITERATURE REVIEW**

### **2.1 Introduction**

The relationship between foreign aid and economic growth has attracted numerous empirical and theoretical debates over the years, as different researchers and scholars try to find a feasible link between foreign aid and economic growth. From the different debates, however, none has brought consensus on the role played by aid in economic growth. This chapter provides an overview of both the empirical studies and theoretical perspectives, and the institutional effects.

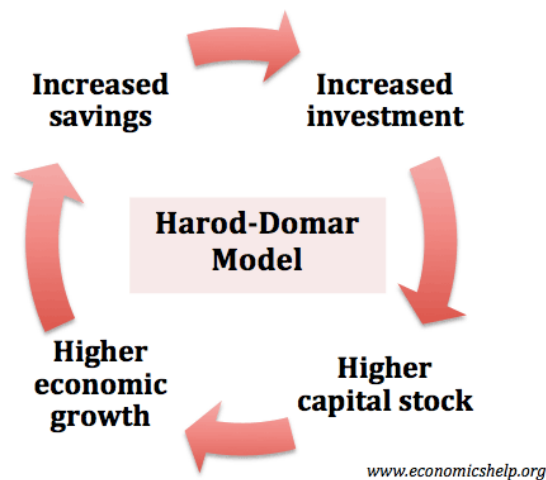
### **2.2 Theoretical Review**

Over the years there have been different growth and production models that have described the behaviour of capital and labour, and how they influence economic growth or development. In this section, the Harrod-Domar model, the two-gap model, the ‘big push’ and the neoclassical models will all be examined.

#### **2.2.1 The Harrod-Domar model**

The Harrod-Domar model was the first model that highlighted the role played by savings and investment in economic growth in developing countries. The model suggests that economic growth depends on two factors: the level of savings and the capital-output ratio of a closed economy (Domar, 1946; Harrod, 1939). The higher the savings, the higher the levels of investment, while a higher growth rate is achieved with a lower capital-output ratio. The authors argue that low levels of development in developing countries are due to the low rate of saving, which leads to a vicious cycle of low investment, output and savings. It is believed that capital generated from investments is what leads to economic growth, and that this is made possible with accumulation of savings. Therefore in order to attain growth, there is a need to boost savings, and this will lead to a dynamic cycle of self-sustainability as seen in Figure 3.

**Figure 3 Harrod-Domar model: Effect of capital increase**



According to Senbet and Senbeta (2009), the Harrod-Domar model was derived from the Keynesian macroeconomic theory, as it focused on the role of investment in economic growth. The rationale is that if savings are not used for investment purposes, then foreign aid can be used instead as an investment, to boost growth. The drawbacks of this model include that it is based on industrialised countries after the depression period, and is therefore not practical for developing countries, as it would not be possible to influence savings in poverty-stricken countries. Since the Harrod-Domar model assumes a link between savings, investment and growth, in order for it to be applicable to developing countries, foreign aid can be used in the place of savings. This model was later extended into the ‘two-gap’ model.

### **2.2.2 The ‘two-gap’ model**

Following the shortfalls of the Harrod-Domar model, economists Chenery and Strout (1966) devised the two-gap model. The first gap is the investment-saving gap, which is the difference between the amount of savings that could lead to a certain level of economic growth and the available domestic savings. The second gap relates to the difference between the number of imports required for production and foreign earnings. Foreign aid is then used as the gap binder. Rostow (1960,1) based his conclusion on the investment-saving gap, describing how an economy can launch a “take off into self-sustained growth”.

This model was used between 1980 and 1990 to justify the effectiveness of aid. The model assumes that aid provided will automatically transform into investments, yet Boone (1996) argues that where aid is expected to fill the financing gap, it ends up being used to finance consumption instead of investment, given that most of the developing countries in sub-Saharan Africa can barely survive on their generated tax. Given that investment is not regarded as an

immediate necessity, aid always ends up being consumed. As the pattern repeats itself, the country falls into a state of aid dependency: it is perceived that staying in a state of poverty will attract even more aid, with the result of remaining stuck in a constant state of poverty.

### **2.2.3 The ‘big push’ theory**

In 1943 and 1961, Paul Rosenstein-Rodan conceptualised the ‘big push’ theory, which was modified by Murphy, Schleifer and Vishny (1989). The theory of the poverty trap is assumed to explain why poor countries are not developing. The poverty trap refers to consistently low productivity, which leads to low savings, and low savings leads to negative economic growth, hence being trapped in a poverty cycle.

The ‘big push’ takes place when large amounts of aid are injected into various sectors of the economy, with the hope that this will increase investment, which will, in turn, get the economy to take off into self-sustained growth. The ‘big push’ theory argues that a large inflow of aid in productive and social sectors will lead to overall growth in all sectors. Rostow (1960, 4-16) regarded aid as the precondition for developing countries to “take off into self-sustained economic growth”.

According to Sachs (2005), a large increase in aid especially from big organisations, with the government, NGOs and the private sector as the link, would provide financing to facilitate a ‘big push’ in public investment, and this could have been the factor that would have accelerated Africa’s growth to meet the MDGs of cutting poverty by half in 2015. The ‘big push’ approach makes use of a variety of programmes and projects in order to achieve its intended goals, and it assumes that once an economy manages to self-sustain, there will be no need for more aid. Sachs (2005) predicted that if this approach is used, aid will be discontinued in 2025. This argument caught the attention of many governments, philanthropists and international organisations, pushing them to increase funding to Africa at this time.

However, some scholars disagree on the effectiveness of the ‘big push’. According to research by Easterly (2006) on 22 African countries between 1970 and 1990, an amount of 187 billion US dollars in aid was received, yet as with Uganda, the growth rates in these countries failed to take off sustainably. Yet the question is: are these ‘big push’ findings applicable to Uganda?

During the MDGs era, millennium villages were introduced with funding from philanthropists and the UNDP, underscored by the notion that the poor villages can transform themselves, if

empowered. Sachs paid Uganda a visit to check on these initiatives<sup>4</sup>, but concluded that Uganda would not be able to make the MDGs target, even if donor funding was increased. Boone (1994) previously argued that while large aid inflows create micro-level increases in the consumption patterns of poor households, such inflows have no impact on investment and growth. His study also showed that the ‘big push’ theory had lots of flaws.

Some argue that the ‘big push’ will create dependency, where political leaders decide not to do anything to improve their economies, but rather leave them in a shambles in order to attract more aid. This perspective believes that aid will also perpetuate corruption and wastage of resources on abandoned projects, unnecessary expenditure and fraudulent procurement. Moreover, the ‘big push’ is flawed in its society-wide transformation claim, as the studies carried out to test the hypothesis of growth facilitated by foreign aid did not take into account the endogeneity of foreign aid and economic growth. It can be concluded that good governance is more important than foreign aid. Sachs (2006) agrees that foreign aid needs proper management but argues that poor governance does not lead to poverty.

#### **2.2.4 The neo-classical model**

The neo-classical theory was developed by Solow (1956) and Swan (1956), and it assumes that a steady state of equilibrium is attained when capital, labour and technology are applied. Unlike the Harrod-Domar model, this model applies a different way of looking at the link between economic growth, capital accumulation and economic development. The neo-classical theory instead assumes that with diminishing returns in capital accumulation, investment will not lead to economic growth. The model explains that an increase in labour or capital leads to diminishing returns; hence, capital increase will only lead to a temporary increase in economic growth, because the ratio of capital to labour goes up. This model has three main assumptions. First, it assumes that technology advancement leads to high labour productivity, and this determines an economy’s output levels. Secondly, how capital is applied and its accumulation are determinants of growth. And finally, capital and labour lead to an increase in economic output. The model is based on the Cobb-Douglas production function (Cobb & Douglas, 1928), where output at time  $t$  is denoted as  $Y_t$ ; output is produced by capital at time  $t$ , denoted as  $K_t$ ;

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<sup>4</sup> Jeffrey Sachs headed the UN advisory body during the MDG era and supported the millennium villages initiative.

and labour is produced at time  $t$ , denoted as  $L_t$ ; with incorporate technology at time  $t$ , denoted as  $A_t$ . The production function then is as follows:

$$Y_t = F(K_t, A_t L_t) \dots \dots \dots (1)$$

The model assumes that technological advancement leads to an increase in per unit labour productivity. However, the problem is that labour supply and/or jobs are limited, which poses the risk that if economic output is based only on labour supply, the output is very limited. Yet the model assumes that the economic benefits from technological advancements are numerous, resulting in higher levels of economic growth. Dalgaard and Erickson (2009), using an improved neoclassical model, offer a framework with which poverty can be halved by 2015, and also comment that the previous and future expectations of foreign aid promoting growth have been too high. Mester (2015) argues that the neo-classical model was in some cases consistent with empirical evidence, citing studies where differences in measured inputs only explained less than half of the differences in GDP per capita.

**2.3 Empirical Studies**

As will be shown in this section, the empirical studies on the impact of foreign aid on development have given mixed reactions as to whether aid has a positive or negative impact on economic growth. Some studies have also shown inconclusive results. Comparing studies done in the earlier years to more recent studies, an assessment will be made of whether the outcomes have changed over the years.

**2.3.1 Positive relationship**

Using a sample of 71 developing countries receiving aid, for the years 1960 to 1997, Karras (2006) investigated the correlation between foreign aid and growth in per capita GDP. This research concluded that the effect of foreign aid on economic growth is permanent, positive and statistically significant. Karras (2006) in his research found out that a permanent increase in foreign aid by \$20 per person results in a permanent increase in the real GDP per capita growth by 0.16%. Karras further explained that temporary aid can be very effective if the amount given is large enough to buffer the poverty gap and direct the receiving economy towards self-sustainability.

Addison, Mavrotas and McGillivray (2005) examined trends in official aid to Africa over the period 1960 to 2002. The authors emphasised the huge decrease in aid over the last decade and suggest that this would have a major impact on the developing countries in Africa that have become dependent on aid. The research paper concluded that aid does in fact promote growth and reduces poverty levels, and that foreign aid has a positive impact on public-sector aggregates by contributing to higher public spending as well as lower domestic borrowing.

Using a sample of 25 sub-Saharan African countries over the period 1970 to 1997, Gomanee, Girma and Morrissay (2005) examined the mechanisms through which aid impacts growth. The authors determined that there is a significant positive effect of aid on economic growth, and they identified investment as the most significant transmission mechanism. They concluded that a one% point increase in the aid/gross national product ratio contributes one-quarter of a percentage point to the growth rate. They attributed the sub-Saharan region's poor growth rate to factors other than foreign aid effectiveness.

Some scholars, given the continual failure to find a link between aid and growth, go so far as to base their findings on the type of aid that is given. According to Clemens, Radelet and Bhavani (2004), different types of aid composition and modalities have a significant impact on growth. For example, aid that is given through budget support and used for productive investment or infrastructure can lead to short-term growth, while social sector and technical investments used in sectors such as health, education and the environment, can lead to long-term growth.

The study was however subjected to criticism, including that the type of aid source could have a different impact on aid. For instance, more recently using a sample of 30 sub-Saharan African countries, Mckee and Bells (2013) tested the effect of Technical Cooperation Grants (TCGs) and ODA on human capital, domestic savings, and international trade over a period of thirty years. The aid from TCGs seemed to show a positive relationship with growth, even though its effects were not significant. ODA, on the other hand, showed a negative relationship with growth. The authors concluded that irrespective of the source, aid should be directed to areas where it has the greatest impact, such as education and healthcare.

Loxley and Sackey (2008) using a fixed effect growth model on a sample of forty African countries over a period of 28 years, examined the effectiveness of aid and the sources of growth finance in Africa. They found that aid promotes economic growth, and sources such as

remittances, domestic savings and debt service resources are very important for development finance. Driffield and Jones (2013), in their study, found that in developing countries foreign direct investment, ODA and remittances had a positive and significant relationship with growth, if their institutions are taken into account. Finally, Sakyi (2011) using the Autoregressive Distributed Lag (ARDL) bound test found that trade openness and aid contributed significantly – both in the long and short run – to economic growth during the post-liberation period in Ghana.

### **2.3.2 Negative relationship**

Following the ‘big push’ approach, Easterly (2006) carried out a study of 137 of the poorest countries worldwide, from 1950 to 2001. He put them into two categories in order to test their per capita growth: those that received above-average aid and those that received below-average aid. The outcome was that there was no difference in economic growth between the two categories.

According to Erega, Sede and Ibidapo (2012), aid’s ineffectiveness in most developing African countries can be attributed to the diverting of funds to unproductive consumption. Ouattara (2006, 506-514) carried out a study on the Senegalese economy which focused on the relationship between aid and debt. First, Ouattara found that approximately 41% of aid was used to finance Senegal’s debt and 20% of the government’s resources were devoted to debt servicing. Secondly, that the impact of aid flows on domestic expenditures was very insignificant, and thirdly that debt servicing had a very significant negative effect on domestic expenditure. As a result, the report concludes that debt reduction is a more appropriate tool than obtaining additional loans.

In addition, a study was undertaken by Mallik (2008) on six African countries, namely Central African Republic, Malawi, Togo, Sierra Leone, Niger and Mali, as these countries are perceived to be the biggest aid recipients yet still remain poor. A negative relationship was found between aid and growth in the long run in five of the six countries. The cointegration analysis showed that only in Niger was there a significant effect on aid in the short run. The negative relationship for the five countries was linked to use of aid as a substitute for shortage in tax revenue, volatility of aid, and use of aid for humanitarian needs rather than for investment.

Finally, in his research Ram (2004) is of the idea that the recipient country’s institutional policies play a vital role in the effectiveness of foreign aid in poverty reduction and economic

growth. Nevertheless, the author disagrees with the view that redirecting aid to countries with better policies leads to higher economic growth and poverty reduction. As a result and based on his research the author concludes that evidence is lacking to support the leading belief that directing foreign assistance to countries with good policy will increase the impact on growth or poverty reduction in developing countries.

### **2.3.3 Bi-directional relationship**

In some instances, the relationship is neither positive nor negative. Some scholars have inconclusive findings from their research, for instance, Ekanayake and Chatrna (2010) who carried out an analysis for different time periods. In their study, the foreign aid variable had a negative sign in three out of the four cases; however, its coefficient was not statistically significant in any of the four cases. When the model was estimated for different regions, the foreign aid variable had a negative sign in three out of four cases for the non-African countries; however, this variable was positive for the African region. This shows that foreign aid has a positive effect on economic growth in African countries, which is not surprising given that Africa is the largest recipient of foreign aid, more so than any other region. Finally, when the model was estimated for different income levels, the foreign aid variable had a positive sign in three out of four cases, indicating that foreign aid appears to have a positive effect on economic growth in developing countries. However, foreign aid was negative for low-middle income countries signifying that foreign aid has a negative effect on economic growth in these countries.

Looking at sources of aid, Wako (2011) carried out an analysis of the effectiveness of multilateral and bilateral aid on economic growth, using a sample of forty-two sub-Saharan countries. The author found no significant effect of any of the sources of aid on growth, concluding that splitting up the different types of aid does not make a difference. However, Wako found that the economic performance of the countries was attributed to other factors such as good institutional policies, trade openness, physical capital accumulation and foreign direct investment.

Using meta-regression analysis Doucouliagos and Paldam (2009) examined whether the pattern of aid findings vary over time. The results showed an insignificant positive relationship over a period of forty years of receiving ODA. They concluded that Dutch disease, which is the dependency on aid, had brought about such a result. To end, Rajan and Subramanian (2008)

found neither a positive nor a negative relationship between aid and growth. They also did not find any evidence that showed different types of aid work better than others, even with good institutional policies. The authors concluded that the relationship between aid and growth has to be re-thought.

## **2.4 Institutional Effects**

There is literature that indicates that institutional factors can affect economic growth directly or influence the relationship between aid flow and economic growth. In a study completed by Burnside and Dollar (2000), the authors concluded that aid is only effective in combination with good public policies, and that aid will not necessarily increase the level of investment, except if good government policies are in place.

North and Thomas (1973) and North (1990) describe how growth rates vary from country to country. Influencing factors include economic freedom, which comprises legal enforcement of contracts, protection of property rights, and the quality of institutions, freedom of corruption as well as political freedoms. The latter includes a system of checks and balances and the structure of elections.

In a more recent study, Alagidede and Mensah (2016) examined the relationship between construction, institutions and economic growth, using a sample of countries from sub-Saharan Africa. The authors examined whether it is necessary to have quality institutions in order for the construction sector to be able to attain growth. It was concluded that improved institutions would enable the construction industry to realise growth. The authors further called for the development of institutions that reduce bureaucracy and corruption, and foster economic freedom.

Roberts and Fagernas (2004) in their follow-up study argue that an increase in foreign aid to Uganda has resulted in the expansion of the development budget, which has, in turn, brought about growth enhancement and had a poverty-reducing impact on its fiscal framework. The findings though are influenced by the incorporation of domestic reforms, such as cash budgeting (Poverty Action Fund) and tax administration reforms. Hall and Jones (1999), Knack and Keefer (1995) and Acemoglu, Johnson, and Robinson (2002), all found that stronger property rights were associated with higher income per capita. While Rodrik, Sabramanian and Trebbi (2004,) also found that property rights along with rule of law measures contributed to economic growth. Moreover, Barro (1990) and Hall and Jones (1999) indicate that the

endogenous model will take into account government and institutional policies, intermediate goods, traditional inputs as well as other factors. This is in line with the growth theory, which relies on a set of interdependent factors to ascertain the impact of aid on economic development.

In conclusion, based on a study by Kiiza (2007), there are questions about the endogeneity of systems in countries with proper institutional macroeconomic policies, and their ability to independently grow and self-sustain without any aid. Examples of such countries are Hong Kong, South Korea, Singapore and Taiwan. Interestingly, these countries did not qualify to be in the ‘good quality’ policy category, as described by Burnside and Dollar, especially as far as good governance and open trade policies were concerned (Khan & Jomo, 2000).<sup>5</sup> This poses the question whether good institutions are a pre-requisite for aid to have a positive effect on economic growth. Botswana managed to achieve an increase in growth when it also applied the same policy, contrary to the assumption that this cannot happen in Africa.

## **2.5 Conclusion**

The literature covered four theories relating to the aid and growth debate. The Harrod-Domar model puts forth that higher savings will lead to higher investments, leading to a repetitive cycle and eventual growth. The second theory, the ‘two-gap’ model, complements the Harrod-Domar model in that if there is a gap between a country’s required investment expenditure and savings, aid can be used to bridge that gap. The third model, the ‘big push’ on the other hand suggests that large amounts of aid be injected into an economy to jumpstart it into economic self-sustainability. The fourth theory, the neoclassical model suggests that a combination of capital and labour lead economic output, and that an increase in capital will only lead to a temporary increase in economic growth. Concerns were raised as to why some of these theories might not work.

There are mixed reactions to the theoretical literature by different scholars who undertake empirical evidence-based research. The arguments have however failed to reach a solid conclusion on the aid and growth subject. Yet the one aspect that most scholars agree upon is that quality institutions are required if aid is to show any impact.

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<sup>5</sup> The ratios of aid to GDP for the Asian tigers from 1980 to 2002 were: Hong Kong 0.02, Korea 0.03, Singapore 0.07 and Taiwan 0.00. Taiwan and Korea had received a high level of assistance from the United States in the 1950s and 1960s, which was in line with the policies of local technocrats namely land reform and export-led growth (Haggard, 1990, pp 1-276).

In the Ugandan context, there are lessons to be learned from these studies. Aid could be provided in three different formats: through the ‘big push’ via NGOs, the private sector and the government; secondly through the strengthening of institutions; and thirdly through direct investment in key growth areas such as health, infrastructure and education. High levels of institutional malpractice on the ground, not captured in the national data, tend to lead to skewed results, as donors use documented data to assess impact. Some of the data and the studies thereupon were undertaken a long time ago, and there is a need to assess more recent data on current aid in the context of the existing institutional policies, and to consider the different sources of aid and its effects on the current situation in Uganda. This study analyses the impact of aid with more recent data and under the current institutional policies, to assess which previous research is still valid today.

### 3 RESEARCH METHODOLOGY

#### 3.1 Introduction

This chapter presents the methodology to be used in testing the hypothesis presented earlier. It shows the source of data used and provides a description of the different variables, the research design to be used, and the model specifications. The chapter also covers the analytical framework and finally a conclusion.

#### 3.2 Research Data and Sources

The annual data used is secondary data that covers a period of 25 years from 1987 to 2011, as per Table 1. Uganda was considered to be fairly politically stable over this time, and it is during this period that the country also attracted a relatively steady amount of foreign aid. In order to prevent data skewness, the data used for this study was drawn from that period. The GDP per capita growth rate, net ODA, ODA from multilaterals, ODA from DAC countries, gross capital formation, age dependency ratio, inflation rate, population growth rate and government consumption is collected from the World Bank Development Indicators' database, while the Economic Freedom Index data was collected from the Heritage Foundation database.

**Table 1: Source of variables**

Variables	Notation	Source of data
GDP per capita Growth (%)	<i>gdp</i>	World Development Indicator (WDI)
Net ODA/GDP (%)	<i>aid</i>	World Development Indicator (WDI)
ODA from multilaterals/GDP (%)	<i>multi</i>	World Development Indicator (WDI)
ODA from DAC/GDP (%)	<i>dac</i>	World Development Indicator (WDI)
Gross capital formation/GDP (%)	<i>inv</i>	World Development Indicator (WDI)
Age dependency ratio (%)	<i>age</i>	World Development Indicator (WDI)
Inflation rate (%)	<i>inf</i>	World Development Indicator (WDI)
Population growth rate (%)	<i>pop</i>	World Development Indicator (WDI)
Government consumption	<i>gov</i>	World Development Indicator (WDI)
Economic freedom index (%)	<i>efi</i>	Heritage Foundation

The economic growth rate (*gdp*) is the dependent variable. The economic growth rate represents the increase in the inflation-backed value of goods and services produced by a country over time and is measured as the percentage increase of GDP per capita (Bjork 1999, p. 67).

### **3.3 Variable Description**

This section describes the different variables employed in the study and provides explanations as to how they influence economic growth. It gives the background from which the empirical findings of the study shall be explained on the basis of empirical estimation.

#### **3.3.1 Net Official Development Assistance as a percentage of GDP (aid)**

ODA, depicted as a percentage of GDP, is the proxy for foreign aid and it is one of the independent variables in the study. Research in the literature review showed that foreign aid has the ability to improve economic growth, yet growth has not yet been realised. In the study, a positive relationship is anticipated between aid and economic growth.

#### **3.3.2 Net Official Development Assistance from multilateral organisations as a percentage of GDP (multi-aid)**

ODA from multilateral organisations is mostly injected into an economy through projects and other humanitarian programmes. In Uganda's case, most of the development projects initiated do not take off into self-sustainability as some of the funds are misappropriated, or diverted to political propagandas, that they were not intended for. In 2002 Denmark decided to end aid to Zimbabwe, Malawi and Eritrea, and to reduce assistance to Uganda, because it did not want to maintain dictators in power Eremu (2002)<sup>6</sup>. Therefore, in this case a negative relationship or an insignificant relationship between aid and growth is anticipated, as the projects, for the most part, are not able to lift people out of poverty.

#### **3.3.3 Net Official Development Assistance from Development Aid Committee as a percentage of GDP (dac-aid)**

ODA from the DAC is directed towards developmental projects and programmes. As mentioned, the issue with Uganda is high levels of corruption, with a large amount of development aid being misappropriated. According to the East African Bribery Index, a survey completed with 2,733 Ugandans<sup>7</sup>, found that out of all business related interactions, 33.9% of the time a bribe was expected or demanded (Transparency International 2014, p 52). This has

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<sup>6</sup> In an article published in the New vision newspaper on 31<sup>st</sup> January 2002, the Danish government reduced aid to developing countries by 173 million US dollars.

<sup>7</sup> Transparency International regularly carries out surveys and analyses corruption trends in many countries around the world.

to do with poor institutional policies. A negative relationship with economic growth is expected.

### **3.3.4 Gross capital formation (inv)**

Gross capital formation is a proxy for the growth rate of an economy's capital stock and is depicted as a percentage of real GDP. This variable involves a capital outlay, in order to acquire assets or improvement in the country's assets. Sometimes this capital outlay involves acquiring debt, especially if big infrastructure projects are involved. Gross capital formation is expected to have a negative relationship with growth.

### **3.3.5 Age dependency ratio (age)**

Age dependency ratio is a portion of the dependent population, as a percentage of the working age population. It is an indication of the impact made on the economy by the working age population. Alhassan and Biekpe (2016) argue that dependency puts a high strain on income due to high expenditure at that point in time, thereby leaving little for investment or savings. With that, a negative relationship with economic growth is expected.

### **3.3.6 Inflation rate (inf)**

In most African countries, macroeconomic stability is portrayed by a country's inflation rate. Most empirical studies (Barro, 1996; Bruno & Easterly, 1998; Fischer, 1993), have found that inflation has a negative impact on economic growth. In this study, it is anticipated that inflation will have a negative relationship with economic growth.

### **3.3.7 Population growth rate (pop)**

Population growth rate determines the effectiveness of aid in an economy. An increase in the population growth rate means an increase in government expenditure on consumption, leaving less for investment. Hence, in this study a negative relationship between population growth rate and economic growth is anticipated.

### **3.3.8 Government consumption (gov)**

Government consumption is government expenditure on public consumption and an increase will lead to a decrease in growth in the short run, hence the negative relationship. However, in the long run the relationship between government consumption and economic growth can turn into a positive relationship, if the expenditure incurred was for an investment with high returns.

### **3.3.9 Economic freedom index (efi)**

According to North (1990, p. 3), “institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction.” North (1981) earlier defined institutions as human-devised constraints that structure human behaviour. The economic freedom index measures the degree to which a country’s institutions and policies are supportive of economic freedom according to Gwartney, Lawson, and Holcombe (1999). It is measured as a percentage score, with zero being the least free and 100 being the most free. With good institutional policies, the effective use of aid is anticipated, even though some scholars disagree with this view. In Uganda’s case, donors started to hold the responsible parties accountable for misappropriated funds. Therefore, a positive relationship between economic freedom and growth is expected.

### **3.4 Research Design**

The main objective of this explanatory study is to establish the impact of aid on economic growth in the Ugandan context. Using a linear regression model, the hypothesis of the impact of the variables mentioned above will be investigated. According to Boone (1994), economic growth, measured as a percentage change in GDP per capita, has a positive relationship with capital investment. Capital investment is used to assist labour in the production process, thereby implying that investment is a measure of GDP growth. Given that it is difficult to measure capital stock in developing countries<sup>8</sup>, the rate of growth of capital stock is approximated by the share of investment in GDP. Gross capital formation is then incorporated as the variable proxy for investment.

Following Karras (2006), several other variables are often believed to have a favourable effect on growth. These include the rate of inflation, measured by consumer prices (annual percentage), as well as economic freedom of the world index, which is used to measure the extent of legal enforcement of contracts, protection of property rights, the openness of the market and freedom from corruption, from the World heritage foundation. These two will be incorporated in the study as variables to be analysed, in addition to government consumption.

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<sup>8</sup> The absence of accurate market information on rental and second hand prices, it is not clear whether surveys are more accurate than indirect procedures (Nehru & Dhareshwar, 1993). Therefore a perpetual inventory method of estimating capital stock was adopted by most Organisation for Economic Co-operation and Development countries and researchers.

**3.5 Model Specification**

Following the empirical review, to analyse the impact of foreign aid on economic growth in Uganda, the Solow’s (1956) neoclassical theoretical model will be employed. The theoretical model is derived from the Cobb-Douglas production function (Cobb & Douglas, 1928). It measures the relationship between inputs (in this case capital, labour and foreign aid) and output (goods and services). This is as follows:

$$Y = f(L, K, A) \dots\dots\dots (2)$$

Where Y = factor output, L = labour input, K = domestic and foreign capital stock, A = factor productivity, which in this case is growth. The equation without log is as follows:

$$Y_t = \alpha + \beta l_t + \delta k_t + \phi a \dots\dots\dots (3)$$

The small letters *y*, *k*, *l* shows the rate of growth of the variables output, capital output and labour respectively.

With all other factors being equal, the rate of change in labour is influenced by the increase in working population, which in turn is also proportional to the rate of economic growth. The working population is estimated by the age dependency ratio as a percentage of the working age population and the population growth rate.

From the different variables above, the model is as follows:

$$Yg_t = \beta aid_t + \gamma X_t + \varepsilon_t \dots\dots\dots (4)$$

This is transformed into a linear model including all variables as follows:

$$Yg_t = \beta_0 + \beta_1 ODA_t + \beta_2 inv_t + \beta_3 age_t + \beta_4 inf_t + \beta_5 pop_t + \beta_6 gov_t + \beta_7 efi_t + \varepsilon_t \dots\dots\dots (5)$$

Where *Yg* refers to GDP per capita growth rate; *ODA* refers to total aid as a percentage of GDP; *inv* refers to gross capital formation as a percentage of GDP; *age* refers to growth in the age dependency ratio as a percentage of the working population; *inf* refers to inflation rate; *pop* refers to population growth rate; *gov* refers to government consumption; *efi* refers to economic

freedom index. As indicated in the hypothesis in chapter 2 the relationship between aid and growth will be analysed in three main aid sources, and the models are as follows:

$$Yg_t = \alpha_0 + \alpha_1 aid_t + \alpha_2 inv_t + \alpha_3 age_t + \alpha_4 inf_t + \alpha_5 pop_t + \alpha_6 gov_t + \alpha_7 efi_t + \tau_t$$

..... (6)

$$Yg_t = \delta_0 + \delta_1 multi_t + \delta_2 inv_t + \delta_3 age_t + \delta_4 inf_t + \delta_5 pop_t + \delta_6 gov_t + \delta_7 efi_t + \varphi_t$$

..... (7)

$$Yg_t = \lambda_0 + \lambda_1 dac_t + \lambda_2 inv_t + \lambda_3 age_t + \lambda_4 inf_t + \lambda_5 pop_t + \lambda_6 gov_t + \lambda_7 efi_t + \omega_t$$

..... (8)

Where *aid*, *multi* and *dac* refer to Official Development Assistance, aid from multilateral organisations, and aid from the DAC, respectively.

**3.6 Analytical Framework**

This study will examine the existence of a unit root in the variables using the Augmented Dickey-Fuller test, the cointegration which examines the existence of the long-run or causal relationship and the correlation model. Finally, the long-run and short-run results will be presented.

**3.6.1 Unit Root test**

When a time series study is undertaken, it should be ensured that the series is stationary; therefore, a unit root test is performed to establish the existence of stationarity. Stationarity is relevant if one uses linear regression for analysis, because it ensures that the outcomes are reliable and is indicative of the regression parameters being constant over time. In this study, the Augmented Dickey-Fuller (ADF) test shall be used to test if the data is stationary. The ADF test was invented by Said and Dickey (1984), from autoregressive moving average models. The time series data has a unit root if the null hypothesis fails to be rejected. Consequently, the null hypothesis is to be rejected if the absolute t-value is greater than the absolute critical value, proving that the time series is stationary.

**3.6.2 Cointegration Analysis: Autoregressive Distributed Lag**

Cointegration occurs when two or more time series are individually integrated but their linear combination is at order zero over the long run. The existence of cointegration means that there

will be a long and stable relationship between the variables, where even the variance and the mean will remain stable over time.

In this study the ARDL is used as this approach does not require that all variables be integrated of the same order and is used for small samples, such as in the study. ARDL was developed by Pesaran and Shin (1999) to examine the long-run cointegration between time series. Odhiambo (2009) further adds that the ARDL approach is relatively insensitive to sample size, and also unbiased to the long-run model and t-values, even with the existence of endogenous regressors. Based on the definitions above, the ARDL regression model is as follows:

$$\begin{aligned} \Delta Yg_t = & \beta_0 + \beta_1 Yg_{t-1} + \beta_2 ODA_{t-1} + \beta_3 inv_{t-1} + \beta_4 age_{t-1} + \beta_5 inf_{t-1} + \beta_6 pop_{t-1} + \\ & \beta_7 gov_{t-1} + \beta_8 efi_{t-1} + \sum_{i=1}^n \alpha_i \Delta Yg_{t-1} + \sum_{i=1}^n \alpha_i \Delta ODA_{t-1} + \sum_{i=1}^n \alpha_i \Delta inv_{t-1} + \\ & \sum_{i=1}^n \alpha_i \Delta age_{t-1} + \sum_{i=1}^n \alpha_i \Delta inf_{t-1} + \sum_{i=1}^n \alpha_i \Delta pop_{t-1} + \sum_{i=1}^n \alpha_i \Delta gov_{t-1} + \\ & \sum_{i=1}^n \alpha_i \Delta efi_{t-1} + \varepsilon_t \dots\dots\dots (9) \end{aligned}$$

Where  $\Delta$  denotes change and  $\varepsilon_t$  is the error term. The long-term relationship between the variables is conducted using the F-statistic (Wald test), by using the following hypothesis:

(H0:  $\beta_1 = \dots \beta_8 = 0$ ) no cointegration, i.e. F-stat < CV;

(H1:  $\beta_1 \neq \dots \beta_8 \neq 0$ ) cointegration exists, i.e. F-stat  $\geq$  CV

The test results are compared to values calculated by Pesaran, Shin, and Smith (2001) and Narayan's (2005). The ARDL procedure is based on whether the F-statistics fall in the lower or upper bound, that is the I(0) or I(1) respectively. The critical values set these bounds and they are the basis upon which the null hypothesis is either rejected or accepted.

If the F-statistic is lower than the lower bound critical value, then the null hypothesis – H0 – which is suggesting no cointegration, cannot be rejected. But if the F-statistic is greater than the higher bound critical value, the null hypothesis can be rejected, and the conclusion made that GDP growth and its determinants are cointegrated. However, if the F-statistic falls in the middle of the bounds, the result is inconclusive.

### 3.6.3 Long-run and short-run results

According to Nkoro and Uko (2016), ARDL also allows for the short-run and long-run dynamics, by integrating short-run dynamics with the long-run equilibrium. The short-run

relationship between the models is run by the Error Correction Model of the ARDL, which is applied through the Ordinary Least Square (OLS) method as follows:

$$\Delta Yg_t = \beta_0 + \sum_{i=1}^n \alpha_1 \Delta Yg_{t-i} + \sum_{i=1}^n \alpha_2 \Delta ODA_{t-i} + \sum_{i=1}^n \alpha_3 \Delta inv_{t-i} + \sum_{i=1}^n \alpha_4 \Delta age_{t-i} + \sum_{i=1}^n \alpha_5 \Delta inf_{t-i} + \sum_{i=1}^n \alpha_6 \Delta pop_{t-i} + \sum_{i=1}^n \alpha_7 \Delta gov_{t-i} + \sum_{i=1}^n \alpha_8 \Delta efi_{t-i} + ECT_{t-1} + \varepsilon_t$$

..... (10)

$ECT_{t-1}$  refers to the error correction term, and the other variables are as defined above. All models are defined by replacing ODA with *aid*, *multi* and *dac*. As evidence of a short-run relationship, the error correlation coefficient should be significant and negative as shown by its P-value and t-statistic.

The diagnostic test for estimating the long-run relationship is testing for heteroscedasticity and autocorrelation. The model is as follows:

$$Yg_t = \beta_0 + \beta_1 ODA_t + \beta_2 inv_t + \beta_3 age_t + \beta_4 inf_t + \beta_5 pop_t + \beta_6 gov_t + \beta_7 efi_t + \varepsilon_t$$

..... (11)

**3.7 Limitations**

The production function relates to the existence of an equilibrium world. It is in this equilibrium state that theorists and economists base their research. In this state, there is no room for variance in the different factors being considered, yet in the real world there are variances such as change in technology and innovation. This makes it difficult to predict future economic growth.

A production function can be looked at positively and simply, whereby it represents a set of technological relationships. On the other hand, a production function can be regarded as representing opportunities from which a human being is able to make a choice. Clearly, economies in which market events are seen as the result of deliberately planned actions, ought to view production possibilities in this second way, as alternatives from which planned courses of action may be constructed (Kirzner 1966, p. 45; see also Hayek 1941, p. 147).

# 4 RESEARCH FINDINGS AND DISCUSSION

## 4.1 Introduction

This chapter covers the discussion and results generated from the empirical analysis. It includes a discussion of descriptive statistics and the different analytical frameworks discussed in the previous chapter.

## 4.2 Descriptive Statistics

This section describes the statistics, starting with a comparison of the main variables in a scattered graph. The time series trend in Figure 4 shows the relationship between aid and GDP growth for the period 1987 to 2011. The figure illustrates how GDP growth has responded to changes in aid. For the most part GDP growth has responded negatively to aid, for instance in 1992, 1997, 2000 and 2003. The increase in aid in 1992 could be attributed to the ‘big push’ concept, as many developing countries benefited from this, including Uganda. The period from 2011 saw a decrease in aid supply, due to the embezzlement of foreign aid from the prime minister’s office.

**Figure 4: Relationship between aid as a percentage of GDP and GDP per capita growth**

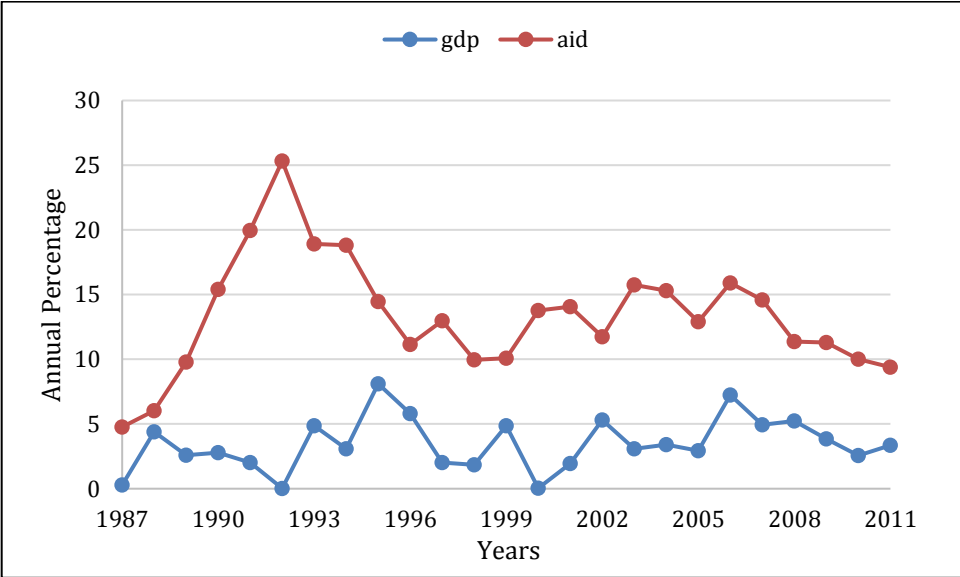


Table 2 shows the descriptive statistics of the 10 variables used. The average rate is indicative of the magnitude of changes in response to change in certain factors or variables. Age dependency ration (*age*) has the highest average, followed by the economic freedom index (*efi*).

These results imply that a slight change in variables can lead to a big increase in *efi* and *age*. Population growth (*pop*) has the lowest mean, followed by GDP growth (*Yg*), implying that a change in variables will not lead to a big change in *GDP* and *pop*. Given that aid has a higher mean than the *GDP* mean, this implies that while aid reacts with higher magnitudes to variables, *GDP* growth barely reacts to changes in variables.

**Table 2: Summary of descriptive statistics**

	<i>Mean</i>	<i>Standard dev.</i>	<i>Skewness</i>	<i>Kurtosis</i>	<i>Jarque-Bera</i>	<i>Probability</i>
<i>gdp</i>	3.4607	2.0477	0.2979	2.8155	0.4053	0.8166
<i>aid</i>	13.3506	4.4580	0.5370	3.695	1.7039	0.4266
<i>multi-aid</i>	6.1355	2.8018	1.8105	6.8830	29.3631	0.0000
<i>dac-aid</i>	6.983	2.2063	-0.7537	3.3880	2.5236	0.2832
<i>inv</i>	18.1233	4.4311	-0.3892	2.0005	1.6718	0.4335
<i>age</i>	104.5240	1.2379	-0.0562	2.0562	2.2431	0.3258
<i>inf</i>	26.9826	53.2773	2.7770	9.2694	73.0769	0.0000
<i>pop</i>	3.2462	0.1905	0.6923	2.8740	2.0135	0.3654
<i>gov</i>	11.9087	2.6560	-0.1879	2.3008	0.6564	0.7202
<i>efi</i>	53.5480	15.0244	-1.0044	2.2414	4.8030	0.0906

*Note: The table reports the summary statistics of the variables at annual frequency from 1987 to 2011. GDP, aid, multi-aid, dac-aid, inv, age, inf, pop, gov and efi denote ODA as a percentage of GDP; ODA from multilaterals as a percentage of GDP; ODA from DAC countries as a percentage of GDP; gross capital formation as a percentage of GDP; age dependency ratio; inflation rate; population growth rate; government consumption; and economic freedom index, respectively*

Standard deviation shows variability from the mean. The statistics show that inflation has the highest standard deviation at 53%, which is really high, and since it indicates macro stability, it means that the economy is not stable. The rest of the variables have relatively low standard deviations, indicating low volatility as they barely deviate from the mean, with changes in variables. The low standard deviation in *GDP* growth could also be the reason why Uganda has constantly received aid, but with barely any changes, as the figure hardly deviates from the mean, hence staying in the low-income bracket.

According to Doane and Seward (2011), extreme values of skewness and kurtosis are not only skew, but also leptokurtic. Skewness shows the concentration data around the mean. In this case, *GDP*, *aid*, *multi-aid*, *inf* and *pop* are positively skewed and *dac-aid*, *inv*, *age*, *gov* and *efi* are negatively skewed, thus indicating that the variables are distributed equally on both distribution tails. A negative *GDP* would mean negative returns for *GDP* growth. In this case,

it is positive. The values are between -1 and 2.8, and except for *inf*, they all are very close to zero, thereby resembling a normal distribution.

The accepted value for kurtosis for the data to be normally distributed is three. In this data, only *GDP* and *pop* have that value. With the exception of *multi-aid* and *inf* which are too high, the rest of the values range between two and 3.6, close to the acceptable norm.

With the exception of *multi-aid*, *inf* and *efi*, whose probabilities from the Jarque-Bera test are statistically significant, the other variables are not statistically significant.

### **4.3 Correlation and Multicollinearity**

Table 3 shows the correlation coefficients matrix and the respective p-values. As anticipated, *aid*, *multi-aid*, *inf* and *pop* have a negative relationship with growth. *Inv* and *efi* have a positive relationship with growth as expected, but surprisingly so does *age*, and *gov*. According to Kennedy (2008), multicollinearity exists if the coefficient values of the independent variables are above 0.7. Correlation values that are at absolute values of 0.7 and above are considered to be strong, between 0.35 and 0.7 fair and below 0.35 weak. In these results, *aid* has a strong correlation with *multi-aid* and *dac-aid*, because a significant portion of aid is made up these two aid sources. However, this issue is dealt with separately in their models, and present no redundancy problems. *Multi-aid* only has a strong correlation with *aid* and a fair correlation with *dac-aid*, as they both sometimes target the same areas. *Dac-aid* has a strong correlation with *inf* and a fair correlation with *inv*, *age*, *pop*, *gov* and *efi*, as all these areas play a big role in the aid implementation. In general, the values from all models are fairly low. It is concluded that the p-values and t-statistics values from all models are significant and can be used to assess regression models.

**Table 3: Correlation coefficients matrix**

	<i>gdp</i>	<i>aid</i>	<i>multi-aid</i>	<i>dac-aid</i>	<i>inv</i>	<i>age</i>	<i>inf</i>	<i>pop</i>	<i>gov</i>	<i>efi</i>
<i>gdp</i>	1.0000									
<i>aid</i>	-0.0773	1.0000								
<i>multi-aid</i>	-0.2169	0.9207	1.0000							
<i>dac-aid</i>	0.1748	0.7978	0.5130	1.0000						
<i>inv</i>	0.1754	0.0066	-0.2235	0.4063	1.0000					
<i>age</i>	0.2101	0.1727	-0.0736	0.5579	0.5417	1.0000				
<i>inf</i>	-0.2306	-0.4929	-0.2296	-0.7293	-0.6224	-0.7153	1.0000			
<i>pop</i>	-0.1808	-0.1257	0.0804	-0.4720	-0.5527	-0.8582	0.7483	1.0000		
<i>gov</i>	0.1667	0.1063	-0.1515	0.5448	0.6516	0.9070	-0.6056	-0.7040	1.0000	
<i>efi</i>	0.3898	-0.0737	-0.3142	0.4022	0.7818	0.8332	-0.6849	-0.8622	0.8014	1.0000

Note: The table shows the Pearson correlation coefficient: *gdp*, *aid*, *multi-aid*, *dac-aid*, *inv*, *age*, *inf*, *pop*, *gov* and *efi*, denote ODA as a percentage of GDP; ODA from multilaterals as a percentage of GDP; ODA from DAC countries as a percentage of GDP; gross capital formation as a percentage of GDP; age dependency ratio; inflation rate; population growth rate; government consumption; and economic freedom index, respectively

#### 4.4 Augmented Dickey-Fuller Unit Root Test

In order to test for stationarity, the ADF unit root test is used to test the null hypothesis for the presence of a unit root. This goes as follows:

$H_0$ : Series contains a unit root, hence not stationary

$H_A$ : Series does not contain a unit root, hence stationary

According to the ADF protocol (Dickey & Fuller 1979; Fuller 1976), if the absolute test statistic is greater than the absolute critical value, based on the absolute MacKinnon values, the null is rejected (Reject), and the alternative is ‘fail to reject’ (FTR).

The ADF test was completed at level I (0) and differenced at level I (1), as shown in Table 4. At level I (0), four of the variables show stationarity at 1% significance level, five variables at 5% significance and five variables at 10% significance. At level I (1) after differencing, six variables attain stationarity at 1% significance, then all variables with the exception of *inv* and *efi* attain stationarity at 5% significance and all variables except *age* attain stationarity at 10% significance. *Efi* is found to attain stationarity at level I (1) at 10% significance level. Only *dgp* and *inf* are found to have stationarity throughout all levels.

**Table 4: Augmented Dickey-Fuller unit root test results**

<i>Series</i>	<b>t-stat I</b>	<b>t-stat I</b>	<b>CV at 1%</b>		<b>CV at 5%</b>		<b>CV at 10%</b>	
	<b>(0)</b>	<b>(1)</b>	<b>I (0)</b>	<b>I (1)</b>	<b>I (0)</b>	<b>I (1)</b>	<b>I (0)</b>	<b>I (1)</b>
			<b>-3.7379</b>	<b>-3.7530</b>	<b>-2.9919</b>	<b>-2.9981</b>	<b>-2.6355</b>	<b>-2.6388</b>
<i>gdp</i>	-4.6300	-7.5993	Reject	Reject	Reject	Reject	Reject	Reject
<i>aid</i>	-2.3895	-4.0622	FTR	Reject	FTR	Reject	FTR	Reject
<i>multi-aid</i>	-2.6150	-6.8837	FTR	Reject	FTR	Reject	FTR	Reject
<i>dac-aid</i>	-3.1024	-4.9807	FTR	Reject	Reject	Reject	Reject	Reject
<i>inv</i>	-1.3009	-6.2140	FTR	Reject	FTR	Reject	FTR	Reject
<i>age</i>	-5.8658	-1.3742	Reject	FTR	Reject	FTR	Reject	FTR
<i>inf</i>	-19.4947	-4.0093	Reject	Reject	Reject	Reject	Reject	Reject
<i>pop</i>	-8.3895	-3.2493	Reject	FTR	Reject	Reject	Reject	Reject
<i>gov</i>	-1.5490	-3.4529	FTR	FTR	FTR	Reject	FTR	Reject
<i>efi</i>	-2.1621	-2.7356	FTR	FTR	FTR	FTR	FTR	Reject

Note: FTR – fail to reject the null = unit root; reject – reject null = no unit root; CV – critical value

A stationary series fluctuates around a constant long-run mean, tends towards a finite time variance and the effects of shock wear off with time, hence making forecasting easy. A non-stationary series, on the other hand, tends towards infinity with regard to its variance, which causes the series to suffer permanent shock from random shocks. In this case, forecasting is very difficult.

In this time series, all variables are stationary, even though there is mixed order integration of the variables I (0) and I (1). This can justify the use of ARDL.

#### 4.5 Cointegration Test

Table 5 shows the results of the cointegration test. From chapter 3, if the computed F-statistic falls below the lower bound value, I(0), the null hypothesis of no cointegration cannot be rejected. Conversely, if the computed F-statistic exceeds the upper bound value, I(1), it is concluded that there is cointegration and a long-run equilibrium is approached. However, if the test statistic lies between these two bounds, the result is inconclusive (Shrestha & Chowdhury, 2005). In Table 5, all equations show that the null hypothesis is rejected, as all F-statistic values exceed the upper bound value, thus indicating that *gdp* growth and all the independent variables are cointegrated.

**Table 5: Bounds test for cointegration relationship**

	F-Statistic	CV 1%		CV 5%		CV 10%	
		I (0)	I (1)	I (0)	I (1)	I (0)	I (1)
		<b>2.73</b>	<b>3.9</b>	<b>2.17</b>	<b>3.21</b>	<b>1.92</b>	<b>2.89</b>
<i>all aid</i>	7.4074	Reject		Reject		Reject	
<i>aid</i>	9.2230	Reject		Reject		Reject	
<i>multi-aid</i>	10.3508	Reject		Reject		Reject	
<i>dac-aid</i>	10.7423	Reject		Reject		Reject	

Note: CV – critical value at 1 lag; reject – the null hypothesis of no long-run relationship

The rejection of the null hypothesis also implies that there is a long-run relationship between economic growth and the variables.

## 4.6 Regression Analysis

### 4.6.1 Short-run estimates

To test the short-run relationship among the variables, the OLS regression was carried out with the ECM and results are shown in Table 6. Only *all aid* and *dac-aid* are statistically significant. The insignificance of the other variables could be attributed to the lack of an immediate impact on growth, as it takes time to see the real effects of the injected aid. All variables from the *all aid* model are significant, with *aid* having a positive relationship with growth, but *multi-aid* and *dac-aid* have a negative relationship with growth. Foreign aid in the *dac-aid* model is positively significant to growth due to the strict aid disbursement systems set up by the DAC countries.

Gross capital formation has a significant negative reaction to growth in all models, due to the fact that in the short run investments are being made, causing capital outflows especially when external contractors are employed, or when some of the funds are embezzled. The other reason could be that most developing countries rely on debt to finance their investments. This liability could be the reason for the negative reaction in growth. Population growth, on the other hand, is positively significant, which is not what was anticipated. This could be due to the increase in the labour force and resultant increase in output, and eventually growth increase. The economic freedom index also has a significant positive reaction with three of the models as anticipated, as good institutions attract investments and hence foster growth.

**Table 6: Short-run estimates**

	<i>all aid</i>	<i>aid</i>	<i>multi-aid</i>	<i>dac-aid</i>
<i>D(aid)</i>	4.0705* (0.0007)	-0.04542 (0.5591)	.....	.....
<i>D(multi-aid)</i>	-4.3179* (0.0005)	.....	.....	.....
<i>D(dac-aid)</i>	-3.8571 * (0.0009)	.....	.....	0.1845*** (0.0862)
<i>D(inv)</i>	0.7865* (0.0003)	.....	.....	.....
<i>D(age)</i>	57.7380* (0.0001)	36.6370* (0.0000)	14.4163* (0.0000)	36.2620* (0.0000)
<i>D(inf)</i>	-0.0818* (0.0002)	-0.0816* (0.0000)	-0.02440* (0.0075)	-0.0832* (0.0000)
<i>D(pop)</i>	234.2833* (0.0000)	144.4688* (0.0000)	66.7268* (0.0000)	152.7699* (0.0000)
<i>D(gov)</i>	-0.3276*** (0.0648)	-0.2263 (0.3589)	.....	-0.4686** (0.0193)
<i>D(efi)</i>	1.0410* (0.0000)	0.6892* (0.0000)	.....	0.7546* (0.0000)
<i>CointEq(-1)</i>	-1.7710* (0.0001)	-1.6528* (0.0000)	-1.1780* (0.0000)	-1.5377* (0.0000)
R <sup>2</sup>	0.9798	0.9098	0.8884	0.9593
Adjusted R <sup>2</sup>	0.9669	0.8780	0.8716	0.9450
F-Statistic	7.4074	4.7933	10.3508	10.7423
Durbin Watson	2.5895	2.5414	2.1270	1.8979
Probability	0.0000	0.0000	0.0000	0.0000

Note: *all aid* = aid from all sources, *aid* = ODA, *multi-aid* = ODA from multilateral organisations and *dac-aid* = aid from the development committee countries. P-values in parentheses. \*, \*\* and \*\*\* denotes significance at 1%, 5% and 10% respectively.

Using the Akaike Info criterion (AIC), the different models attained the following ARDL order: *all aid* (1,1,1,1,1,1,1,1); *aid* (1,1,0,1,1,1,1,1); *multi-aid* (1,0,1,1,0,1,0,0); *dac-aid* (1,0,1,1,1,1,1,1).

The diagnostic statistics show that the *aid*, *multi-aid* and *dac-aid* models are statistically significant. *All-aid* has the highest R<sup>2</sup> at 98% and adjusted R<sup>2</sup> at 97%, meaning that 98% of the GDP growth is explained by the variables in this model. For *aid* and *multi-aid*, the figures are 50% and 49% respectively. *Dac-aid* scored higher than the other two sources because it is more focused on growth, and comes in the form of grants and loans, with growth as the anticipated end result. To be considered normal, the Durbin Watson values should lie between 1.5 and 2.5. The *multi-aid* and *dac-aid* models are therefore considered to be normal.

#### 4.6.2 Long-run estimates

The long-run relationship is also obtained using the OLS regression. The results are shown in Table 7. In the long run, only aid from the multilaterals and DAC countries has a significant effect on growth. The relationship from these two sources is negative, as predicted in Chapter 3. In the *all aid* model, five of the independent variables are statistically significant, with age dependency ratio, inflation and population growth having negative relationships with growth in the long run, and government consumption and economic freedom index having a positive relationship with growth in the long run. The negative relationship with *age* is found with all four models, and this can be linked to the heavy dependency burden put on the working population, which leaves little for savings or re-investment. As anticipated, inflation has a negative relationship with economic growth across all models. Any economy with high inflation will experience a decrease in economic growth, mainly due to the depreciation of value of assets and the currency of that economy. Research by Oteng-Abeyie (2010, 232-239) shows that any inflation level above 11% is considered to have a negative effect on economic growth.

Population growth means more people to take care of, and lately it has led to higher migration rates to the urban areas, hence the negative relationship with growth across all models. Government consumption or expenditure on public goods, in the long run, is the time that expenditure is anticipated to make returns to the investments made. The only issue is that it is only significant in the *all aid* and *dac-aid* models. This can be explained by the times that aid is incorporated into the budget to facilitate development. ODA Funds and funds from multilateral organizations are not meant to facilitate budget deficits. Economic freedom index, just like in the short run has a positive relationship with growth, but this time around not for the *aid* model. *Efi* has a positive relationship as long as the institutions have and maintain a good score.

**Table 7: Long-run estimates**

	<i>all aid</i>	<i>aid</i>	<i>multi-aid</i>	<i>dac-aid</i>
<i>gdp-1</i>	-0.7710*** (0.0621)	-0.6528 (0.1031)	-0.1780 (0.3412)	-0.5377 (0.0336)
<i>aid</i>	3.0142 (0.3784)	-0.2391 (0.2092)	.....	.....
<i>multi-aid</i>	-2.9674 (0.4074)	.....	-0.3574*** (0.0797)	.....
<i>dac-aid</i>	-3.5574 (0.2435)	.....	.....	-0.7803* (0.0024)
<i>inv</i>	0.3993 (0.3582)	0.4839 (0.1760)	0.0811 (0.7352)	0.4572*** (0.0536)
<i>age</i>	-72.782** (0.0357)	-45.7105** (0.0304)	-17.0716* (0.0093)	-45.5847* (0.0022)
<i>inf</i>	-0.0777 *** (0.0635)	-0.0583** (0.0494)	-0.0339 *** (0.0887)	-0.0594*** (0.0078)
<i>pop</i>	-157.67** (0.0283)	-83.3778** (0.0555)	-33.7815 (0.1641)	-92.5983** (0.0031)
<i>gov</i>	1.7101*** (0.0599)	0.8681 (0.1880)	-0.1579 (0.6784)	1.1025** (0.0262)
<i>efi</i>	0.7656*** (0.0754)	0.4706 (0.2515)	0.5412* (0.0005)	0.4470*** (0.0994)
R <sup>2</sup>	0.9604	0.8228	0.7808	0.9200
Adjusted R <sup>2</sup>	0.7723	0.5472	0.5798	0.7957
F-Statistic	5.1052	2.9854	3.8850	7.4
Durbin Watson	2.5896	2.5414	2.1270	1.8979
Probability	0.0625	0.0520	0.0139	0.0024

Note: *all aid* = aid from all sources; *aid* = ODA; *multi-aid* = ODA from multilateral organisations; *dac-aid* = aid from the DAC countries. P-values in parentheses. \*, \*\* and \*\*\* denotes significance at 1%, 5% and 10% respectively.

The diagnostic statistics show a good score across the board with the R<sup>2</sup> and adjusted R<sup>2</sup>. For *all aid*, 96% of growth is explained by the variables, 82% for *aid*, 78% for *multi-aid* and 92% for *dac-aid*. All models have a normal Durbin Watson score and are statistically significant. Overall the *dac-aid* model seems to score the highest as all its variables are statistically significant and growth is explained by 92% of the variables. This is due to the structure of *dac-aid* and the fact that there is a strict accountability policy, thus making it more effective.

#### 4.6.3 Stability test

To establish stability of the long-run regression, the cumulative sum of recursive residuals, the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMSQ) were performed for all four models, and the results are shown in Appendix 2. According to Bahmani-Oskooee and Ratha (2004, 77-98), the null hypothesis cannot be rejected if the statistics plotted lie within

the bounds of the 5% significance level. Dufour (1982), using the recursive analysis to test various statistics, emphasised the importance of stability of parameters in predictive models. Since the values plotted from the statistics in Appendix 2 are within those bounds, the coefficients are consistent and stable, with unbiased information on the dependent and independent variables.

## 5 RESEARCH CONCLUSIONS

### 5.1 Introduction

This chapter summarises the entire study and suggests policy recommendations based on the findings, as well as avenues for future study. According to the first hypothesis, the main objective of the study was to establish whether there is a significant positive relationship between foreign aid and economic growth in Uganda. As part of the second hypothesis, the study established whether the relationship between aid and growth is impacted by institutional policy.

The study explored the Harrod-Domar model, the two-gap model, the ‘big push’ theory and the neoclassical model developed by Robert Solow and Trevor Swan (Solow, 1956; Swan, 1956), in order to provide a context for the theoretical framework of the study. An empirical analysis was also completed to analyse the research findings from a number of scholars: those who believe there is a positive relationship, those who believe there is a negative relationship and those who argue both sides based on different determinants.

The study established an empirical model in order to explain the relationship between foreign aid and growth. In the model, GDP growth was the dependent variable, and aid, multilateral aid, DAC aid, gross capital formation, age dependency ratio, inflation rate, population growth rate, government expenditure and economic freedom index were the independent variables. The study employed the ARDL bound testing approach by Pesaran and Shin (1999) to test the existence of the long-run cointegration relationship between the four different models. After establishing the existence of the long-run relationship, the short and long-run regression analyses were completed for all four models.

### 5.2 Summary and Conclusion of the Study

The purpose of the study was to establish whether there is an impact of aid on economic growth, using Uganda as the case study for the period 1987 to 2011. Further, four models were used to establish whether aid from different sources would have a different impact. The results obtained from the study show that there is a significant positive relationship between aid and growth for the *all aid* and *dac-aid* models in the short run but a significant negative relationship between

foreign aid and economic growth in the long run for two of the four models<sup>9</sup>. This is in line with the established hypothesis for the short run, but the hypothesis is not supported for the long run. The change from positive to negative for *dac-aid* could be attributed to rent-seeking tendencies. The ARDL test found a long-run relationship and a cointegration relationship between all four models.

This study also shows that with good institutional policy the relationship between aid and growth could be averted. This is depicted by the significant relationship with economic freedom index in all four models in the short run and three of the models in the long run. The coefficients are even higher in the long run, compared to the short run, implying that over time if a good reputation has been established, the increase in growth will be higher per unit increase in the economic freedom index. It can therefore be said that the quality of institutional policy has a significant effect on the relationship between aid and growth.

### **5.3 Policy Recommendations of Findings**

According to Easterly (2001), Uganda is one of the success stories, as far as aid effectiveness is concerned. However, there would appear to be more to do regarding institutional quality, given that better institutions not only attract more foreign aid but work with it more effectively and efficiently, and if the ‘big push’ theory is true, Uganda could come out of the low-income bracket. Yet some donors have failed to assist economic growth and foster institutional quality. There is also evidence that some donors have managed to foster both economic growth and institutional quality. This study supports a policy recommendation that donors check the quality of donations made, in place of just aiming for the ‘big push’.

Another recommendation is that instead of simply giving aid to the country, donors focus on either a few different recipients or a few sectors that can easily be monitored. The results from the *all aid* model were not significant, as it is a wide group, yet the results from *dac aid* were significant for all variables in the long run.

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<sup>9</sup> Only aid from multinational organisations and the DAC countries showed a significant relationship

#### **5.4 Avenues for Future Research**

This paper examined the causal relationship between aid and growth, but a further study could include more variables such as technology, given the forever evolving world. Another variable to include could be trade, including both imports and exports, since with globalisation the world has become a global village, with more cross-border trade than ever before.

While this study was based on Uganda alone, a further study could compare the effect of foreign aid on more African countries and regions such as Southern Africa and North Africa, as well as trading blocks such as the Southern African Development Community, the Common Market for Eastern and Southern Africa, the East African Community and the Economic Community of West African States. A further study could even compare Africa as a whole to other continents.

Uganda's scores in economic freedom index have enabled it to attract more aid in the past, but more research is needed on how to deal with governance and policies. Such research could give completely different results.

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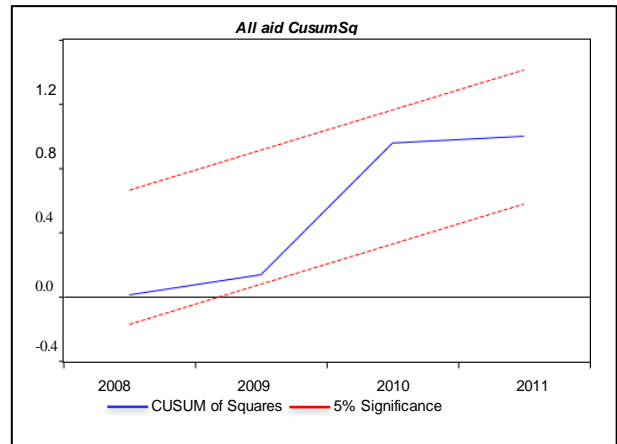
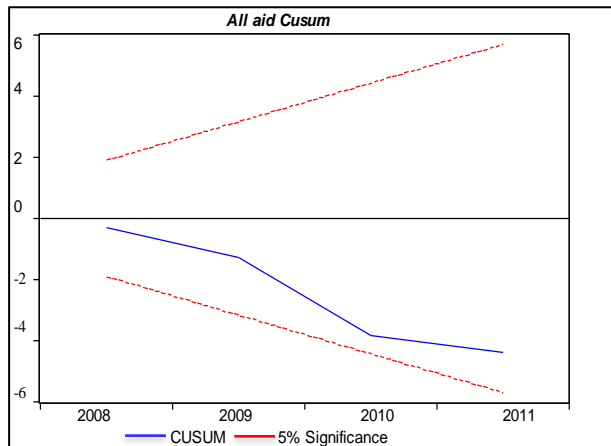
## APPENDICES

### Appendix 1: Uganda country data over the period 1991 to 2015

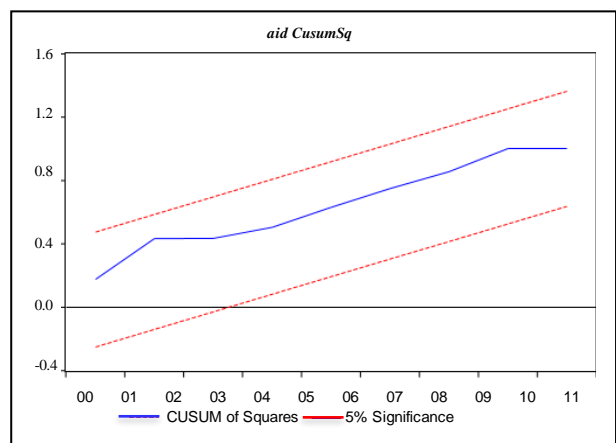
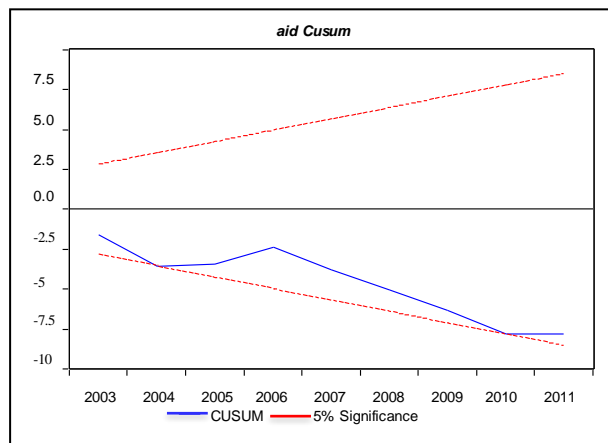
Year	<i>gdp</i>	<i>aid</i>	<i>multi-oda</i>	<i>dac-oda</i>	<i>inv</i>	<i>age</i>	<i>inf</i>	<i>pop</i>	<i>gov</i>	<i>efi</i>
1987	0.2759	4.7683	3.3065	1.3837	9.7182	102.1028	200.0260	3.6099	7.9609	27.5000
1988	4.3835	6.0162	3.1300	2.8882	10.7923	102.2870	196.1188	3.6529	8.1053	27.0000
1989	2.5897	9.7887	4.8403	3.1004	11.1362	102.5301	61.4410	3.6110	6.9716	26.0000
1990	2.7969	15.4052	8.7364	5.6781	12.7041	102.8444	33.1187	3.5147	7.5110	27.4000
1991	2.0097	19.9679	9.8373	8.5952	15.1713	103.2300	28.0681	3.4155	8.8395	30.0000
1992	0.0266	25.3274	15.8854	8.9240	15.9389	103.6667	30.8197	3.3346	9.6576	34.0000
1993	4.8584	18.9164	8.0709	10.8054	15.2458	104.1220	0.1725	3.2537	11.1506	45.0000
1994	3.0763	18.8243	9.8553	8.6940	14.6818	104.5561	10.0368	3.1770	11.7452	51.7000
1995	8.1095	14.4751	6.9154	7.4311	12.4120	104.9405	6.5501	3.1088	11.1783	62.9000
1996	5.8085	11.1453	4.8794	6.1304	20.1727	105.2701	7.1916	3.0378	11.7569	66.2000
1997	2.0140	12.9687	5.9142	7.0044	18.1786	105.5470	8.1690	2.9802	13.2908	66.6000
1998	1.8410	9.9529	4.1198	5.8330	16.4471	105.7615	0.0688	2.9645	12.8669	64.7000
1999	4.8620	10.0862	4.1150	5.9584	19.5491	105.9044	5.7774	2.9986	12.8643	64.8000
2000	0.0298	13.7776	4.3460	9.3357	19.4838	105.9710	3.3920	3.0638	14.5043	58.2000
2001	1.9375	14.0774	7.4290	6.6227	19.3021	105.9537	1.8651	3.1348	15.5818	60.4000
2002	5.3173	11.7404	4.1799	7.5556	20.2174	105.8575	-0.2875	3.1914	16.7925	61.0000
2003	3.0873	15.7440	6.4537	9.2851	20.9841	105.7043	8.6805	3.2318	15.7451	60.1000
2004	3.3921	15.3144	6.6774	8.6303	20.1457	105.5212	3.7213	3.2497	13.8873	64.1000
2005	2.9308	12.9059	5.4056	7.4952	22.3551	105.3232	8.4487	3.2515	14.4928	62.9000
2006	7.2427	15.9005	6.4634	9.4278	21.1304	105.1102	7.3107	3.2495	14.1023	63.9000
2007	4.9476	14.5795	6.1381	8.4365	22.0831	104.8698	6.1385	3.2481	12.8930	63.1000
2008	5.2418	11.3669	4.3727	6.9863	22.9771	104.5879	12.0509	3.2412	11.2106	63.8000
2009	3.8396	11.2931	4.8573	6.4317	24.1275	104.2474	13.0173	3.2292	11.5628	63.5000
2010	2.5518	10.0217	3.9886	6.0248	23.4870	103.8360	3.9766	3.2127	11.7173	62.2000
2011	3.3467	9.4011	3.4694	5.9162	24.6402	103.3541	18.6930	3.1931	11.3298	61.7000

## Appendix 2: CUSUM and CUSUMSQ graphs

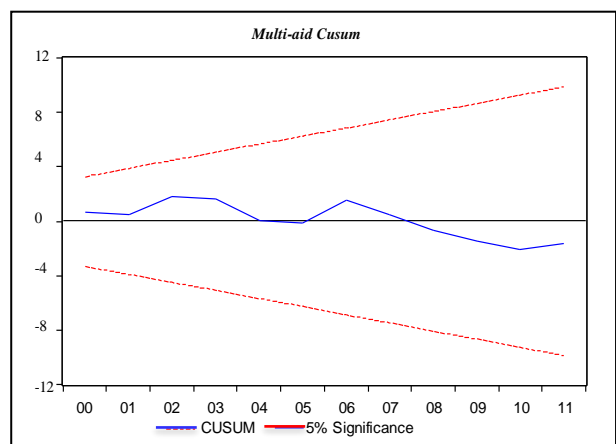
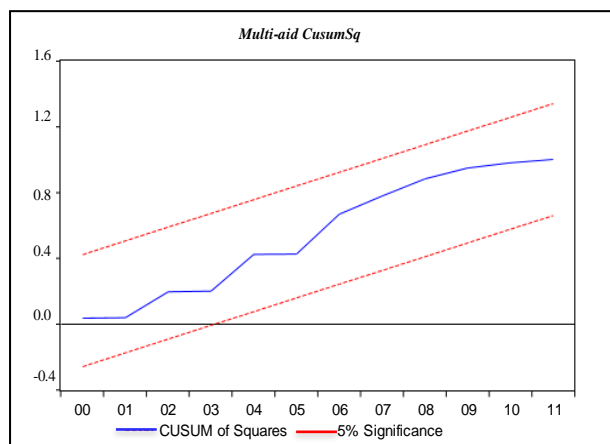
*Model 1: All aid*



*Model 2: Aid*



*Model 3: Multi-aid*



**Model 4: DAC-aid**

