

**THE RELATIONSHIP BETWEEN FOREIGN AID AND ECONOMIC  
GROWTH IN GHANA**

**(1980-2013)**

**BY**

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**THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA,  
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## Declaration

This is to certify that this thesis is the result of research undertaken by Alhassan Abdul-Jalilu towards the award of a Master of Philosophy (MPHIL) degree in Economics at the Department of Economics, University of Ghana. This thesis has not been submitted either in part or in full for any other degree and all references to other people's works has been duly acknowledged.

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## DEDICATION

This work is dedicated to my father, mother and my uncle, Dr. Zakaria Ibn Ibrahim for their love and support throughout this programme.



## ACKNOWLEDGEMENT

I will first and foremost, thank Almighty Allah for the protection and guidance throughout my life and in writing this thesis. I also take this opportunity to thank my supervisors, Prof. Amoah Baah Nuakoh and Dr. Emmanuel Codjoe for their tremendous support and encouragement throughout this work. It will not have been possible without their constructive criticisms and contributions for which am grateful.

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## ABSTRACT

Ghana as a developing country is faced with low per capita income, low savings and slow development. Foreign aid acts as a supplement to domestic sources of financing to stimulate economic growth and development. This study examines the short and long run relationship between foreign aid and economic growth in Ghana spanning the period 1980 to 2013. The study also examines whether foreign aid in Ghana is subject to diminishing returns. The study employs the ARDL Bounds testing technique for cointegration to investigate the relationship between foreign aid and economic growth in Ghana.

The study finds that the impact of foreign aid is positive and statistically significant in both the short and long run. The study also finds that, although foreign aid has a positive impact, it is subject to diminishing returns.

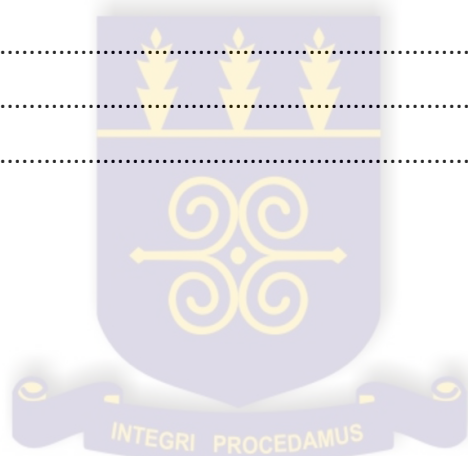
The study made recommendations of using policy to address the lack of absorptive capacity constraint and finding alternative means of sourcing resources such as foreign direct investment, broadening the tax base and encouraging domestic savings.

## Table of Contents

|                                                  |     |
|--------------------------------------------------|-----|
| Declaration.....                                 | ii  |
| DEDICATION .....                                 | iii |
| ACKNOWLEDGEMENT .....                            | iv  |
| ABSTRACT.....                                    | v   |
| CHAPTER ONE .....                                | 1   |
| 1.0 Background.....                              | 1   |
| 1.1 Problem Statement .....                      | 6   |
| 1.2 Objectives of the study.....                 | 8   |
| 1.3 Justification of the study .....             | 9   |
| 1.4 Sources of data.....                         | 9   |
| 1.5 Organization of the study.....               | 10  |
| CHAPTER TWO .....                                | 11  |
| OVERVIEW OF FOREIGN AID IN GHANA .....           | 11  |
| 2.0 Introduction.....                            | 11  |
| 2.1 An overview of foreign aid in the world..... | 11  |
| 2.2 Forms and types of foreign aid .....         | 14  |
| 2.2.1 Project aid .....                          | 17  |
| 2.2.2 Commodity aid.....                         | 17  |
| 2.2.3 Programme aid.....                         | 17  |
| 2.2.4 Technical assistance.....                  | 17  |
| 2.3 The history of foreign aid in Ghana.....     | 18  |
| 2.4 Multi Donor Budget Support (MDBS) .....      | 25  |
| 2.5 Policies on aid effectiveness .....          | 30  |
| 2.5.1 Paris Declaration.....                     | 30  |
| 2.5.2 The Accra Agenda for Action (AAA).....     | 32  |
| 2.5.3 Tunis consensus .....                      | 34  |
| CHAPTER THREE .....                              | 41  |
| LITERATURE REVIEW .....                          | 41  |

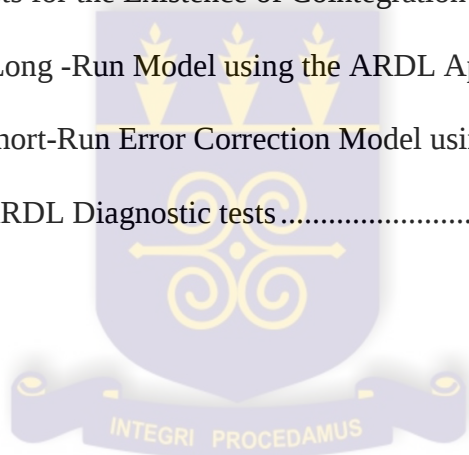
|                                                                                               |    |
|-----------------------------------------------------------------------------------------------|----|
| 3.0 Introduction.....                                                                         | 41 |
| 3.1 Aid-Growth Regression Analysis in Growth models .....                                     | 44 |
| 3.2 Empirical Evidence of the Effectiveness of Aid.....                                       | 48 |
| 3.3 Aid and Fungibility Analysis .....                                                        | 57 |
| 3.4 Aid and the ‘Dutch Disease’ .....                                                         | 61 |
| CHAPTER FOUR.....                                                                             | 65 |
| RESEARCH METHODOLOGY.....                                                                     | 65 |
| 4.0 Introduction.....                                                                         | 65 |
| 4.1 Model specification.....                                                                  | 65 |
| 4.2 Empirical Estimation Model .....                                                          | 69 |
| 4.3 Definition and Measurement of Variables .....                                             | 70 |
| 4.3.1 Dependent Variable .....                                                                | 70 |
| 4.3.2 Explanatory Variables.....                                                              | 70 |
| 4.4 Techniques for Estimation.....                                                            | 72 |
| 4.4.1 Justification of the Autoregressive Distributed Lag (ARDL) Bounds Testing Approach..... | 73 |
| 4.4.2 Advantages of Autoregressive Distributed Lag (ARDL) Bounds testing Approach ....        | 73 |
| 4.4.3 Autoregressive Distributed Lag (ARDL) Bounds Testing Technique Procedure.....           | 74 |
| 4.5 Diagnostic Tests.....                                                                     | 78 |
| 4.6 Data Source.....                                                                          | 78 |
| 4.7 Chapter Summary .....                                                                     | 78 |
| CHAPTER FIVE .....                                                                            | 79 |
| DATA ANALYSIS AND DISCUSSION OF RESULTS .....                                                 | 79 |
| 5.0 Introduction.....                                                                         | 79 |
| 5.1 Summary of Descriptive statistics.....                                                    | 79 |
| 5.2 Trend Analysis of Raw Data.....                                                           | 81 |
| 5.3 Unit Root Test Results .....                                                              | 85 |
| 5.4 ARDL Bounds Test for Cointegration Procedure.....                                         | 87 |
| 5.4.1 Test for Long Run Relationship between the Variables .....                              | 88 |
| 5.4.2 Results of Long run Relationship.....                                                   | 89 |
| 5.4.3 Result of Short Run Dynamic Model.....                                                  | 92 |

|                                                                    |     |
|--------------------------------------------------------------------|-----|
| 5.5 Diagnostic Test Results.....                                   | 95  |
| 5.6 Chapter Summary .....                                          | 97  |
| CHAPTER SIX.....                                                   | 99  |
| SUMMARY, CONCLUSION AND RECOMMENDATIONS .....                      | 99  |
| 6.0 Introduction.....                                              | 99  |
| 6.1 Summary of the study .....                                     | 99  |
| 6.2 Conclusion .....                                               | 101 |
| 6.3 Limitation of the study.....                                   | 102 |
| 6.4 Policy recommendations and future research .....               | 103 |
| Bibliography .....                                                 | 106 |
| APPENDIX A.....                                                    | 120 |
| FIGURE A1: PLOT OF VARIABLES IN LEVELS AND FIRST DIFFERENCES ..... | 120 |
| APPENDIX B .....                                                   | 122 |
| APPENDIX C .....                                                   | 123 |
| Short Run Results .....                                            | 123 |



## LIST OF TABLES

|                                                                                                        |    |
|--------------------------------------------------------------------------------------------------------|----|
| Table 1.1: Flow of aid, bilateral share of ODA and net ODA as a percentage of GNI from 2000-2012 ..... | 2  |
| Table 2.1: Ghana ODA Envelope in Millions US\$ (2003-2010) .....                                       | 24 |
| Table 2.2: The contribution of various countries to the MDBS (in millions).....                        | 29 |
| Table 5.2: Descriptive Statistics of Log Variables from 1980 to 2013 .....                             | 80 |
| Table 5.3: Phillips-Perron (PP) Test for Unit Root from 1980 to 2013.....                              | 85 |
| Table 5.4: Augmented Dickey-Fuller (ADF) Test for Unit Root from 1980 to 2013 .....                    | 86 |
| Table 5.5: Bounds Tests for the Existence of Cointegration .....                                       | 88 |
| Table 5.6 :Estimated Long -Run Model using the ARDL Approach .....                                     | 89 |
| Table 5.7 Estimated Short-Run Error Correction Model using the ARDL Approach.....                      | 93 |
| Table 5.8 Results of ARDL Diagnostic tests.....                                                        | 95 |



## LIST OF FIGURES

|                                                                                 |    |
|---------------------------------------------------------------------------------|----|
| Figure 1.1: Bilateral Share of Gross ODA in Ghana .....                         | 3  |
| Figure 1.2: Top Ten Donors of Gross ODA .....                                   | 4  |
| Figure 2.1: Net ODA receipts over the period 1980-2012 (Current US\$'000) ..... | 20 |
| Figure 5.1: Multiple Graphs of Raw Variables from 1980 to 2013 .....            | 84 |
| Figure 5.2: Plot of Cumulative Sum of Recursive Residuals (CUSUM).....          | 96 |
| Figure 5.3: Plot of Cumulative Sum of Square of Recursive Residuals .....       | 97 |



## LIST OF ACRONYMS & ABBREVIATIONS

|         |                                                        |
|---------|--------------------------------------------------------|
| 2SLS    | Two Stage Least Squares                                |
| 3SLS    | Three Stage Least Squares                              |
| AAA     | Accra Agenda for Action                                |
| ADF     | Augmented Dickey Fuller                                |
| AIC     | Akaike Information Criteria                            |
| AfDB    | African Development Bank                               |
| ARDL    | Auto-Regressive Distributed Lag                        |
| BOP     | Balance of Payments                                    |
| BRICS   | Brazil, Russia, India, China and South Africa          |
| CARE    | Centre for American Relief in Europe                   |
| CEPA    | Centre for Policy Analysis                             |
| CGL     | Computable General Equilibrium                         |
| CUSUM   | Cumulative Sum                                         |
| CUSUMSQ | Cumulative Sum of Squares                              |
| DAC     | Development Assistance Committee                       |
| DPs     | Development Partners                                   |
| DP-PAF  | Development Partner's Performance Assessment Framework |
| ECM     | Error Correction Model                                 |
| ERP     | Economic Recovery Programme                            |
| EU      | European Union                                         |
| FM      | Framework Memorandum                                   |
| GDP     | Gross Domestic Product                                 |
| GNI     | Gross National Income                                  |
| GPRS    | Ghana Poverty Reduction Strategy                       |

|         |                                                       |
|---------|-------------------------------------------------------|
| GPRS II | Growth and Poverty Reduction Strategy II              |
| GSGDA   | Ghana Shared Growth and Development Agenda            |
| GoG     | Government of Ghana                                   |
| HIPC    | Highly Indebted Poor Country                          |
| IBRD    | International Bank for Reconstruction and Development |
| IMF     | International Monetary Fund                           |
| I-PRSP  | Interim Poverty Reduction Strategy Paper              |
| MDBS    | Multi-Donor Budget Support                            |
| MDGS    | Millennium Development Goals                          |
| MDRI    | Multilateral Debt Relief Initiative                   |
| MoF     | Ministry of Finance                                   |
| NDGSE   | National Development Goal Setting Exercise            |
| NGO     | Non- Governmental Organizations                       |
| NRC     | National Redemption Council                           |
| OECD    | Organization of Economic Cooperation and Development  |
| OLS     | Ordinary Least Square                                 |
| PNDC    | Provisional National Defence Council                  |
| PP      | Phillips-Perron                                       |
| RER     | Real Exchange Rate                                    |
| SBC     | Schwartz Bayesian Criteria                            |
| SAP     | Structural Adjustment Program                         |
| UNRRA   | United Nations Relief and Rehabilitation Agency       |
| USA     | United States of America                              |
| VAR     | Vector Auto-Regression                                |
| WDI     | World Development Indicators                          |

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.0 Background**

Developing countries are characterized by low per capita income, low savings and investment and slow development. Foreign aid has been a major source of support for development in Africa and developing countries at large. The main role of foreign aid, according to Harrod-Domar's model is to supplement domestic sources of finance, such as savings, with the resultant effect of increasing investment and capital stock to stimulate economic growth and development. Undoubtedly, foreign aid does not only play a significant role in solving the problem of poverty, but it also promotes economic development as rightly confirmed by (Sachs et al., 2004; Sachs 2006). According to the Ministry of Finance (Ghana), about 60% of the national budget is donor funded (MoF, 2010). Some of these inflows are intended to promote economic growth in rural and deprived areas of the country, in order to facilitate the achievement of the millennium development goals. Moreover, aid has been used in facilitating sound macroeconomic management and stability. The Heavily Indebted Poor Countries (HIPC) Initiative and the Multilateral Debt Relief Initiative have both greatly reduced debt-related vulnerability and the cost of debt servicing in the country for some time now. With the adoption of the Multi-Donor Budget Support (MDBS) programme, the government is able to conjecture how much aid to expect for the coming year, which goes to solve the unpredictable nature of foreign aid. Hence, the problem of foreign aid causing inflation, exchange rate volatility and high interest rate due to its unpredictability has minimized.

Table 1.1: Flow of aid, bilateral share of ODA and net ODA as a percentage of GNI from 2000-2012

| Years                       | 2000   | 2001   | 2002   | 2003   | 2004   | 2005   | 2006   | 2007   | 2008   | 2009   | 2010   | 2011   | 2012   |
|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| NET ODA (USD million)       | 598    | 641    | 686    | 983    | 1479   | 1151   | 1243   | 1165   | 1307   | 1582   | 1693   | 1810   | 1808   |
| Bilateral share (gross ODA) | 65.60% | 63.20% | 65.20% | 56.50% | 67.10% | 60.20% | 52.90% | 68.20% | 64.70% | 62.50% | 59.40% | 54.20% | 51.90% |
| Net ODA/GNI                 | 12.40% | 12.30% | 11.40% | 13.20% | 16.30% | 10.90% | 6.10%  | 4.70%  | 4.60%  | 6.10%  | 5.30%  | 4.70%  | 4.60%  |

Source: World Development Indicators 2015

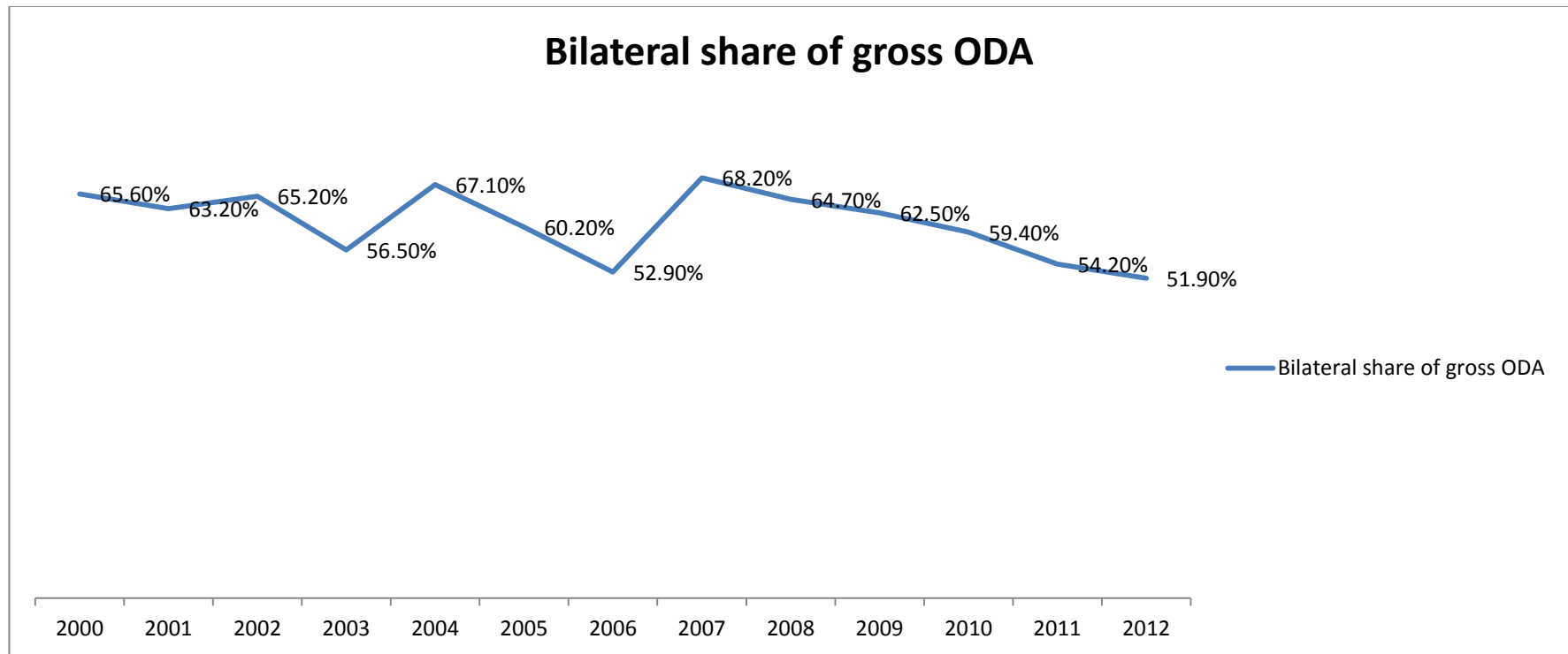


Figure 1.1: Bilateral Share of Gross ODA in Ghana

Source : World Development Indicators 2015

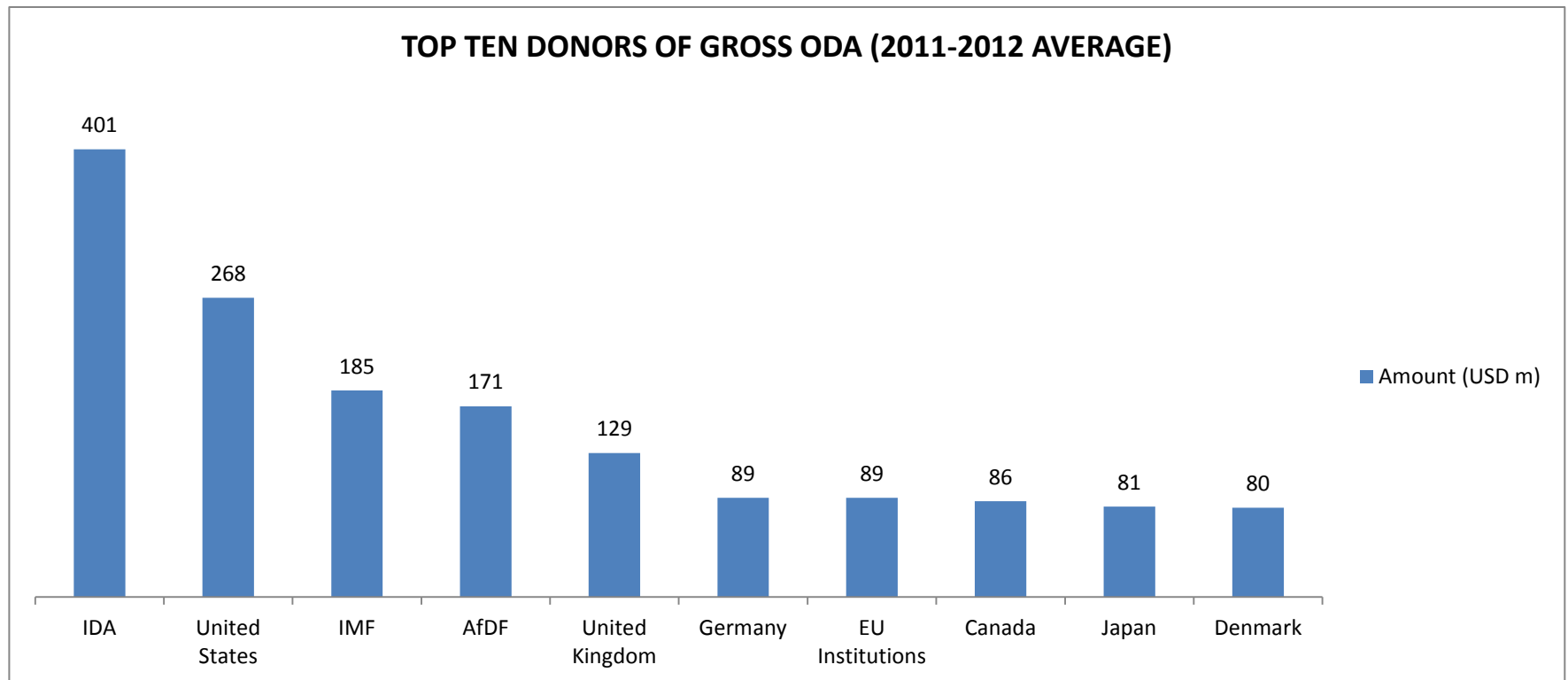


Figure 1.2: Top Ten Donors of Gross ODA

Source : OECD

Figure 1.2 shows the top ten (10) donors of ODA to Ghana. It reflects a mix of multi-lateral agencies such as the International Development Association, the International Monetary Fund (IMF) and the African Development Fund (AfDF), and countries such as the United States United Kingdom, Germany, EU institutions, Canada, Japan and Denmark.

The inflow of foreign aid from the above mentioned countries and agencies are supposed to support the development process of the country and to enhance growth. However, the lower levels of growth in Africa and developing countries in general have called the effectiveness and the usage of aids into question. Some have argued that large inflow of aid is undesirable, because it has historically failed to promote economic growth (Easterly, 2007). It has also been argued that, foreign aid effectiveness crucially depends on the political institutions and the economic policies adopted in the recipient countries (Burnside and Dollar 2000).

Foreign aid plays a major role in the development process of developing countries by filling the savings and trade gaps which are predominant in these countries. According to Morrissey (2001), aid helps to bring about economic growth in diverse ways, including an increased investment in physical and human capital, increases capacity to import capital goods or technology, eliminates indirect effects that reduces investment or savings rates and lastly, it aids in technology transfer that increases the productivity of capital and thus promotes endogenous technical change (Ekanayake, 2007).

In general, however, McGillivray et al. (2006), noted that four main alternative views have been expressed in respect of aid flows to Africa: aid has decreasing returns, aid

effectiveness is influenced by external and climatic conditions, aid effectiveness is also influenced by political conditions and fourthly, aid effectiveness depends on institutional quality. Bauer (1976) argues that aid could actually undermine economic development. The following are the reasons why he said aid could either undermine or lead to no growth. They include the following; Aid could encourage more corruption. Aid could be wasted on unnecessary things such as presidential palaces and limousines, aid could help bad governments to remain in power leading to bad economic policies. These factors undermine the development process and do not bring about economic growth.

According to Griffen and Enos (1970), aid could lead to more conflicts and create serious instability if given to countries in the midst of wars. Most developing countries have limited absorptive capacities with weak infrastructure, weak institutions and the majority of the population being unskilled. It also has the tendency to reduce both private and government saving domestically. Private savings reduces due to a fall in the rate of return on private investment and a reduction in government revenue due to a fall in government tax revenues (Radelet, 2006). Aid could also cause a depreciation of the local currency, thus undermining the profitability of tradable goods widely known as the Dutch Disease. This therefore affects the competitiveness of the manufacturing sector (Arellano et al. 2009), and last but not the least, aid flows that come with large projects distorts the economy through inflation and changes in relative prices (Acharya, et al 2006). The end result of foreign aid is to retard growth and widen the inequality in the society.

### **1.1 Problem Statement**

Ghana is one of the African countries that have enjoyed a constant flow of foreign aid for so many years. Aid to Ghana prior to the economic reforms of the 1980s has been very

low. Ghana received Net ODA of about US\$61m in 1976 and about US\$90m in the following year 1977 (OECD). These inflows coincided with an increase in growth from (-3.5%) in 1976 to 2.3% in 1977 (OECD). Aid flows increased substantially in the late 1980s and Ghana was receiving more aid per capita than the average for Africa and other developing countries (Quartey, 2005). According to the World Bank (2007) Ghana was one of the countries that had moved from crisis to experience rapid growth within the 1980s due aid inflows.

In the 2000s, there was a massive increase in foreign aid flows into the country; Net ODA received in 2001 was US\$641m, which increased to US\$1419m in 2003 and to US\$1582 in 2010. These inflows coincided with massive economic growth in the country. The annual GDP growth in 2001 was 4%, which increased to 5.2% in 2003 and a further increase to 8% in 2010 (OECD). According to Armah and Nelson (2008), existing aid organizations have not been able to reduce or have had little impact on poverty reduction despite the astronomical sum of money they have spent in Sub-Saharan Africa and Ghana in particular.

According to the two-gap model, low domestic savings and inadequate foreign exchange are the stumbling blocks to the level of investment in developing countries. Foreign aid is the means of closing the gap between domestic savings and the level of investment needed to attain the necessary growth in developing countries. Foreign aid could have an impact on growth through domestic savings, investment and government budget.

The aid literature has identified certain problems as the possible causes of the difference in opinions on the relationship between aid and economic growth. There is the problem

of qualitative data, the amount of data available and the composition (Durberry et al., 1998). There is also the problem of using unsuitable proxies for some of the variables used in the literature.

The other problems have been the econometric technique and the model specification used. The time period used has been criticized as being too short to give any meaningful results. These are some of the problems causing the mix results in the aid- growth literature. With the advancement of the new growth theories such as the endogenous growth model, aid could be included within a robustly specified empirical model which this study seeks to do.

Furthermore, most of the studies done in Ghana specify the aid regression in a linear form. This study will adopt a nonlinear aid regression equation by including the square of aid to capture the possibility of diminishing returns to aid. The study uses a time period which is long enough to be able to make correct inferences from the data. This study seeks to complement the existing literature by adopting an up to date data and an advance econometric technique to establish the relationship between aid and economic growth in Ghana.

## **1.2 Objectives of the study**

The overall objective of the study is to establish the relationship between foreign aid and economic growth in Ghana. The study specifically seeks to

- Determine the relationship between foreign aid and economic growth
- Examine whether foreign aid in Ghana faces diminishing returns
- Give policy recommendations.

### **1.3 Justification of the study**

The flow of foreign aid has been volatile and low before the economic reforms of the 1980s. By the end of the 1980s, aid per capita received in Ghana was more than the average for Africa and other developing countries (Quartey, 2005). These inflows had a positive impact on growth, at least during the early part of the ERP (Aryeetey and Cox, 1997).

The change in power in 2001 also came with an increase in aid inflows. Aid had increased from US\$578.96million in 2001 to US\$1433.23million in 2008 and US\$1896.8million in 2010 in nominal terms. This inflow of aid decreased within the second half of 2008 and the first half of 2009, due to the global economic and financial crisis.

Ghana is one of the countries that have been a beneficiary of foreign aid and will continue to be a beneficiary in the future. The activities of aid inflows have had an impact on the growth trajectory of the country. Studying the relationship between foreign aid and economic growth will help us understand the impact of aid flows on economic growth in Ghana. It will also help us to know whether aid faces diminishing returns or not, so as to enable the Government make a decision on the amount of aid the country could absorb without reaching the level of diminishing returns to aid. This will help in policy formulation that will lead to economic growth.

### **1.4 Sources of data**

The study employs mainly secondary macroeconomic time series data for its analysis. The data will be sourced from the Ministry of Finance, World Bank Development

Indicators, Organization for Economic Co-operation and Development (OECD), Ghana Statistical Service, the Bank of Ghana and Food and Agriculture Organization.

### **1.5 Organization of the study**

The study is organized into six chapters with chapter one comprising the introduction. Chapter two looks at an overview of foreign aid in Ghana. Chapter three reviews the relevant empirical and theoretical literature. Chapter four discusses the methodology employed for this study. Data analysis and estimation of the model is discussed in chapter five. Chapter six concludes with the findings, recommendations, policy implications, limitations and areas for future research.

## **CHAPTER TWO**

### **OVERVIEW OF FOREIGN AID IN GHANA**

#### **2.0 Introduction**

This chapter discusses the modalities and aid structure in Ghana and the world at large. The chapter is organized into five sections: section 2.1 presents an overview of foreign aid in the world. Section 2.2 discusses the forms and types of foreign aid. The next section, 2.3 examines the history of aid in Ghana. Section 2.4 discusses the Multi-Donor Budget Support (MDBS) in Ghana and the last section 2.5, discusses some roundtable discussion on making aid more effective.

#### **2.1 An overview of foreign aid in the world**

The origin of foreign aid can be traced to at least the 19<sup>th</sup> century. However, the reason for the current aid structure was due to the Second World War. The aim of foreign aid was to help rebuild war devastated European regions. Several institutions were formed from organizations that originally were to cater for casualties of the war: Oxfam's responsibility was to take care of refugees from Greece. The Centre for American Relief in Europe (CARE) was also responsible for providing relief to countries within Europe. CARE's responsibility, however, was later extended to the rest of the world (Peter & Howard, 2004). The UN established the United Nations Relief and Rehabilitation Agency (UNRRA) in 1943, and the International Bank for Reconstruction and Development (IBRD or now called World Bank) in 1944, which began with loans for reconstruction in Europe. The main objective of the World Bank was the reconstruction of infrastructure, such as electricity and transportation in the European sub-regions which were being

destroyed in the war (Peter & Howard, 2004). The first developing country to receive loans from the World Bank was Colombia in the 1950. The European Recovery Programme, commonly known as the Marshall Plan was the last institution mandating the US to give a percentage of her GDP to countries affected by the Second World War. During its peak year, about 2-3 percentage of USA national income was transferred for the reconstruction of Europe. Although a lot of countries were benefitting from the Marshall Plan, the United Kingdom was receiving the highest amount of about 26% of the total, followed by France 18% and then West Germany 11%. The Marshall Plan gave out aid support in the form of programme aid (Peter & Howard, 2004).

In the 1950s, the provision of aid was affected by the ideological differences between the United States and the Soviet Union as shown by the competition between them to provide aid for developing countries. The main aim of foreign aid to the third world countries was for community development, which was in the form of project aid and food aid (Peter & Howard, 2004).

In the 1960s, the availability of bilateral aid agencies became the order of the day as a result of economic development in countries like France, Germany, Sweden, Netherlands and so on. Their main focus was in the form of infrastructural development and support for the productive sectors in the economy. The bilateral aid given was in the form of technical assistance and budget support, whilst multilateral aid came in the form of project aid.

In the 1970s, the structure of aid changed from infrastructural development to agriculture and social sector development. The major focus here was poverty reduction. The form of aid given was food aid and donors support for importation of goods and services.

By the 1980s, the multilateral aid agencies, especially the World Bank shifted from the project based aid to the structural adjustment programmes which were based on market mechanisms. This was a result of their mistrust of government institutions. This mistrust of government institutions gave birth to Non-Governmental Organizations (NGOs) and the Movement of Participatory approaches (Peter and Howard, 2004). The main focus of donors was macroeconomic reforms. Debt relief and financial programme aid were the dominant aid in the 1980s.

In the 1990s, Eastern Europe and the former Soviet Union themselves became aid dependent countries (Peter & Howard, 2004). The provision of aid was still marketed-based development strategy. The success of this criterion was questioned by the World Bank 'Wapenhans Report' which indicated the failure of its operations. According to Arndt et al. (2010), a number of factors have raised concern about the benefit of foreign aid. The persistence occurrence of economic crises in much of the developing world, geopolitical changes after the end of the cold war, the belief that policy conditionality was failing to promote policy reforms and that foreign aid was making developing country's aid dependent.

In the late 1990s Governments of developing countries realized that a renewed approach towards development assistance was needed to avoid the mistakes of the past. This was due partly to the realization that the world has become a global village where poverty and

conflict in one part of the world has an impact on everybody. According to Arndt et al. (2010), this gave birth to the Millennium Development Goals (MDGs) which included poverty reduction and provision of access to health, water and education. The main focus of the MDGs was to the poorest countries in the world especially Africa.

Aid was not just given out because the developed world was interested in the development of the developing world but also because of selfish interest. The basic reasons for giving out aid could be that of altruism and self-belief that their economic and political security would benefit if the under-developed countries were growing. The second objective was to promote political and strategic interest of donors. America gave a lot of foreign aid to Zaire because the USA indirectly benefited from Zaire.

Before discussing the history of foreign aid in Ghana, I would like to briefly discuss the form and types of foreign aid.

## **2.2 Forms and types of foreign aid**

The term foreign aid has been defined in so many ways, but the standard definition is that provided by the Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD). Foreign aid is defined as “the flow to countries and territories on the DAC List of ODA Recipients and to multilateral institutions which are (1) provided by official agencies, including state and local government or by their executive agencies; (2) each transaction of which (a) is administered with the promotion of economic development and welfare of developing countries as its main objective; and (b) is concessional in character and conveys a grant element of 25% (calculated at a rate of discount of 10%). A loan acts as aid if it has at

least 25% grant element, meaning the present value of the loan must be at least 25% below the present value of a comparable loan at a present market interest rate.

The DAC has classified aid into three categories namely, Official Development Assistance, Official Assistance and Private Voluntary Assistance. Official Development Assistance is the kind of aid provided by donor Governments to low and middle income countries. This is the largest kind of aid available worldwide. Official Assistance is the aid provided by donor countries to developed countries with per capita income higher than US\$9000. Private Voluntary Assistance is grants from non-governmental organizations, religious groups, charities, foundations and private companies.

Aid can be bilateral or multilateral in nature. Bilateral aid is when aid flows from a developed nation to a developing nation. The main motive of this type of aid is to help accelerate development in less developed countries (Radelet, 2006). Multilateral aid on the other hand, is the flow of aid to developing nations from international financial institutions or world agencies such as the World Bank, United Nations and the International Monetary Fund (IMF). It is the contributions of funds from governments to the international organizations that are used as an aid for developing countries (Radelet, 2006).

Foreign aid could also come in the form of tied or untied aid. Tied aid is that aid which mandates the recipient country to buy goods and services from donor countries or their allies. Untied aid on the other hand does not require recipient countries to buy goods and services from donors. Recipient countries have the freewill to buy from any country of their choice.

The issue of tying aid could be of both political and economic in nature. According to Jepma (1991), since aid is the flow of resources from developed to underdeveloped, it becomes a financial cost to donor countries. This has an effect on the balance of payment sheet of donors. To offset the adverse effect on BOP, donors tie aid to increase their exports. Tying aid is one way of expanding donors markets. From a political point of view, tying aid strengthens public and business support for the donors. It is also seen as a sign of good faith from donors. Many donors want their aid to be visible. Tying aid could provide such visibility that donors want.

However, ODA has recommended untied aid as the best option for the development process of developing countries (Clay et al, 2008). This might be due to the following reasons;

- Tied aid raises the cost of goods and services
- There is the issue of technical incompatibility of technologies. Tied aid favours capital intensive projects which require donor base technical expertise. This could lead to the provision of goods, technology and advice that do not favour the development agenda of recipient countries. This will cause divergence from priority projects to other projects which are not in the interest of the citizenry.
- Tied aid also comes with administrative burdens and political pressures.

Foreign aid can be classified into four (4) different categories, namely project aid, commodity aid, programme aid and technical assistance. Below is a discussion of the various categories of foreign aid.

### **2.2.1 Project aid**

It involves the direct participation of the donor country in the designing and the implementation of a project in the developing country. The donor country takes part in all the activities of the project from designing to implementation. This contributes the largest share of aid in Ghana.

### **2.2.2 Commodity aid**

Food aid is divided into three categories, namely; programmes food aid, project food aid and emergency food aid. Aid can be considered a food aid only if it crosses at least one international border. Food assistance by a government or private agency to local citizens does not count as food aid. Food aid must be concessionary in nature and must be either free or provided to the recipient at a cost lower than the commercial price of the food involved. Food aid must either be in the form of actual food known as direct transfers or in the form of funds or goods to be exchanged for food.

### **2.2.3 Programme aid**

It involves a range of interventions such as budget support, debt relief and balance of payments support. The Key characteristics of programme aid are that it is channelled directly to governments; it uses local accounting systems, it is not linked to specific project activities and is quick disbursing.

### **2.2.4 Technical assistance**

It is non-financial assistance provided by developed countries to developing countries. It can take the form of sharing information and expertise, instructions, skills training,

transmission of working knowledge, and consulting services and may also involve the transfer of technical data.

### **2.3 The history of foreign aid in Ghana**

The flow of foreign aid in Ghana was influenced by the historic and geopolitical factors within the 1960s and 1970s. Aid flow in Ghana was relatively unimportant until the mid-1960s (Harrigan and Younger, 2000). This was as a result of the Nkrumah government's mistrust of the intentions of the major donors such as Britain and the USA. The Convention Peoples Party (CPP), won elections and inherited a lot of foreign exchange reserves, little debt and a small public sector from the colonial masters (Killick, 1978; Quartey, 2002). With all these at their disposal, the Convention People Party needed very little foreign exchange and budgetary support until the 1961 balance of payment crisis (Killick, 1978; Quartey, 2005).

By 1961, due to the balance of payment problems, there was the need to attract foreign aid to help solve the problem. However, Nkrumah's consistent criticism of the West in general and particularly Britain and the USA did not help matters. The Nkrumah's government was however able to attract aid from the Eastern bloc (Killick, 1978). In the course of running the aid financed programmes, the relationship broke down which affected the disbursement of aid (Killick, 1978).

Due to the overthrow of the Nkrumah's Convention People Party and the economic mismanagement, the level of aid flow was very low in the 1970s. In 1972, under the NRC government headed by the late Kutu Acheampong, Ghana was blacklisted in the international financial circles for repudiating some external debts. By 1979, the

acceptance of democratically elected government led to increase in aid flows for two consecutive years. By 1981, due to the overthrow of the government by the armed forces, the flow of foreign aid was severely affected.

Foreign aid became an integral part of Ghana's economic growth and development in the 1980s. The Structural Adjustment Program (SAP), adopted by the PNDC government in 1983 attracted a constant flow of aid into the country. According to Quartey (2005), aid flows increased substantially by the end of the 1980s and Ghana was receiving more foreign aid per capita than the average for Africa and other developing countries. The amount of aid received increased from around US\$213m in 1984 to US\$716m in 1989 (OECD). Figure 2.1 shows the net ODA flows to Ghana from 1980 to 2012.

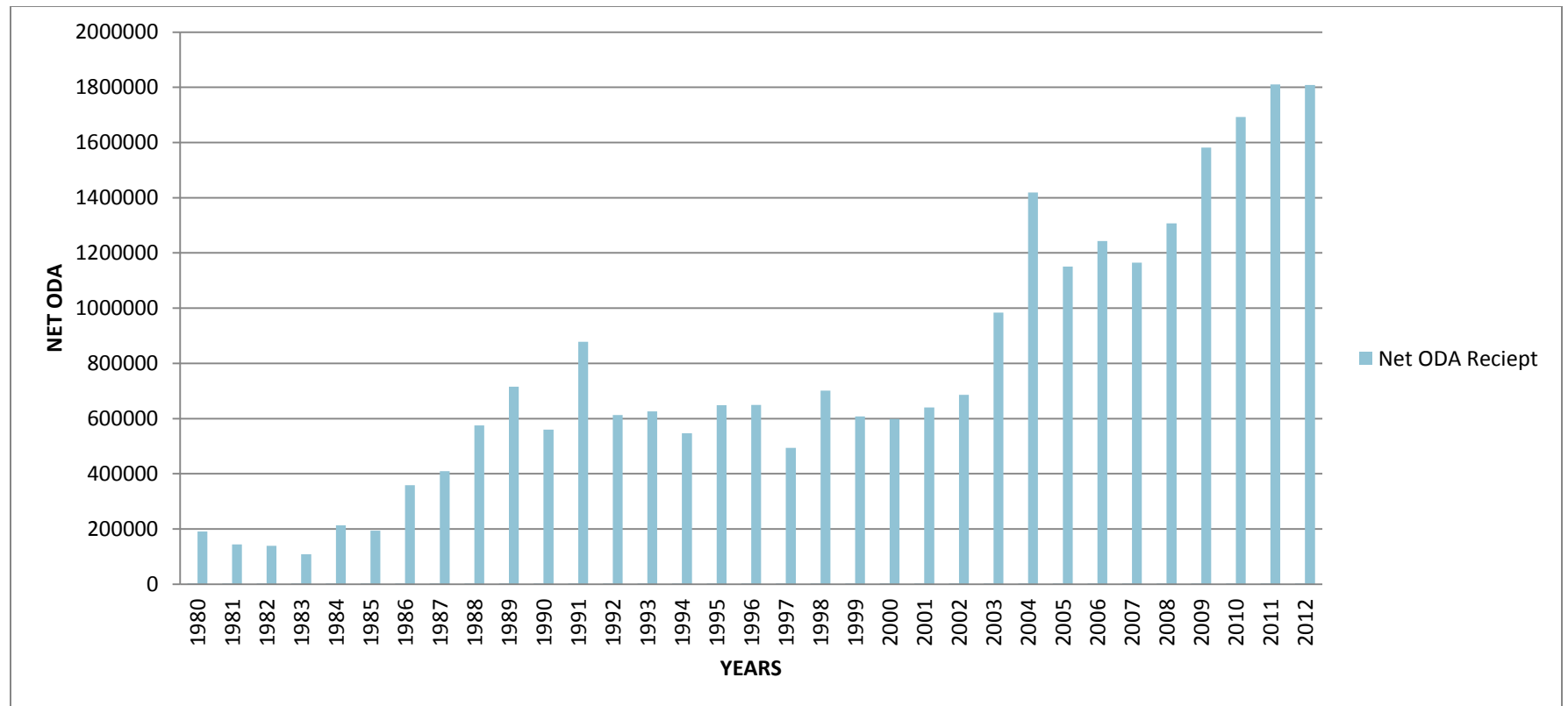


Figure 2.1: Net ODA receipts over the period 1980-2012 (Current US\$'000)

**Source:** Author's construction from WDI 2015

In the early 1990s, Ghana became a democratic country and this attracted huge interest from the donor community. By 2000, the interest from the donor community was reinforced because of the following factors outlined by Amoako (2005);

- The successful change of government from one political party to another.
- The new government's commitment to the rule of law and the democratic governance system in practise
- The commitment to poverty reduction and improvement in corporate governance and private sector led growth.

On December 31, 1981, Jerry Rawlings seized power through a military coup and the PNDC was later formed. For his connections with Libya, Cuba and the Eastern Europe during the critical period of the cold war, he successfully obtained IMF loans and further popularized the Economic Recovery Programme (ERP) (Osei, 1999). Ghana experienced an unprecedented growth in the mid-1980s which was praised by the IMF and the World Bank as a model country, investors worldwide regarded Ghana as the “Asian Tigers” of Africa.

Yet by the 1990s, the Ghanaian economy was not performing very well due to budgetary deficit problems, rising debt syndrome and high debt service burden alongside rapid growth in money supply, high and volatile inflation, unstable exchange rate and unfavorable terms of trade in general. After the structural adjustment and economic reforms in the 1980s, subsequent governments implemented policies to help bring about economic growth and development in the country.

From the mid-1990s, VISION 2020, originally named as National Development Policy Framework was drafted in Ghana. The main vision of this document was to improve individuals and the social wellbeing of people in the country. The VISION 2020 was preceded by the National Development Goal Setting Exercise (NDGSE), which involved all districts and regions. The main goal of the NDGSE was to improve the quality of life of all Ghanaians through poverty reduction, raising the living standards through a sustained increase in national wealth and equitable wealth distribution system.

Due to the failure of the above policy, an Interim Poverty Reduction Strategy Paper (I-PRSP) was prepared in 2000, to represent the period 2000 to 2002, as an outline for growth and poverty reduction. However, GPRS II which is a continuation of the I-GPRS was built around civil society, the media, private sector and all the arms of government and its development partners. The main goal is to ensure sustainable, equitable growth, accelerated poverty reduction and the protection of the vulnerable who were excluded within a decentralized democratic environment. Foreign aid received is being used in line with the poverty reduction strategy of the government of the day to help solve the poverty problems in the country.

After a period of implementation of the GPRS I, with the main focus of building a ‘wall’ against poverty in the country, there was the need to develop a sustainable strategic policy framework to continue with the previous plans. This gave birth to a new policy instrument known as Growth and Poverty Reduction Strategy II, which represents Ghana’s strategic approach to creating wealth and reducing poverty, due to the changing

circumstances in the country's poverty level. The central goal of GPRS II was to become middle - income country with a per capita income of at least US\$1000 by the year 2015. In line with this, GPRS II set up four thematic pillars to achieve the above goals. These goals included Continuous macroeconomic stability, development of a vibrant private sector, vigorous human resource development as well as the deepening of good governance and civic responsibility. These are the measures the government of Ghana has put in place to reduce poverty and bring about economic growth, which did not work very well due to the financial constraints.

However, to achieve the above objectives as outlined by the Ghana Shared Growth and Development Agenda (GSGDA), considerable amounts of resources are required. The Ghana government cannot raise sufficient funds through domestic resource mobilization and so resorted to development partners for support to achieve its poverty reduction objectives and growth through the provision of Multi Donor-Budget Support (MDBS) programme.

In Ghana, aid policy and strategy was drafted to move the country into middle income by 2020. It was also to promote, aid effectiveness as outlined in the Paris Declaration and the Accra Agenda for Action to achieve the millennium development goals by 2015.

However, aid has played a major role in the development process of Ghana for the past two decades and will continue to do so over the medium to long term durations. Currently, aid accounts for about 20 percent of the annual total Government budget and 10 percent of Gross Domestic Product (Ghana Government, 2010). Between 2000 and 2008, total external aid disbursements to Ghana [excluding Highly Indebted Poor

Country (HIPC) and Multilateral Debt Relief Initiative (MDRI) resources] amounted to approximately USD 9.6 billion.

However, as a percentage of GDP, it declined significantly from approximately 25.2 percent in 2000 to 9.8 percent in 2008. This decline resulted in Ghana's qualification to access the HIPC initiative and the MDRI (Ghana Government, 2010). The main objective of the aid policy is to improve country ownership and leadership in the aid management processes and to ensure effective aid coordination and management. It is also to manage aid for development results and strengthen mutual accountability, and thereby move beyond aid dependence.

Table 2.1: Ghana ODA Envelope in Millions US\$ (2003-2010)

|                      | 2003   | 2004   | 2005    | 2006    | 2007    | 2008    | 2009    | 2010    |
|----------------------|--------|--------|---------|---------|---------|---------|---------|---------|
| Total                | 1003.0 | 1130.1 | 1205.8  | 1471.8  | 1656.5  | 1649.6  | 2102.5  | 1896.8  |
| IMF                  | 76.6   | 38.7   | 38.2    | 116.6   | 0.0     | 0.0     | 200.0   | 200.0   |
| Debt Relief          | 154.2  | 174.1  | 196.9   | 307.3   | 342.7   | 229.5   | 289.6   | 235.8   |
| Grants               | 154.2  | 174.1  | 196.9   | 209.8   | 246.1   | 158.4   | 191.9   | 168.8   |
| HIPC                 | 0.0    | 0.0    | 0.0     | 97.5    | 96.6    | 71.1    | 97.7    | 67.0    |
| MDRI                 | 0.0    | 0.0    | 0.0     | 6.6     | 5.8     | 4.3     | 4.6     | 3.5     |
| Budget Support       | 277.9  | 316.7  | 313.2   | 349.3   | 386.7   | 473.1   | 700.4   | 619.2   |
| MDBS                 | 277.9  | 309.0  | 281.9   | 312.2   | 316.6   | 368.1   | 325.2   | 451.2   |
| SBS                  | 0.0    | 7.7    | 31.3    | 37.2    | 70.1    | 104.9   | 175.2   | 167.7   |
| Swap                 | 0.0    | 0.0    | 0.0     | 0.0     | 12.1    | 15.2    | 86.9    | 81.2    |
| Earmarked            | 0.0    | 7.7    | 31.3    | 37.2    | 58.0    | 89.8    | 88.2    | 86.5    |
| Project Aid          | 494.4  | 600.6  | 657.5   | 698.6   | 927.0   | 947.0   | 912.5   | 841.8   |
| GDP                  | 7621.0 | 8853.0 | 10726.0 | 12729.0 | 14984.0 | 16085.0 | 14385.0 | 14870.0 |
| Total ODA (% of GDP) | 13.2   | 12.8   | 11.2    | 11.6    | 11.1    | 10.3    | 14.6    | 12.8    |

Source: D-PAF Baseline Report 2009

Table 2.1 shows the composition of ODA flows to Ghana by types. From 2003 to 2007, Project aid contributed between 47% and 56% of total ODA, whilst budget support

average between 23% and 29%. From 2009 to 2010, project aid averaged 44% of ODA and that of budget support 33%. After reaching its peak at 21% in 2006-2007, the share of debt relief declined to 14% in 2008-2009 and further declined to 13% in 2010.

By 2001, growth started to accelerate due largely to the relief of the external debt burden and improved export earnings, more interest in growth and poverty reduction, improved fiscal and monetary management and more importantly development assistance trickled in (Amoako, 2005).

#### **2.4 Multi Donor Budget Support (MDBS)**

The MDBS involves the transfer of financial assistance from development partners directly to the beneficiary governments budgets. It is a form of general budget support provided to countries that have shown commitment to poverty reduction, good governance and sound economic management. With the MDBS, the government is able to allocate funds, according to its poverty reduction strategy (GSGDA), thus using country owned systems. MDBS seeks to harmonize the policies and procedures of the development partners (DPs) in order to minimize transaction costs for recipient countries.

The Framework Memorandum (FM) was signed in March 2003 between the Government of Ghana (GoG) and the DPs (MoF, 2005). As per the agreement, the FM will be supplemented with an individual arrangement between each DP and the GoG. Meanwhile the content of each individual funding arrangement was expected to be compatible with the provision and the spirit of the FM without the individual agreements becoming international treaties (MoF, 2005).

The largest donors to the MDBS in Ghana are the World Bank, Department for International Development (DFID), African Development Bank, EU, the Netherlands, Canada and Germany. The MDBS is open to all DPs who are interested, but it does not necessarily mean that all participating DPs must contribute resources in every given year. The spirit of the FM must be respected by all and sundry (Memorandum, 2003).

The MDBS main goal is to harmonize the policies and procedures of the DPs in order to minimize transaction costs for the government. This is to be achieved by agreeing on a common benchmark on which performances are assessed. There is also the need to keep improving dialogue between government and the DPs and conditioning funding commitments and disbursements to achieve of the agreed targets.

The operational framework of the MDBS is to be in two stages:

- ✓ The first is that, the Ghana Poverty Reduction Strategy (GPRS) should contain detailed poverty reduction strategy of the government of Ghana.
- ✓ Secondly, the medium-term expenditure budget process should provide the means for allocating resources according to the GPRS priorities and the resource envelope.

Within the framework of the MDBS, the Government of Ghana is required, subject to the availability of funds to ensure the following as listed by (Quartey et al, 2010),

- That GPRS is implemented;

- That total expenditure and sector allocations of resources are in line with the government's poverty reduction strategy and a comprehensive budget be presented.
- That all agreed reports are made available to the DPs;
- Semi-annual coordination and organization of MDBS meetings, in conjunction with the mini-Consultative Group be conducted and
- That Government should coordinate and organize joint assessment meetings

The DPs however, are also required to partner the Government of Ghana in the implementation of the GPRS through both direct budgetary and complementary support through the DPs wider development cooperation programmes (Quartey et al, 2010). The DPs would

- Support in the implementation of the GPRS by informing the government of planned budget support and their commitments for the following years. However, the actual commitments should be identified in individual bilateral arrangements between the DP and the GoG,
- Work with the objective of achieving the goal of the programme within a common framework and be
- Able to coordinate the disbursement to commensurate government budgetary requirements at the right time.

The MDBS also involves in the provision of technical assistance (Quartey et al, 2010). The technical assistance programme developed by the DPs allows the GoG to identify, budget, monitor and evaluate technical assistance. The unique feature is that, all technical

assistance is to be programmed and budgeted for just like any other resources, irrespective of the source of the funds.

By July 2008, the Government of Ghana (GoG) and 11 DPs (including Japan) signed a new FM to support the Growth and Poverty Reduction Strategy (GPRS II). According to the 2009 DP-PAF Report, the guiding principle of the MDBS process includes;

- Maintenance of sound macroeconomic policies
- Commitment to achieving the GPRS II objectives and the MDGs;
- Maintaining peace and respect for human rights;
- Commitment to the rule of law;
- Democratic principles and independence of the judiciary;
- Sound budgeting and public financial management (PFM) systems; and
- Accountability of the Government to the citizenry, fighting against corruption and the promotion of good governance.

Table 2.2: The contribution of various countries to the MDBS (in millions)

| P = Pledges             |                   |       |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|-------------------------|-------------------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| A =Actual disbursements |                   |       |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|                         | 2003 <sup>a</sup> |       | 2004   |        | 2005   |        | 2006   |        | 2007   |        | 2008   |        | 2009   |        | 2010   |        | 2011   |        | 2012   |        |
| Donor Partners          | P (\$)            | A(\$) | P (\$) | A (\$) | P (\$) | A (\$) | P (\$) | A (\$) | P (\$) | A (\$) | P (\$) | A (\$) | P (\$) | A (\$) | P (\$) | A (\$) | P (\$) | A (\$) | P (\$) | A (\$) |
| AfDB                    | 32                | 32    | 14     | 15.77  | 30     | 31.51  | 31.9   | 32.3   | 0      | 0      | 48     | 45.7   | 75     | 48.33  | 15     | 31.2   | 56     | 0      | 55.3   | 107.2  |
| Canada                  | 6.5               | 3     | 17.3   | 17.6   | 13.28  | 13.38  | 14.9   | 13.9   | 14.9   | 14.3   | 13.8   | 16.5   | 16     | 24.28  | 17.9   | 18.65  | 19.74  | 19.69  | 20     | 19.8   |
| Denmark                 | 1.5               | 1.5   | 2.53   | 2.48   | 3.5    | 3.48   | 4.12   | 4.05   | 7.58   | 6.21   | 10.5   | 11.9   | 11.9   | 11.84  | 12.6   | 13.17  | 12.16  | 17.53  | 17.3   | 16.3   |
| European Commission     | 48                | 48    | 33.66  | 34.5   | 30.68  | 29.3   | 25.1   | 26.6   | 23.6   | 26.69  | 26.2   | 31.6   | 47.6   | 102.3  | 60     | 53.06  | 60.14  | 37.62  | 40.5   | 58.9   |
| France <sup>b</sup>     | 0                 | 0     | 0      | 0      | 8.67   | 9.53   | 8.4    | 7.96   | 22.2   | 23.82  | 20.8   | 20.7   | 23     | 23.87  | 9      | 8.76   | 9.06   | 9.13   | 10.5   | 5.53   |
| Germany                 | 0                 | 0     | 7.59   | 7.22   | 8.52   | 8.11   | 12.8   | 11.7   | 12.5   | 14.7   | 9.29   | 9.29   | 12.7   | 13.51  | 19.4   |        | 19.42  | 62.18  | 12.9   | 12.5   |
| Japan                   | 0                 | 0     | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 3.42   | 3.42   | 3.74   | 3.59   | 3.7    | 3.61   | 4.12   | 4.1    | 4.5    | 4.3    |
| Netherlands             | 8.4               | 8.4   | 20.45  | 20.39  | 12.78  | 12.65  | 18.3   | 18.6   | 31.4   | 33.97  | 31.8   | 31.8   | 31.7   | 36.51  | 28.7   | 26.86  | 14.38  | 14.39  | 0      | 0      |
| Switzerland             | 5                 | 5     | 7.14   | 7.63   | 7.9    | 6.97   | 7.2    | 6.53   | 7.1    | 7.31   | 10.9   | 10.7   | 7.66   | 8.57   | 7.7    | 7.36   | 9.49   | 7.09   | 10.6   | 10.6   |
| United Kingdom          | 52                | 52    | 71.99  | 75.94  | 45     | 43.95  | 68.8   | 32.2   | 74.9   | 79.49  | 73.1   | 88.4   | 71.9   | 70.22  | 77.5   | 147.4  | 79.21  | 57.1   | 37     | 39     |
| World Bank              | 128               | 128   | 127.5  | 127.5  | 125    | 123    | 143    | 143    | 120    | 110.1  | 100    | 98.1   | 300    | 151    | 200    | 143.4  | 0      | 219.1  | 100    | 100    |
| Total per Year          | 281               | 278   | 302.2  | 309    | 285.3  | 281.9  | 335    | 297    | 314    | 316.6  | 348    | 368    | 601    | 494    | 452    | 453.4  | 283.7  | 448    | 309    | 374.1  |
| % of pledges            | 98.756            | 22    | 102.27 | 36     | 98.790 | 87     | 88.68  | 63     | 100.75 | 11     | 105.81 | 49     | 82.182 | 67     | 100.42 | 75     | 157.88 | 81     | 121.21 | 84     |

Source: MDBS Directorate, MoF

Table 2.2 shows the contribution of the various DPs to the MDBS in Ghana. Ghana received its highest amount of aid since the inception of the MDBS in 2003. Japan joined in 2008 and caused aid to increase from US\$316.6m in 2007 to US\$368m in 2008. However, the withdrawal of the Netherlands from the MDBS in 2012 caused a fall from a total of US\$448m in 2011 to US\$374.1m in 2012. The total disbursement from 2003 to 2012 is US\$1838million.

## **2.5 Policies on aid effectiveness**

Developing countries have tried to solve the problems of high poverty and low growth by implementing a lot of developmental and poverty reduction policies. However, developing countries do not have enough domestic generated funds to finance all these good policies of poverty reduction and sustainable growth.

Foreign aid comes in as an additional means of supporting developing country's development agenda. There have been a lot of arguments as to whether foreign aid can solve the problems of Africa and developing countries as a whole. To make foreign aid more effective, a lot of round table discussions have been organized starting with the Paris Declaration to the current Tunis Consensus.

### **2.5.1 Paris Declaration**

The Paris Declaration<sup>1</sup> originates from a meeting in Paris in 2005 where over 100 developed and developing countries agreed to change the way they do business. The Paris Declaration lays out a roadmap as to how to improve the quality of aid and its general impact on development. It puts in place measures for implementation and establishes

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<sup>1</sup> [www.oecd.org/dac/effectiveness](http://www.oecd.org/dac/effectiveness)

performance indicators that help in assessing aid effectiveness. It calls for regular international monitoring systems to ensure that development partners are accountable to each other.

The Paris Declaration is organized around five principles to ensure that aid becomes more effective, the principles are discussed below.

#### ***2.5.1.1 Ownership<sup>2</sup>***

Recipient countries take effective leadership positions and should have control over their development policies and strategies and also co-ordinate their development actions. Recipient countries take control of all aid and encourage civil societies and the private sector to take part in the aid discus.

#### ***2.5.1.2 Alignment<sup>3</sup>***

Aid is channelled through developing countries local systems and matches the priorities of developing countries. Donors align their aid with the national development strategies through fiduciary systems that already exist in developing countries. Bilateral aid should not be tied to services provided by donor countries and the release of aid should be done in time to achieve its purpose.

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<sup>2</sup> [www.oecd.org/dac/effectiveness](http://www.oecd.org/dac/effectiveness)

<sup>3</sup> [www.oecd.org/dac/effectiveness](http://www.oecd.org/dac/effectiveness)

#### **2.5.1.3 Harmonization<sup>4</sup>**

Donor countries co-ordinate their own actions and share information among themselves to avoid duplication. Aid should be provided through harmonized channels among donors.

#### **2.5.1.4 Managing for results<sup>5</sup>**

Countries should be able to measure how far they have gone and how much they have achieved with the aid. This can be achieved by the use of indicators that are visible to all. It should be transparent and the indicators used should be measurable.

#### **2.5.1.5 Mutual accountability<sup>6</sup>**

Donors and recipients should be accountable to each other. There should be regular reviews to assess the progress made and to ascertain whether both sides have been able to fulfill their commitments or not.

### **2.5.2 The Accra Agenda for Action (AAA)<sup>7</sup>**

The Accra Agenda for Action took place in Accra (Ghana) on the 4<sup>th</sup> September, 2008, where over 80 developing countries, all OECD donors and some 3000 civil society organizations around the world joined representatives of emerging economies. The main themes of the AAA were developing country's commitment to take control of their own

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<sup>4</sup> [www.oecd.org/dac/effectiveness](http://www.oecd.org/dac/effectiveness)

<sup>5</sup> [www.oecd.org/dac/effectiveness](http://www.oecd.org/dac/effectiveness)

<sup>6</sup> [www.oecd.org/dac/effectiveness](http://www.oecd.org/dac/effectiveness)

<sup>7</sup> OECD,Paris Declaration on Aid Effectiveness(2005), Accra Agenda for Action (2008)

destiny, whereas donors pledged to co-ordinate better among themselves and agreed to be more accountable to each other and their citizens. The AAA seeks to strengthen the implementation of the Paris Declaration on the effectiveness of aid.

The AAA is based on three main themes, namely, (1) Ownership: countries should take their future into their own hands, development policies should be designed by the countries and they should take a leadership role in managing and coordinating aid. Donors use existing fiduciary and procurement systems to deliver aid (2) all inclusive partnerships: all partners of development not only donors and developing countries but civil societies, foundations and citizens should all participate in aid matters (3) delivering results: aid should lead to development and the results should be clearly and visible for all to see.

The AAA calls into action (1) Civil societies; they should ensure that the voices of the vulnerable in society are heard and that donors and developing countries fulfill their commitments. (2) Country systems: developing countries should strengthen their administration and fiduciary systems. If these things are in place, donors will channel their aid programmes through developing countries laid systems. (3) Fragmentation: donors should work hand in hand so that all countries receive enough aid and they should co-ordinate to avoid duplicate with recipient countries efforts. (4) Untying aid: developing countries should have the freedom to choose where and from whom they will contract goods and services. (5) Accountability: there should be greater transparency in public financial management and parliament should be able to track all aid programmes in the country. Also, donors should give detailed information on how much they invest, when they invest and where. (6) Conditionality: the conditions under which donors and

developing countries work should be made public. Developing countries should also determine the conditions attached to the way aid funds are spent. (7) Predictability: developing countries should be able to tell how much aid to expect within a period of time and when to receive it. They should be able to strengthen their capacity in budget planning.

### **2.5.3 Tunis consensus<sup>8</sup>**

The Paris declaration with its five principles of ownership, alignment, harmonization, managing for results and mutual accountability was to bring about aid effectiveness. The Paris Declaration and the Accra Agenda for Action focused primarily on the mechanism of aid delivery. The Tunis Consensus on the other hand focused on moving from aid effectiveness to the broader agenda of development effectiveness.

The agenda for development effectiveness from the meeting requires development co-operation to focus on unleashing partner countries capacities and resources for development. It is said that the most successful aid is the aid that eventually does it self of a job. This means developing aid practices that minimizes dependence and self-reliance. Countries should invest in areas that create alternative finance for development and strengthen national capacities. Africa should move beyond official development assistance to building development partnership across the globe to support a vision of development that is owned and driven by the countries themselves.

The Tunis Consensus identifies six areas that are central to achieving development effectiveness;

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<sup>8</sup> [www.aideffectiveness.org/tunisconsultations](http://www.aideffectiveness.org/tunisconsultations).

- (1) Building capable state: African countries need to build stronger public administrations. We need effective states which are capable of delivering development effectiveness. The commitment made by development agencies to use and strengthen the country's system in Paris and Accra on aid delivery is highly significant. Ms Mary-Anne Addo, Director of Ministry of Finance (Ghana) said, trust is the only way forward. Donor countries' development agencies remain accountable to their parliaments and tax payers and for that reason, they need re-assurance that their funds will be used for their intended purposes (African Development Bank Group, 2010). African countries however, have a legitimate case for insisting that donors use their country systems. Ghana has trained officials of development agencies in its budget systems. When officials are made to understand national systems, they are more likely to be trusted (African Development Bank Group, 2010).
- (2) Developing democratic accountability: Accountability is fundamental to any development process. According to the Paris Declaration, the accountability that matter most is not between donor and government but between state and society. There must be greater involvement of communities in taking decisions that affect them. Parliament should be empowered to be able to take up its core mandate. There should be transparency in the use of development funds both internal and external. There should be a full public disclosure of expenditure and revenue. Countries should be accountable not only to donors, but also its citizens (African Development Bank Group, 2010). The Accra Agenda for Action called for Parliament to take control of the development budget and the expenditure and

build more parliamentary capacities (OECD, Accra Agenda for Action, 2008). It places emphasis on the disclosure of the volume, the allocation and result of aid. It also called for new mechanisms at international level, to hold donors to account for their commitment. “Africa does not lack leaders, but the systems that are being set up to promote development are fundamentally lacking in accountability. We have not yet succeeded in building institutions that are bigger than individuals” Emmanuel Akwetey (Institute for Democratic Governance, Ghana).

- (3) Promoting south-south co-operation: This is a partnership of peers without the hierarchies implicit in traditional technical assistance. The success story of the African development process depended on the lessons learnt from other countries who have overcome similar development challenges (African Development Bank Group 2010). It is important to share development ideas with each other and with other developing countries around the world. South-south co-operation is an old phenomenon which was put under the back burner in the 1980s through the Structural Adjustment Programmes. When an institution in one developing country partner with another, it brings recent experience of tackling similar development challenges. South-south co-operation faces some limitations, such as, the scale of individual projects tends to be small and no mechanism has been established to equal demand with supply. They also lack formal monitoring and evaluation arrangements and so produce less data on input. And traditional development agencies are still working through the challenges of triangular co-operation, which involves complex co-ordination among three or more partners, each with its own interest and procedures (African Development Bank Group, 2010).

(4) Thinking and acting regionally: Africa needs to develop its regional markets by committing itself to regional integration. This comes with its attendant advantage of economies of scale to compete globally, African Development Bank Group, 2010). Most of the developments are centered nationally, but we should also consider regional development. There should be a dialogue with international agencies on ways of planning, financing and implementing development projects that span national boundaries. The African has to take advantage of regional integration by benefiting from economies of scale and competing internationally. Despite some steps taken in that direction, it is not enough to produce a major boost in Africa's development.

Aid effectiveness has solely been based on bilateral aid. It is time to look at the regional dimension of aid effectiveness. Regional integration has three dimensions, they include;

- Hard infrastructure- developing our energy, telecommunication networks and transportation regionally. We also need to establish institutions to be responsible for the maintenance and management of these facilities.
- Soft infrastructure- all barriers to the free movement of goods, services, labour and capital should be removed and institutions should be established to bring about an increase in investment and trade through market integration.
- Regional public good: resources like water, which is shared within the region should be managed properly and jointly by investing in areas that benefit the entire region. For example, climate change adaptation and cross border migration.

Regional integration has a lot of economic benefits over the long term, but in the short run, it produces winners and losers. Resources are shifted from low to high productive areas. There is the need to assist household and firms financially, to go through the transition process and enable lagging regions to catch up with the rest (African Development Bank Group, 2010).

“We need a change of mindset. We need to start thinking regionally instead of nationally. We need to think not about losing sovereignty, but about gaining opportunities for the private sector”. Stephen Karangizi (common market for eastern and southern Africa).

- (5) Embracing new development partners: The emergence of new development partners like Brazil, China and India has given Africa another dimension for achieving development. Policies should be made such that they can lead to mutual benefit for all. There should be transparency to encourage a competitive market for aid that harnesses each player’s comparative advantage. The availability of emerging economies like China and India has shifted the power of global economies. This has provided Africa with a more diversified pool of aid donors to choose from for its development. “In the 21st century, official development assistance has become a very competitive market issue (African Development Bank Group, 2010). Donors and aid channels are proliferating.

African countries should be able to access the cost and benefit of other assistance and make an informed decision. African countries should insist on public disclosure of the terms of all supports from the BRICS and on the use of

competitive tenders to ensure that they have value for money. Africans can learn much from both the OECD and the BRICS donors.

- (6) Outgrowing aid dependence: Africa is currently at such a that level it should be able to finance its own developmental projects. African countries need to take advantage of international trade by expanding their domestic markets. Aid is said to be effective if it minimizes dependence. Africa needs to broaden its tax base to increase its revenue. The tax structure should be effective and fair to all citizens. Stakeholders should re-think of how aid is programmed and therefore focus on investment that encourages economic growth and promotes alternative source of developmental finances (African Development Bank Group, 2010). “Aid is not the problem. The problem is the dependency syndrome it engenders” (Dereje Alemayahu, Christian aid).

The issue of aid dependency has been absent from the aid effectiveness literature debate. African countries could find alternative means of attracting development finance. Aid is effective if it reduces its dependence. African countries can end this aid dependency if<sup>9</sup>

- Domestic revenues can be mobilized. Government should be able to let the citizens realize that their taxes are put to use for the public good.
- African countries should strengthen domestic markets. The banking sector has for the past few decades developed in many African countries due to financial reforms that have been adopted. African Governments need to encourage domestic savings which could be channelled into productive

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<sup>9</sup> African Development Bank Group

sectors to enhance development. (Mr. Lamin Barrow, resident representative for the African development bank), argues that it is best to reduce the tax rate to attract many more firms and households into the formal sector. Capital flight was also a concern for participants who believe it to exceed capital inflows and may be three times as much as aid.

- A third approach is the availability of more micro-finance institutions. Africa is endowed with a lot of entrepreneurial skills which could be channelled into the many small scale businesses that are available. However, due to lack of finance such skills are going to waste.

Conclusively, “Development is about learning by doing. There are many roads to Damascus. Aid is unhelpful if it suggests for only one set of solution.” (Donald Kaberuka, African Development Bank Group).

According to Mr. Nkosano Moyo, vice president of the African Development Bank, Africans fully recognize that they are part of a global family and thus value the support of our development partners. But Africa must be in charge of its own development agenda. He said we must not let the aid tag weigh the development dog.

## CHAPTER THREE

### LITERATURE REVIEW

#### 3.0 Introduction

The chapter is a review of theoretical and empirical literature on aid and economic growth. It is organized into four (4) sections: section 3.2 examines the theoretical literature (aid and growth models), section 3.3 discusses the empirical literature on aid and growth, while section 3.4 examines fungibility analysis and section 3.5 lastly, examines the Dutch disease and foreign aid.

Aid has been recommended as a means of escaping poverty and promoting development (Sachs et al., 2004; Sachs, 2006). The relationship between foreign aid and economic growth has been a subject of much debate, but the empirical results are mixed (Rajan, 2005 p. 54). There is a lot of literature on the subject of aid and economic growth, with some suggesting that there is a positive relationship<sup>10</sup> while others suggest a negative relationship<sup>11</sup>. According to Eastely (2007), aid has been ineffective in the past, so therefore large increase in aid is not desirable. However, according to Burnside and Dollar (2000), inflow of aid promotes growth under good macroeconomic policies.

The idea that aid lead to economic growth and development can be traced to J.M Keynes (1883-1946) when he suggested that government can stimulate growth by increasing investment. In the Harrod-Domar model, investment is considered as the key to economic growth. The original Harrod-Domar model was expanded in the sixties in Chenery and

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<sup>10</sup> Hadjimichael et al., 1995, Durbarry et al., 1998, Hansen and Tarp; 2000, Lloyd et al., 2001

<sup>11</sup> Boone; 1996 and Alesina and Dollar 2000

Strout (1966, 1979) two gap model. Foreign exchange shortage was introduced as another constraint. Most developing countries need to import goods and services to achieve their development agenda. It is common knowledge that import requirement far exceeds export earnings in developing countries. This informed the work of Hollis Chenery and Alan Strout in 1966 to develop the two gap theory. This was based on the fact that developing countries could attain higher growth through increased investment determined by savings and developing countries were in a low level equilibrium trap which can only be broken by foreign aid.

Domestic investment is constrained by shortage of domestic savings (saving gap) or by a shortage of export earnings (trade gap) which can be filled by foreign aid inflow and foreign capital inflow. It enables countries to grow at a faster rate than their internally generated funds can provide. The essence of the gap analysis is that, developing countries have large labour force and abundant resources, but lacked the capital resources needed for development. What is lacking creates slow growth or halts it completely and this causes the underutilization of other factors. Aid acts as a means of breaking the gap and encouraging the full utilization of other factors and the continuation of the development process.

Chenery and Strout (1966) postulated the existence of savings and the trade gap. It is explained that saving gap appears when the domestic saving rate is below the level necessary to achieve the targeted development, while imports are adequate, in this case, aid cover the saving gap and the development process can continue. Trade gap occurs when the saving rate is enough, while the import is below the required level of development. Aid covers the trade gap and encourages the full potential of savings to be

utilized. According to Chenery and Strout (1966), countries will first experience saving gap, and then a trade gap in the development process.

Bacha (1990) and other neo-structuralist authors like Lance Taylor introduced third fiscal gap between government revenue and expenditure which is known as the three gap model. Countries find it difficult in overcoming the trade gap than the saving gap. This is because aid obtained to cover the saving gap is reduced due to the rise in the domestic saving; export must grow more rapidly than import. Chenery and Strout (1966), argue that, developing countries have difficulties in bringing about the needed increase in export. Aid becomes necessary not to supplement low savings rate, but rather to permit the required imports and prevent the underutilization of the savings potentials. It is therefore assumed that at any point, in time at least one of the gaps is binding and foreign aid fills that gap (Easterly, 2003).

However, this view was challenged later on by Griffin (1970), and Griffin and Enos (1970) who argued that foreign aid inflows would rather act as a substitute by displacing domestic savings. The following are the criticism of the two gap model. The model assumes a one to one relation between aid flows and investment and does not consider other potential uses of the resources. According to White (1998, p. 6) this assumption is wrong within the literature. It also assumes a constant capital –output ratio, meaning constant marginal and average capital productivity. It then again assumes factors of production to be non-substitutable.

### 3.1 Aid-Growth Regression Analysis in Growth models

The early growth models make emphasis on capital accumulation as the means of increasing output and hence economic growth. The Harrod-Domar model is the common analytical framework that has been used by most studies on the aid –growth relationship. It links output growth to aggregate investment in a direct linear functional form. The production function is specified with capital as the only input since most developing countries have abundant labour but scarce capital. Labour force growth is not described explicitly in this function because, it is assumed to be abundant and can be hired as needed in a given proportion to capital investments. The production function takes the form of the below formulae

$$Y(t) = f(K(t)) \dots\dots\dots (2.1)$$

Where  $Y(t)$  is aggregate output at time  $t$ , and  $K(t)$  is the capital stock at time  $t$ . by taking the first derivate of the equation (2.1) with respect to time and diving through by output  $Y$

$$\frac{\dot{Y}}{Y} = \frac{1}{\frac{\partial K}{\partial Y}} \frac{I}{Y} \dots\dots\dots (2.2)$$

Where  $\frac{\dot{Y}}{Y}$  is the rate of output growth,  $\frac{\partial K}{\partial Y}$  is the incremental capital-output rate,  $\frac{I}{Y}$  is the ratio of investment to output,  $K=I$

The Harrod –Domar model above shows that, the only way to increase out is through capital accumulation. This model was, however extended in 1966 by Chenery and Stout, two-gap model to include foreign exchange or trade constraint. The panacea for aid to

affect growth is through increment to the stock of physical capital and this is shown through the investment identity as follows

$$I = S_d + A + C \dots\dots\dots (2.3)$$

Where  $S_d$  is domestic savings,  $A$  is aid inflows and  $C$  is other source of capital inflows.

By combining equations (2.2) and (2.3) and holding the incremental capital-output ratio constant. The only source of output growth is through physical capital accumulation (investment) which also depends on aid, domestic savings and other source of capital inflows. The empirical approach in the two –gap model takes the following form;

$$\frac{\dot{Y}}{Y} = \alpha_0 + \alpha_1 \frac{A}{Y} + \alpha_2 \frac{S_d}{Y} + \alpha_3 \frac{C}{Y} + \varepsilon$$

Where  $\frac{A}{Y}$ ,  $\frac{S_d}{Y}$ ,  $\frac{C}{Y}$  are aid inflows, domestic saving and other source of capital inflows as a share of GDP and  $\varepsilon$  is an error term

The above equation was the dominant model used until the 1980s. Research done by Griffin (1970) and Papanek (1972) on the effectiveness of aid were based on the above aid equations.

However, because the two gap model considered investment as the only means to achieving growth in the developing countries, new growth theories were formulated which considered other factors affecting growth.

The most recent aid literature considers the Solow type growth models with Cobb-Douglas production functions. The model is specified as below;

$$Y_t = A (K_t)^\alpha (L_t)^{1-\alpha} \dots\dots\dots (2.4)$$

Where Y is output, K is capital and L is labour, A and  $\alpha$  are parameters. According to the endogenous growth models, A captures all factors influencing production other than labour and capital (Technology). This production function is assumed to exhibit constant returns to scale. If all inputs are doubled, the output will also double. Economic growth is measured by GDP per capita,

$$A = FA \dots\dots\dots (2.5)$$

Where FA= Foreign aid

Substituting equation (2.5) into equation (2.4)

$$Y_t = FAK^\alpha L^{1-\alpha} \dots\dots\dots (2.6)$$

Taking the natural log of both sides of the equation (2.6)

$$\ln Y_t = \alpha_0 + \alpha_1 \ln FA + \alpha_2 \ln k + \alpha_3 \ln L \dots\dots\dots (2.7)$$

Equation (2.7) is the empirical model that has been used by Feder (1983) and Fosu (1990). Where A captures all other variables that impact on growth other than labour and capital, in this case foreign aid.

However, the increase in the availability of data and more advanced econometric methods has led to the development of the more advance growth model. An alternative to the neoclassical growth models is the endogenous growth models, which take into considerations other factors affecting growth. Some of the factors are intermediate goods, social, economic, institutional and government policies and other factors as well as the

more traditional input (Barro, 1991). The endogenous growth models have identified other factors other than capital accumulation that contribute to growth such as the macroeconomic factors.

Mosley (1987) added growth in literacy rate and other foreign capital inflows and export into the regression analysis including domestic savings. According to Mosley, these factors have an impact on economic growth.

Hadjimichael et al (1995), deviated from the norm of using linear aid –growth relationship. They added human capital and various other macroeconomic variables to the regression. They also considered these other factors to influence growth.

According to Burnside and Dollar (2000) aid works in countries with good institutional and macroeconomic policies namely good fiscal, monetary and trade policies. This research was well received by the donor community, especially the World Bank and the US government. A modified neoclassical model was used to investigate whether aid works well in good policy environment. The emphasis of Burnside and Dollar was on the impact of policy on aid effectiveness. They concluded that in a neoclassical growth model with a little policy distortions the impact of aid on growth will be high. They incorporated an interactive term for aid and policy index into the regression analysis. The regression equation (1) and (2) is what Burnside and Dollar used.

$$g_{it} = y_{it} \beta_y + a_{it} \beta_a + p'_{it} \beta_p + ap'_{it} \beta_1 + z'_{it} \beta_z + g_t + \varepsilon_{it1} \dots\dots\dots (1)$$

$$a_{it} = y_{it} \delta_y + p'_{it} \delta_p + z'_{it} \delta_z + a_t + \varepsilon_{it2} \dots\dots\dots (2)$$

Where  $i$  represent country and  $t$  represent time,  $g_{it}$  is per capita real GDP growth,  $y_{it}$  is the logarithm of the initial real per capita GDP,  $a_{it}$  is aid as a ratio of GDP,  $p'_{it}$  is a  $P \times 1$  vector of policies affecting growth,  $z'_{it}$  is a  $K \times 1$  vector of other exogenous variables that might affect growth and the allocation of aid,  $g_t$  and  $a_t$  are fixed time effects,  $\varepsilon_{it1}$  and  $\varepsilon_{it2}$  are mean zero scalars. The fixed time effects captures worldwide business cycles.

According to McGillivray and Fenny (2008), recent findings show that there is an inverted U shape relationship between aid and economic growth. This indicates the existence of diminishing returns to aid due to the absorptive capacity constraint in developing countries. To capture this relationship, a square term is added to the growth regression. This indicates the existence of a Laffer curve: aid has a positive impact on growth up to a level and its impact on growth start to fall.

### 3.2 Empirical Evidence of the Effectiveness of Aid

There is empirical evidence in favour of aid promoting growth in certain macroeconomic conditions<sup>12</sup>. Then evidence on aid has no impact on growth<sup>13</sup> and lastly aid has a negative impact on growth (Bobba and Powell 2007).

The aid literature has been divided into four main generations, namely, the first generation, second, third and fourth generations. Each generation is influenced by a dominant theoretical model as well as an empirical technique. The first two generations were inspired by Harrod-Domar model and the two gaps Chenery and Strout extension.

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<sup>12</sup> Burnside and Dollar, 2000; Guillaumont and Chauvet, 2001; Hansen and Tarp, 2001, Collier and Dollar, 2001, Gomanee, Girma and Morrissey, 2002, Dalgaard, Hansen and Tarp, 2004; Clemens, Radelet and Bhavnani, 2004.

<sup>13</sup> Boone 1994, 1996, Easterly, Levine and Roodman, 2004; Easterly, 2005

The idea of the Harrod-Domar model assumes a linear relationship between growth and investment in physical capital. This indicates a positive relation and aid helps to cover the saving or foreign exchange gap. The study done by Papanek (1972, 1973) was focused on determining the extent to which aid increases investments through savings.

The first generational studies concluded that aid increases savings, but not as much as aid flows. This shows that part of the aid is leaked to consumption (Hansen and Tarp, 2000). That is part of the aid is consumed rather than invested.

The second generation focuses on capital accumulation, since aid affects growth through investment. According to Hansen and Tarp (2000), there is a positive link between aid and investment based on studies done. Many of these studies did not establish a clear positive relationship between savings and growth across countries. The model was criticized for assuming constant output-capital relationship and that all aid is invested. Another criticism is that, growth is less related to physical capital investment, including aid, than often assumed (Eastely 1999, 2003). Most of the studies did not consider the endogeneity problem. According to Gupta (1975) and Gupta and Islam, (1983) with the inclusion of the indirect effects in the regression analysis, the studies showing a negative effect of foreign aid can be overturned. The second generation of studies also brought to the fore the issue of poor performing countries receiving more aid due to their poor growth performance (Arndt et al, 2010).

By contrast, Mosley (1980), using simultaneous equation model realized a weak and negative correlation between aid and growth. However, he found a positive relationship

for the poorest countries in his sample. Mosley however, agreed that the analysis was seriously incomplete.

Mosley et al. (1987) had contrasting results from using OLS regressions and estimating a simultaneous system of equations using three-stage least squares (3SLS) with data from 1970-1980 for 63 countries. Both methods concluded that there is statistically insignificant correlation between aid and growth. The authors modelled the indirect effect of aid growth through public sector spending pattern and changes in relative prices. This analysis was interpreted as part of aid being used on non-productive expenditures in the public sector and the transmission of negative price effects to the private sector.

Dowling and Hiemez (1983) studied the relationship between aid and growth using 13 countries in Asia. With the help of pooled data and controlling for policy variables such as trade, finance and government interventions, they find a positive relationship between aid and growth. Singh (1985) finds a positive relation between aid and growth using samples of 73 countries during the 1960-1970 and 1970-1980 periods. Levy (1988) indicates a positive relationship between aid and growth. He has modelled a regression including aid as a ratio of GDP and income per capita from 1968-82 for sub-Saharan Africa. Hadjimichael et al., (1995) analyzed a sample of 41 countries for a period 1986-92. Their model captured the side effect of foreign aid and other policy variables that affect growth. They concluded that there is positive relationship between aid and growth.

The third generation was motivated by the availability of better data and more sophisticated econometric techniques. Panel data became available, enabling researchers to do cross country studies. This generation was, however dominated by a leading paper

by Burnside and Dollar (1997, 2000). They argued that aid has no impact on growth on average; however, it will work as long as recipient countries pursue good policies. This generation also considered the aid-growth relationship to be non-linear and the endogeneity of aid was taken more seriously (Hansen and Tarp, 2000).

The results of Burnside and Dollar were subjected to criticism and were shown to be fragile. Hansen and Tarp (2001) found out that diminishing returns to aid term best represent the non-linear relationship. Their conclusion was that, foreign aid has a positive effect on growth but with diminishing returns.

Easterly et al., (2004) made it clear that Burnside and Dollar aid-policy is fragile with the addition of more data. Dalgaard et al., (2004) found that the variations of aid, benefits to countries are dependent on their geographical location. They established aid in the tropics to be less effective over the past 30years, but they also stated that it is hard to believe that aid in the tropics is less potent. They called for more research to be done in this area to find why aid in the tropics is less potent.

The study by Dollar and Burnside (2000) that aid will reduce poverty and lead to economic growth was examined by Ram (2004). In his research, Ram disagrees with the viewpoint that giving aid to countries with better policies leads to higher growth and poverty reduction. He concluded that, there is lacking evidence to support the view that aid to countries with conducive policies will impact positively on economic growth and reduce poverty in developing countries.

Burnside and Dollar did not consider the issue of endogeneity, in that, governments with sound macroeconomic policies is likely to grow without receiving foreign aid. Example

is the Asian tigers of Hong Kong, Korea, Singapore and Taiwan who have gone through the transition from low to high income countries. Each of them developed with the use of home grown industries and trade policies combined with loans from Japan to develop their export facilities. These countries were among the bottom quartile for Least Developed Countries (LDCs) in terms of aid receipts as a proportion to their income. They did not qualify in the category of good institutions outlined by Burnside and Dollar with emphasis on open trade policy and good governance (Khan and Jomo, 2000).

Lloyd et al. (2001) examined the relationship between foreign aid, exports and economic growth in Ghana. The study adopted the Autoregressive Distributed Lag (ARDL) bounds testing approach to cointegration to determine the short and the long run relationship among the variables. They found out that aid has an insignificant short run impact on growth in the pre-1983 period. They however, found aid has a significant positive impact on growth through financing government spending in the long run in post 1983 period. The study however, used private consumption as a proxy for economic growth. Private consumption only measures part of growth and not the total growth in the country. The best measure of growth could have been real GDP or real GDP per capita.

Easterly, Levine and Roodman (2003) using Burnside and Dollar (2000) specification to investigate whether aid works in a good policy environment. They added more data, increasing it from 1970-1993 to 1970-1997. They used a four year average with the same control variables as Burnside and Dollar did including term of aid, aid/GDP and their policy index. They concluded that the idea that aid works in a good policy environment cannot be supported for the co-efficient on the interaction term between aid and policy is insignificant.

Boone (1994) and Hadjimichael et al. (1995) studies were motivated by the new growth models. Boone concluded a no significant relationship between aid and growth. Hadjimichael et al. found a non-linear relationship between aid and growth and that there is a threshold above which aid has a negative effect on growth<sup>14</sup>.

Ouattara (2004) analyzed the impact of project aid and programme aid on domestic saving for the period 1975-1999 in Cote d'Ivoire. He developed a savings model and used auto-regressive distributed lag (ARDL) approach to co-integration by Pesaran and Shin (1999). He concluded a negative relation between savings and project aid, while programme aid is positively related to domestic savings in the long run. In the short run, programme aid is significant and increases domestic savings whilst project aid is insignificant and reduces domestic savings. The data shows an increase in Programme aid by 1% of GDP which leads to 1.736% increase in domestic savings. An increase in project aid by 1% of GDP leads to 2.474% reduction in domestic savings in Code D'Ivoire.

A research on innovative ways of making aid effective was done by Quartey (2005) in Ghana. He identified the Multi-Donor Budgetary Support (MDBS) as the key to improving aid effectiveness in Ghana. The government and the development partners' ability to co-ordinate their effort will make the MDBS a success. The government's ability to reduce its debt burden will also make MDBS a success since the aid inflows will not be used to finance debt. The author suggested that, MDBS can only become successful if it is synchronized with the other aid projects like the aid from Japan. He also

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<sup>14</sup> The threshold is estimated at 25% of GDP with pooled time series and cross section data, and 4% using cross-section(period average) data.

suggested that the ability of government to predict aid flow will be one of the successes of the MDBS.

Addison et al. (2005) investigated the trends of official aid to Africa from 1960-2002. The authors realized a fall in aid for the past decade and the impact of this reduction on poverty and on the economies of African countries as a whole. The authors concluded that achieving the MDG will be much harder if not impossible due to the fall in aid. The authors concluded that, aid has a positive impact on growth and poverty reduction. It also lowers domestic borrowing, increases public spending and impact positively on public sector aggregate. However, to achieve the MDGs, African countries need innovative ways of providing finance to complement development aid.

Karras (2006) did a research on the correlation between foreign aid and economic growth in per capita GDP with annual data from 1960-1997 for 71 developing countries receiving aid. The author concluded a positive and permanent relationship between aid and growth. Permanent increase in foreign aid by US\$20 per person leads to a permanent increase in the growth rate of GDP per capita by 0.16%. This research however, did not consider the effect of policies in the various countries.

Miquel-Florensa (2007) did a research on the impact of tied and untied aid on economic growth. He concluded that, untied aid has a greater effect on growth than tied aid. He also found out that, the more favourable the policy of the environment in the recipient country is, the greater the impact of untied aid on growth than tied aid. Untied aid is more effective on growth than tied aid under some circumstances. Tied aid is also more

effective under some circumstances than untied aid. He suggested that, countries with bad policies can make aid work on growth through the appropriate methods.

Sakyi (2010) did a study in Ghana using Autoregressive Distributed Lag (ARDL) bound testing approach to cointegration to find the impact of trade openness and foreign aid on economic growth. The study found aid and economic growth to be positively related. Foreign aid has a significant positive impact on economic growth.

A study done by Arndt and Jones (2011) on aid effectiveness using the structural causal model (SCM) found out a robust and positive impact of aid on growth for the period 1970-2007. They found that, in the long run, aid reduces poverty and increases the performance of the various sectors and reduces the Agricultural share of GDP. They also concluded that there is a positive effect of aid on investment, government revenue and spending. There was also a direct effect of aid on investment, education and health. With health and investment in physical capital the best channels for aid to promote growth. The effect of education on growth was, however, ambiguous.

Adamu (2013) investigates the impact of aid on economic growth in major countries of the economic community of West African states (ECOWAS). Using a three equation simultaneous equation model and some panel data from 1990-2009, he found a positive relationship between aid and economic growth. He also found that, interest rates, the level of international reserves and foreign direct investments are some of the other determinants of growth. There is a positive relationship from the foreign aid equation with domestic investment, export and international reserves. From the investment equation, domestic savings and exchange rate are positively related to investments.

The fourth generation is dominated by widely cited paper written by Rajan and Subramanian (2008). They concluded that aid has no systematic effect on growth irrespective of the time periods and the types of aid and methodologies used. According to Rajan and Subramanian (2008, 660) an appropriate research agenda may be to disaggregate the different impacts of aid on growth by focusing on intermediate outcomes which are proximate determinants of income growth. Some scholars interpreted this agenda thus explaining why resource transfers which are partly invested don't lead to an overall increase in growth rate. One reason for the negative effect of aid is that it undermines governance through rent seeking activities and introduces corruption at a higher rate.

According to Djankov et al. (2008), aid has statistically significant negative impact on changes in political institutions, especially democracy. The characteristic of aid is like that of a new resource discovery. This in principle should lead to economic growth, but in practice it has resulted in poor growth and governance. Djankov et al. (2008) concluded that the negative impact of aid on political institutions is greater than that caused by the natural resource discovery.

A study by Rajan and Subramanian (2008) using a neoclassical production framework function and assuming that aid only increases physical capital investment, an inflow of aid by 10% of GDP will lead to growth of between 1% and 2.5%. This outcome however, depends on the fraction of aid that is invested and the productivity impacts. They concluded that their estimates rarely have an effect on growth that is statistically different from zero. However, they are unable to statistically conclude that the impact of aid on growth falls outside of their range. According to Arndt et al. (2010), the estimates are

closer to the range suggested by Rajan and Subramanian than they are to zero when longer time periods are considered.

Eregba (2013) did a study on whether the stability of aid flow has an impact on investment and economic growth on the Economic Community of West African State (ECOWAS) countries. He adopted a pooled panel regression model for a period of 38 years spanning from 1970 to 2008. He concluded that aid has a positive and significant impact on investment, but a negative impact on economic growth.

From the above discussions, it can be concluded that the relationship between foreign aid and economic growth have a mixed result. However, recent studies have shown a positive relationship between growth and foreign aid.

### **3.3 Aid and Fungibility Analysis**

Fungibility studies analyze the effect of aid on the composition of government spending. Aid is fungible when it is not used in the manner intended by the donors (World Bank, 1998; Franco-Rodriguez, McGillivray and Morrissey, 1998). Aid is given to finance public investment and fungibility arises when the aid is diverted to finance governments consumption spending. These diversions reduce the effectiveness of aid (World Bank 1998). Fungibility occurs when aid tied to a sector is used to finance projects that would have been financed by tax revenue thus releasing domestic resources for spending in some other sectors. Fungibility occurs in this case, because donors and recipients have a different expenditure allocation preference (McGillivray and Morrissey, 2000). Fungibility occurs when aid recipients respond to aid by diverting resources into different use. When Government spending does not increase by the full amount of the aid then aid

is said to be fungible, it becomes fully fungible when government spending does not change at all. This could happen for two reasons (1) Aid substitute rather than complement the budget thus leading to decrease in taxes and borrowing (2) When aid is stolen by the private individual. According to McGillivray and Morrissey (2004), there are three elements of fungibility, namely; general fungibility, categorical fungibility and additionality fungibility. General fungibility happens when aid is intended for a general purpose investment and the spending is used for a different purpose such as consumption. However, if the belief of donors is that aid must finance investment to impact on growth, then aid when redirected to recurrent spending will affect the effectiveness of aid.

Categorical fungibility is when aid intended for a particular spending heading like education is used for a different spending heading, especially, one that donors do not intend to support such as health. The aid would be considered not to be effective by the donors. Additionality fungibility happens when aid is allocated to the intended sector or a project but the government's own resources previously allocated to the sector or project is reallocated elsewhere, so that the spending on the intended sector does not increase by the full amount of the aid. If aid is allocated to the education sector by donors and the aid is used in the education sector, but the recipient government reallocates its own resources from the education sector to another sector such as health, the spending on the education sector will not increase by the full amount of the aid, this is because of the reallocation of the recipient's resources into different sectors.

The budget of most developing countries is sponsored by foreign aid. The impact of aid on the fiscal behaviour of governments is one important determinant of the

developmental aid effectiveness (McGillivray and Morrissey, 2004). If the monitoring of the disbursement of aid is costly, it is likely to cause fungibility (Chatterjee et al., 2007).

According to Pack and Pack (1993), aid is used to service debt, finance government deficit and reduce taxes in the Dominican Republic. Aid that is supposed to be used for developmental activities is rather used for debt servicing, reducing the tax burden of the population thereby making aid fungible.

On the aggregate level, Feyzioglu et al. (1998) using a sample of 14 countries, find aid not to be fungible. They also found out that no tax reduction is associated with fungibility. However, their sample is too small and leads to sample selection bias. The addition of more countries change the result in the other direction, aid appeared to be fungible. They also find that concessional loans for education, agriculture and energy are fungible while those to the transport and communication sectors are not.

Devarajan et al. (1999) studied 18 sub-Saharan countries from 1971-95 and finds that, a dollar increase in aid leads to 90% increase in government spending, showing little fungibility of aid. They find relatively little evidence that aid leads to greater tax relief in Africa. If the marginal cost of taxation is relatively higher which is evident in Africa, the logical thing is to use aid as tax relief.

Swaroop et al. (2000), their study shows that aid is used to finance projects that would have been undertaken by government through its own tax revenues in India. The resources are then diverted into non developmental purposes.

Aid increases the ability of government to spend on social sectors such as health, education and sanitation according to Gomannee et al., (2005a). Such spending leads to development through human capital investment. The idea that aid in general is fungible is based on the assumption of whether aid is intended to finance public investment or not. According to the World Bank (1998), any amount of aid diverted into government's consumption spending is considered to reduce aid effectiveness. This is misleading, as government's consumption includes expenditure to maintain and operate investment projects. Public investment spending is mostly construction projects, whereas recurrent costs essential for productive investments such as wages for nurses, doctors and lecturers are included in consumption. Thus recurrent spending is a necessary complement to investment and may often be in the form of human capital investment. In this sense, the argument that fungibility reduces the effectiveness of aid is misleading (McGillivray and Morrissey, 2000).

Chatterjee et al., (2007) using a Panel of 67 countries in 1992-2000 find evidence of fungibility at the aggregate level, with about 70% of total aid being fungible. They also found investment aid to be more fungible than other categories of aid. They concluded that, the problem of fungibility is also a political economic issue which is connected to factors such as corruption, rent seeking, the institutional environment of the recipient and their strategic relationship with donors.

Pettersson, (2007) reports that 70% of sectoral aid is fungible. Country-specific estimates of fungibility results were obtained from 57 aid-recipient countries and the result suggested that sectoral aid is indeed fungible on average.

A study done by Osei, et al (2005) in Ghana on the fiscal effects of aid by using the Vector Autoregressive method from 1966 to 1998 concluded that foreign aid is fungible at the aggregate level. At the aggregate level aid is not used solely for the purpose for which it is meant for. Part of aid has been used for other purposes such as paying for salaries. Fungibility is one of the factors that reduce the effectiveness of foreign aid.

### **3.4 Aid and the ‘Dutch Disease’**

The term Dutch disease was first used in the late 1950s, when natural gas discoveries in the Netherlands eventually affected the competitiveness of the Dutch manufacturing sector. The Dutch disease refers to the adverse effects on manufacturing of natural resource discoveries or the inflow of foreign exchange. A resource boom due to a tradable resource discovery or an increase in the inflow of foreign exchange causes real appreciation of its exchange rate as a result of rising wages, relocation of some of the labour force to the resource sector. The real appreciation reduces the international competitiveness of other tradable sectors because resource based –export crowd out commodity exports produced by those sectors (Krugman 1987). The country faces the risk of de-industrialization process. The wealth and income of the country increases as a result of the foreign aid leading to more revenue generation for government. As a result of the increased wealth and revenues, government spending on non-tradables or services increases. However, the spending effect results in a rise in the prices of services for the supply of services which is not perfectly elastic in a small open economy like Ghana where the supply of tradable may be perfectly elastic alongside their prices which may not change much. This implies that the real exchange rate, which is the relative price of non-tradables to tradables is appreciated.

The real exchange rate appreciation reduces the competitiveness of the country's exports and domestic production of import- competing products. Thus, the real exchange rate appreciation will not only affect non resource exports, but also domestic production of imported goods. As the exchange rate appreciates, imports become relatively cheaper so that domestic producers are disadvantaged.

Van Wijnbergen (1986) in his analysis of the macroeconomic aspects of the effectiveness of foreign aid, points out that any temporal inflow of aid will lead to a temporary appreciation of the real exchange rate. The appreciation of RER will cause a decline in export and the production of tradable goods.

Benjamin, Devarajan and Weiner, (1989) conducted a study using a CGE model of Cameroon. They find that the boom in the oil sector is likely to affect the Agricultural sector. They also find that components of the manufacturing sector will benefit. On the balance, the non-tradable sectors may not necessarily be affected negatively.

White and Wignaraja (1992) while using an econometric model of RER behaviour for Sri Lanka within the 1974-1988 periods attributed the appreciation of the RER to aid inflows and other factors with the nominal rate depreciating. The manufacturing sector performance was dwindling and thereby supporting the Dutch disease theory. They however, concluded a positive relationship between total aid and remittance and RER appreciation.

A study done in Botswana by Harvey (1992) indicates the absence of the Dutch disease. The foreign exchange from the export of diamond has not caused Dutch disease. The

foreign exchange received from the export of diamond in Botswana does not cause the appreciation of the real exchange rate respectively either.

Younger, (1992) did a study on the impact of aid on macroeconomic management in Ghana. The increase in ODA funding from an annual average of 3% of GDP in the 1981-83 to 6% of GDP in the 1984-87 resulted into macroeconomic having problems like high inflation, an RER appreciation, and tight credit to the non-bank private sector. As to whether we can attribute the cause of the changes in the Ghana's economy within that period to aid is another argument on its own. First, the increase in foreign exchange came from various sources such as an increase in private transfers and foreign direct investment. Secondly, the suggestion that the private sector has been crowded out has no evidence or if any it is very weak. Younger suggested that, the government's response to aid increase was a combination of foreign exchange accumulation, provision of credit in the banking sector and an increase in public spending on development projects at the same period.

Bandara (1995) used a computable general equilibrium model (CGE) to estimate the impact of foreign aid on macroeconomic variables in Sri Lanka. The RER appreciation associated with aid inflows was followed by expansion in some tradable sectors which does not support the Dutch disease theory.

Adenauer and Vagassky, (1998) in an empirical analysis of the impact of aid on RER in four CFA countries, namely Burkina Faso, Cote d'Ivoire, Senegal and Togo from 1980-1993, found a positive relationship between aid inflows and RER appreciation. These countries received a large increase in aid inflows and within the same period they

experienced negative trade balances and an increase in government debts. The above are the symptoms of the Dutch disease. However, the reduction in world prices of their primary exports and the appreciation of the French francs against the dollar during the 1980s affected their economic performances. The RER appreciation could have been caused by the exchange rate appreciation. The deteriorating trade balance could be as a result of declining world prices of their major primary products, declining trade volumes or could even be both.

Sackey, (2001) did a study on the impact of aid on the RER in Ghana for the period of 1962-96. The paper finds that Ghana's economy is heavily dependent on foreign aid for development. These inflows however, do not affect the real exchange rate negatively. The inflows caused a depreciation of the real exchange rate which does not support the Dutch disease theory. His analysis of the export performance model finds that appreciation in the RER affects export negatively. The Dutch disease is one of the factors that reduced the effectiveness of foreign aid.

## CHAPTER FOUR

### RESEARCH METHODOLOGY

#### 4.0 Introduction

This chapter discusses the econometric framework of the empirical model adopted by the study. The chapter is organized into two main sections. The first section discusses the model specification of aid and growth while the second section discusses the econometric estimation procedure.

#### 4.1 Model specification

The model used to estimate the relationship between economic growth and foreign aid in this study is based on an Aggregate Production Function (APF) framework. The conventional Cobb- Douglas production function is specified as follows:

$$Y = CL^{\beta_1}K^{\beta_2} \dots\dots\dots (1)$$

Where:

Y= output, K=capital, L= labour force and C= total factor productivity (TFP),  $\beta_1$  and  $\beta_2$  are output elasticities of labour and capital respectively.

From equation (1), we can conclude that

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

The total factor productivity (C) is a measure of the productive efficiency in the economy. It therefore accounts for factors that contribute to production other than labour

and capital. It is explained by the endogenous growth theory to be determined endogenously by economic factors.

The aggregate production function assumes that, along with “conventional inputs” of labour and capital used in the neoclassical production function, “unconventional inputs” like foreign aid may be included in the model to capture their contribution to economic growth. These other factors are what are captured by the total factor productivity (TFP).

Assuming constant technology, an increase in the amount of capital and/or labour will increase the level of output in the economy. In this case, the total factor productivity (C) captures growth in output which is not accounted for by the changes in labour and capital. However, the study seeks to investigate the impact of aid flows on economic growth; the total factor productivity is a function of foreign aid flows and other macroeconomic factors such as money supply, trade and aid square.

From equation (2), total factor productivity (C) includes factors such as foreign aid, foreign aid square, trade, money supply and constitutional regime.

$$C=f(A, ASQ, M, T, D) \dots\dots\dots (3)$$

Where A= Aid, ASQ=Aid square, M= Money supply as a share of GDP, T= Trade as a share of GDP and D= Dummy variable which take the value of 1 for constitutional regime and 0 for non-constitutional regime.

By substituting equation (3) into equation (2)

$$Y= f(K, L, A, ASQ, M, T, D) \dots\dots\dots (4)$$

From equation (4), economic growth is a function of capital, labour and other economic factors captured by the Total factor productivity (C).

This model has been used by Feder (1983) and Fosu (1990).

Substituting equation (4) into equation (1)

$$Y = L_t^{\beta_1} K_t^{\beta_2} A_t^{\beta_3} ASQ_t^{\beta_4} M_t^{\beta_5} T_t^{\beta_6} \dots\dots\dots (5)$$

Where  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  and  $\beta_6$  are the elasticity co-efficient of output for  $K_t, L_t, A_t, ASQ_t, M_t$  and  $T_t$  respectively.

From equation (5), taking the natural logs of both sides

$$\ln Y_t = \beta_0 + \beta_1 \ln L_t + \beta_2 \ln K_t + \beta_3 \ln A_t + \beta_4 \ln A_t^2 + \beta_5 \ln M_t + \beta_6 \ln T_t + \beta_7 D + \varepsilon_t \dots\dots(6)$$

Where all coefficients and variables are as defined,  $\beta_0$  is a constant,  $\ln$  represent the natural logarithm and  $\varepsilon_t$  is white noise.

Equation (6) is the empirical estimation model for the real GDP of Ghana.

The relationship between economic growth and the macroeconomic variables have been established based on the production theory and the endogenous growth models. According to the production theory and the endogenous growth models, an increase in the labour force has a positive impact on economic growth. The labour force uses the available capital in the production of output. The expected sign of labour force is positive ( $\beta_1 > 0$ ).

According to production theory, an increase in capital will cause an increase in output. The sign  $\beta_2$  is expected to be positive since an increase in capital leads to more investment. An increase in investment in the economy is expected to cause an increase in real GDP per capita. There is a positive relationship between capital and real GDP per capita in an economy. The expected sign of capital is positive ( $\beta_2 > 0$ ).

According to the “two –gap’ model developed by Chenery and Strout (1966), Foreign aid is supposed to supplement the low levels of domestic savings in developing countries. Foreign aid covers the investment-saving gap and leads to import-foreign exchange gap being created in developing countries, thereby enabling them to import capital goods. An increase in foreign aid flows enhances investments leading hence to an increase in production. As per the standard theoretical “two-gap” model, foreign aid is growth enhancing. Foreign aid is expected to have positive sign ( $\beta_3 > 0$ ).

According to the model developed by Lensink and White (1999), there is the possible existence of an “aid laffer curve”. This model supports the idea that aid can lead to growth and that the aid-growth relationship is nonlinear. Foreign aid is expected to have a positive impact on growth up to a certain point before it falls. Lensink and White (1999), considered the non-linear impact of foreign aid in developing countries as due to the inappropriate use of technology and institutional weaknesses. According to Feeny and McGillivray (2008), the square of aid term is added to the regression to capture diminishing returns to aid. Durbarray et al (1998) also considered capacity constraint and the element of ‘Dutch disease’ as the main reasons for diminishing returns to aid in developing countries. This existence of weak absorptive capacities in developing countries are responsible for diminishing returns to aid, according to Hadjimichael et al

(1995), the AID square term represents diminishing returns to foreign aid. As foreign aid increases up to a certain level due to weak absorptive capacity, the impact of foreign aid begins to fall. The co-efficient of AID square term is expected to be negative ( $\beta_4$ ).

According to endogenous growth theories, trade openness has a positive impact on economic growth. This is possible through technological transfers between countries as access to intermediate inputs enhances production and encourages competition and efficiency among producers. The expected sign is positive ( $\beta_6 > 0$ ).

Furthermore, M2 as a share of GDP is used to measure financial development in the growth literature. M2 as a share of GDP is expected to be positive. This is based on the hypothesis developed by McKinnon (1973) and Shaw (1973) which states that financial development has a positive relationship with economic growth. According to McKinnon and Shaw, if financial restrictions are removed and market forces are allowed to determine real interest rates, it will cause growth in the economy. An artificial ceiling on interest rate reduces capital accumulation and savings and hence affects the efficient allocation of resources. According to the McKinnon-Shaw hypothesis, financial development is expected to have a positive sign.

#### **4.2 Empirical Estimation Model**

The empirical model to be estimated is shown as below

$$\ln Y_t = \beta_0 + \beta_1 \ln L_t + \beta_2 \ln K_t + \beta_3 \ln A_t + \beta_4 \ln A_t^2 + \beta_5 \ln M_t + \beta_6 \ln T_t + \beta_7 D + \varepsilon_t$$

### **4.3 Definition and Measurement of Variables**

The study uses time series data from the World Development Indicators (WDI 2014) online database and the definition of the variables is also taken from World Development Indicators (WDI 2014).

#### **4.3.1 Dependent Variable**

The dependent variable used in this study is economic growth and it is measured by real GDP per capita (constant 2005 US\$). This is in line with other studies done by Sakyi (2010) and Hansen and Tarp (2000), where real GDP per capita is used as a proxy for economic growth.

GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy, plus any product with taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are constantly in 2005 U.S. dollars.

#### **4.3.2 Explanatory Variables**

Gross capital formation is used as a proxy for capital mainly due to the lack of reliable data for capital stock. Gross capital formation (formerly gross domestic investment) consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. Inventories are stocks of goods held by firms to

meet temporary or unexpected fluctuations in production or sales, and "work in progress." This has been used in previous studies by Barro (1991) and Balasubramanyam et al. (1996).

The labour force is the supply of labour available for producing goods and services in an economy. The economically active population constitutes the labour force in the country. According to the production theory, an increase in labour has a positive impact on output. According to Frimpong and Oteng (2006), labour force is one of the most important inputs for economic growth. The expected sign of labour force is positive ( $\beta_3 > 0$ ).

Net official development assistance (ODA) consists of disbursements of loans made on concessional terms (net of repayments of principal) and grants by official agencies of the members of the Development Assistance Committee (DAC), by multilateral institutions, and by non-DAC countries to promote economic development and general welfare in countries and territories within the DAC list of ODA recipients. It includes loans with a grant element of at least 25 percent (calculated at a rate of discount of 10 percent). Net official aid refers to aid flows (net of repayments) from official donors to countries and territories in part II of the DAC list of recipients such as the more advanced countries of Central and Eastern Europe, the countries of the former Soviet Union, and certain advanced developing countries and territories. All data are in current U.S. dollars. According to studies done by Levy (1988), aid has positive impact on growth.

Furthermore, M2 as a share of GDP is used to measure financial development in the aid literature. Money and quasi money comprise the sum of currency outside the banks, demand deposits other than those of the central government, and the time, savings, and

foreign currency deposits of resident sectors other than the central government. This definition of money supply is frequently called M2.

Trade openness is one of the factors that affect economic growth. Merchandise trade as a share of GDP is the sum of merchandise exports and imports divided by the value of GDP, all in current U.S. dollars. It is the amount of goods and services that the country exported and imported which are expressed as a share of GDP. It is expected to have a positive impact on growth.

In a constitutional regime, there are checks and balances on elected officials, and this in turn reduces arbitrary government intervention, and lowers risk of policy reversal and also strengthens property right protection (North and Weingast, 1989). This makes investors to have confidence in the economy and the system. A constitutional system prevents a situation where the actors defer making investment for which they cannot recover their sunk costs totally. The dummy variable (D) is expected to be positive ( $\beta_7 > 0$ ). The dummy variable D takes a value of one (1) as in constitutional regime and a value of zero (0) in non-constitutional regime.

#### **4.4 Techniques for Estimation**

The Autoregressive Distributed Lag (ARDL) Bound testing approach will be used to test the long run and the short run relationship between economic growth and its determinants used in this study. This Autoregressive Distributed Lag (ARDL) Bounds Testing approach developed by Pesaran et al. (1999) is used to determine the long run and short run relationship, irrespective of whether the independent variables are integrated of order zero I (0), one I (1) or mutually cointegrated. The dependent variable has to be integrated

order one before the Autoregressive Distributed Lag (ARDL) Bounds Testing approach can be used.

#### **4.4.1 Justification of the Autoregressive Distributed Lag (ARDL) Bounds Testing Approach**

There are many methods used for testing the existence of the long run relationship between time series variables. The most commonly used Cointegration techniques are the two-step residual based procedure by Engle and Granger (1987) and the system based reduced rank regression technique by Johansen (1991). The above mentioned techniques have one common limitation of requiring all the time series variables to be integrated of order one  $I(1)$ . This, according to Pesaran et al. (1999) introduces a certain degree of uncertainty and also some degree of pretesting into the long run relationship.

#### **4.4.2 Advantages of Autoregressive Distributed Lag (ARDL) Bounds testing Approach**

The Autoregressive Distributed Lag (ARDL) Bound testing technique is superior to the other conventional Cointegration techniques due to the underlying factors which necessitated my choice of this model.

- ❖ The problem of testing for the order of integration is avoided by the ARDL approach. It is a requirement of variables to be of the same order of integration, i.e.  $I(1)$  by the other conventional approaches. The ARDL however, can be applied irrespective of whether the variables are of a different order of integration (Pesaran and Pesaran, 1997) i.e.  $I(0)$  or  $I(1)$
- ❖ Banerjee et al. (1993) shows that ARDL approach is more suitable in small sample data than other VAR methods like the Johansen approach which requires a large data

set. This study uses data set from 1980-2013 which is small, quite a small number making the ARDL technique more appropriate.

- ❖ The Autoregressive Distributed Lag (ARDL) uses a single equation, making it easier and simpler to interpret unlike the other VAR approaches which involve several equation setups.
- ❖ The Autoregressive Distributed Lag (ARDL) Bound Testing approach provides unbiased and efficient estimates. This is due to the fact that it avoids the problems of serial correlation and endogeneity (Afzal et al., 2010).

#### **4.4.3 Autoregressive Distributed Lag (ARDL) Bounds Testing Technique Procedure**

According to the Autoregressive Distributed Lag (ARDL) Bound Testing approach to Cointegration, the first condition is for the dependent variable to be integrated of order one  $I(1)$  and the independent variables should not be integrated of order  $I(2)$  or higher. This implies that we first test for the existence of unit root using the Augmented Dickey Fuller (ADF) and the Phillips-Perron test. This study will, however, rely on the result of the Phillips-Perron test and use the Augmented Dickey Fuller (ADF) test to confirm the results.

##### **4.4.3.1 Unit Root Test**

First perform a unit root test on the time series variables considered in the study. This is due to the fact that most macroeconomic time series data are non-stationary and regressing non-stationary series with each other is bound to produce spurious regression results. The unit root test is also performed to know whether the variables exhibit certain characteristics like mean reversion and finite variance. We test the time series to

determine whether they are stationary or non-stationary and as well as determine the order of integration. The order of integration is important because it helps in determining the long run relationship among the variables.

The Phillips Perron (PP) test is based on the ADF regression and the critical values are the same as those used for ADF tests

$$\Delta X_t = \delta_0 + \delta_1 X_{t-1} + \delta_2 T + \sum_{i=1}^n \psi_i \Delta X_{t-i} + \varepsilon \quad \dots\dots\dots(7)$$

Where  $\Delta$  is the difference operator,  $X$  is the natural logarithm of the series,  $T$  is a trend variable,  $\delta$  and  $\psi$  are the parameters to be estimated and  $\varepsilon$  is the error term. The Phillips-Perron unit root test is preferred to the Augmented Dickey Fuller (ADF) test due the following reasons.

- The Phillips Perron (PP) tests do not require the assumption of the homoscedasticity of the error term (Phillips and Perron, 1988)
- There is no loss of effective observation of the series based on the fact that, lagged terms of the variables are set to zero (Phillips and Perron, 1988).
- The Phillips Perron (PP) test also corrects the problems of serial correlation and autoregressive heteroscedasticity of the error terms. This is to ensure unit root results are robust to serial correlation and time dependent heteroscedasticity of the errors.

The null hypothesis is that the series is non-stationary and this is either accepted or rejected based on the t-ratio of the lagged term  $X_{t-1}$  compared to the tabulated values. If

the t-ratio is greater than the critical value, the null hypothesis of a unit root (i.e. the series is non-stationary) is rejected. On the other hand, if the t-ratio is less than the critical value, the null hypothesis of a unit root (i.e. the series is non-stationary) is accepted. The first difference of the series is evaluated by the use of equation 4.1.3 and if the null hypothesis is rejected the series is said to be stationary and conclusion is that the series is integrated of order one  $I(1)$ . The critical values of the t-statistics are given in Mackinnon (1991). We perform a unit root test for each variable on both levels and first difference. The first differences of the variables are investigated for the existence of a unit root. The problem, however, associated with differencing the variable is the possibility of losing long run information present in the variable. To avoid this problem, the study will adopt the Autoregressive Distributed lag Modeling Approach to Cointegration which shows the long run relationship among the non-stationary series.

#### ***4.4.3.2 Autoregressive Distributed Lag (ARDL) Cointegration Modeling Procedure***

The bounds testing procedure basically uses three steps, the first step is the use of F-test to establish the existence of a Cointegration relationship. The test has a non-standard distribution, meaning the critical values differ from those in the standard distribution. Pesaran and Pesaran (1997) generate separate critical values that show two different sets of values. The first value which is the upper critical bound is based on the assumption of all variables being  $I(1)$  and the second, which is the lower critical bound also assume all variable to be  $I(0)$ . If the calculated F-statistic is above the upper value of this bound, the null hypothesis is rejected, indicating the existence of Cointegration among the variables irrespective of whether they are  $I(1)$  or  $I(0)$ . However, if the F-statistic falls below the lower critical bound, the null hypothesis of no Cointegration cannot be rejected. If the

value is within the bounds (i.e. within the lower and upper critical bound) means an inconclusive result.

From our aid-growth equation model, the hypothesis can be specified as follows

$$H_0 : \delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = \delta_6 = 0$$

$$H_1 : \delta_1 \neq \delta_2 \neq \delta_3 \neq \delta_4 \neq \delta_5 \neq \delta_6 \neq 0$$

After establishing the existence of Cointegration, the next step is to estimate the conditional ARDL (p, q<sub>1</sub>, q<sub>2</sub>, q<sub>3</sub>, q<sub>4</sub>, q<sub>5</sub>, q<sub>6</sub>, q<sub>7</sub>, q<sub>8</sub>,) long run model for Y<sub>t</sub>.

$$\ln Y_t =$$

$$\alpha_0 + \sum_{i=1}^p \delta_1 \ln Y_{t-1} + \sum_{i=0}^{q_1} \delta_2 \ln L_{t-i} + \sum_{i=0}^{q_2} \delta_3 \ln k_{t-i} + \sum_{i=0}^{q_3} \delta_4 \ln AID_{t-i} + \sum_{i=0}^{q_4} \delta_5 \Delta \ln AID_{t-i}^2 + \sum_{i=0}^{q_5} \delta_6 \ln M_{t-i} + \sum_{i=0}^{q_6} \delta_7 \ln T_{t-i} + \sum_{i=0}^{q_7} \delta_8 \ln D_{t-i} \dots (8)$$

This is done by selecting the order of the ARDL( p, q<sub>1</sub>, q<sub>2</sub>, q<sub>3</sub>, q<sub>4</sub>, q<sub>5</sub>, q<sub>6</sub>, q<sub>7</sub>, ) long run model using either the Akaike Information criteria (AIC) or the Schwartz/Bayesian Information Criteria (SIC or SBC). Pesaran and Shin (1999), did a comparative study of the two methods which shows that, although the ARDL-AIC and ARDL-SIC have similar sample properties. The ARDL-SIC however, perform slightly better in the majority of the experiments they run. According to Pesaran and Shin (1999), the SIC is considered as more parsimonious with the lag length selection and is a consistent model selection criteria. This is why this study will be using the SIC method.

In the third step, we obtain the short run dynamic parameters by estimating an error correction model associated with the long run estimates. The speed of adjustment to

disequilibrium represented by the adjustment term is also estimated at this stage. The model is specified as follows

$$\begin{aligned} \ln Y_t = & \alpha_0 + \sum_{i=1}^n \theta_i \Delta \ln L_{t-i} + \sum_{i=1}^n \rho_i \Delta \ln k_{t-i} + \sum_{i=1}^n \sigma_i \Delta \ln AID_{t-i} + \\ & \sum_{i=1}^n \tau_i \Delta \ln AID_{t-i}^2 + \sum_{i=1}^n \phi_i \Delta \ln M_{t-i} + \sum_{i=1}^n \gamma_i \Delta \ln T_{t-i} + \sum_{i=1}^n \infty_i \Delta \ln D_{t-i} + \\ & \vartheta ecm_{t-1} + \varepsilon_t \dots\dots\dots(9) \end{aligned}$$

Where  $\theta_i, \rho_i, \sigma_i, \tau_i, \phi_i, \gamma_i$  and  $\infty_i$  are the short run dynamics of the model and  $\vartheta$  the speed of convergence to the long run equilibrium when there is a shock to the model.  $Ecm_{t-1}$  is the error correction term in the equation.

#### 4.5 Diagnostic Tests

Diagnostic tests will be carried out to test the robustness of the results from the ARDL model. We will test for autocorrelation, normality test of the error term, stability of the long run and short run coefficients and heteroscedasticity.

#### 4.6 Data Source

The study uses time series data for its analysis spanning from 1980 to 2013. The data were drawn from the World Development Indicators (WDI, 2014), Food and Agriculture Organization (FOA), Ministry of Finance, Ghana Statistical Service and Organization for Economic Cooperation and Development (OECD).

#### 4.7 Chapter Summary

The study uses secondary data mostly from the World Development Indicators (WDI), Food and Agriculture. The Autoregressive Distributed Lag (ARDL) Bounds Testing Technique for Cointegration will be used to address the objectives of the study.

## CHAPTER FIVE

### DATA ANALYSIS AND DISCUSSION OF RESULTS

#### 5.0 Introduction

This chapter presents an analysis of data and findings of the study. The chapter presents a general descriptive statistics of the log of the variables and trend analysis of the raw data. This is followed by a unit root test using both Augmented Dickey Fuller and Phillip Perron approaches. Discussion and interpretation of the empirical estimation of the long run and short run results will be done followed by diagnostic test results discussion and conclusion of the chapter.

#### 5.1 Summary of Descriptive statistics

The descriptive statistics as presented in Table 5.1 shows the sample mean, median, maximum, minimum and the standard deviations. The table also shows the Kurtosis, Skewness and the Jarque-Bera test statistics along with the respective probabilities.

Table 5.1: Descriptive Statistics of Raw Data from 1980 to 2013

|              | YP       | M        | K        | I        | ASQ      | A        | T        |
|--------------|----------|----------|----------|----------|----------|----------|----------|
| Mean         | 85188.26 | 22.59078 | 27837.26 | 76.67824 | 86019220 | 7879.165 | 62.724   |
| Median       | 72558.55 | 22.68525 | 13152.65 | 74.155   | 41542772 | 6445.25  | 65.63855 |
| Maximum      | 199279.6 | 34.10823 | 137481.4 | 120.9    | 3.28E+08 | 18102.2  | 116.0484 |
| Minimum      | 38158.25 | 11.30499 | 1363.212 | 43.82    | 1174839  | 1083.9   | 6.320343 |
| Std. Dev.    | 43509.45 | 6.929603 | 35797.93 | 23.17609 | 96240440 | 4966.224 | 31.0763  |
| Skewness     | 1.086409 | 0.001114 | 1.853418 | 0.324261 | 1.319197 | 0.610578 | -0.18993 |
| Kurtosis     | 3.337215 | 1.696157 | 5.39377  | 1.912686 | 3.590531 | 2.381473 | 1.996828 |
| Jarque-Bera  | 6.849377 | 2.408349 | 27.5836  | 2.270679 | 10.35562 | 2.654544 | 1.630087 |
| Probability  | 0.032559 | 0.299939 | 0.000001 | 0.321313 | 0.00564  | 0.2652   | 0.44262  |
| Sum          | 2896401  | 768.0865 | 946467   | 2607.06  | 2.92E+09 | 267891.6 | 2132.616 |
| Sum Sq.      |          |          |          |          |          |          |          |
| Dev.         | 6.25E+10 | 1584.64  | 4.23E+10 | 17725.33 | 3.06E+17 | 8.14E+08 | 31869.3  |
| Observations | 34       | 34       | 34       | 34       | 34       | 34       | 34       |

**Source:** Author's computation from Eviews 7

Table 5.2: Descriptive Statistics of Log Variables from 1980 to 2013

|              | LYP     | LM        | LK      | LI        | LASQ      | LA       | LT       |
|--------------|---------|-----------|---------|-----------|-----------|----------|----------|
| Mean         | 6.09471 | -1.537337 | 21.0456 | 15.80752  | 410.4535  | 20.2454  | -        |
|              |         |           |         |           |           |          | 0.658031 |
| Median       | 6.03474 | -1.483484 | 20.9972 | 15.81894  | 411.4409  | 20.2840  | -        |
|              |         |           |         |           |           |          | 0.421016 |
| Maximum      | 6.64545 | -1.075632 | 23.3441 | 16.30789  | 454.4023  | 21.3167  | 0.14883  |
| Minimum      | 5.77073 | -2.179926 | 18.7305 | 15.29302  | 342.2961  | 18.5012  | -        |
|              |         |           |         |           |           |          | 2.761397 |
| Std. Dev.    | 0.22526 | 0.327683  | 1.23439 | 0.306466  | 30.74683  | 0.76868  | 0.73137  |
| Skewness     | 0.85488 | -0.349685 | 0.06699 | -0.031471 | -0.589517 | -        | -        |
|              |         |           |         |           |           | 0.660961 | 1.314255 |
| Kurtosis     | 2.98597 | 1.889705  | 2.40719 | 1.789963  | 2.609894  | 2.69315  | 3.99483  |
| Jarque-Bera  | 4.14165 | 2.439324  | 0.52326 | 2.079880  | 2.184928  | 2.60897  | 11.1898  |
| Probability  | 0.12608 | 0.295330  | 0.76979 | 0.353476  | 0.335389  | 0.27131  | 0.00371  |
| Sum          | 207.220 | -52.26945 | 715.551 | 537.4556  | 13955.42  | 688.346  | -        |
|              |         |           |         |           |           |          | 22.37305 |
| Sum Sq. Dev. | 1.67460 | 3.543407  | 50.2832 | 3.099397  | 31197.13  | 19.4987  | 17.6522  |
| Observations | 34      | 34        | 34      | 34        | 34        | 34       | 34       |

**Source:** Author's computation from Eviews 7

Where LYP= Log of GDP per capital, LM= Log of money supply, LK= Log of capital, LI= Log of labour, LASQ= Log of aid square, LA= Log of aid and LT= Log of trade

From Table 5.2, the ratio of mean to median of each variable is approximately 1, with the range of values between the minimum and maximum being normal. Log of Aid square has the highest mean of 410.45 and log of money supply (M) has the lowest mean of -1.5373. The Table shows a small coefficient of variation as the standard deviation is lower than the mean. The standard deviation measures the degree of dispersion. From the table 5.1, log of real GDP per capita has the lowest dispersion of 0.2253 and aid square has the highest dispersion of 30.747.

Most of the variables are negatively skewed indicating the variables are concentrated on the right of the mean with extreme values to the right. The values for the kurtosis are

below three (3) except for log of openness (T) indicating that the distribution of the variables is near normality. From table 5.1, the total number of observations is 34.

The next section presents and discusses trend analysis of the raw data. Stationarity test is performed on the log variables; cointegration test is done to determine whether there is a long run relationship between the variables. This is followed by discussion of the long run and the short run results. Diagnostic and stability test are performed to find out whether the short and long run coefficients are stable.

## **5.2 Trend Analysis of Raw Data**

One of the objectives of this study is to examine the behaviour of the macroeconomic variables of the model over the study period (1980-2013). In analyzing the trend of the variables, different time graphs were used for real GDP per capita, labour Force (L), capital (k), foreign aid (A), foreign aid square (ASQ), trade as a share of GDP and money supply as a share of GDP (M2).

Real GDP per capita shows a positive trend over time for much of the period under consideration. There was a decline in real GDP per capita from 1980 to 1983 and it began to increase at a decreasing rate up to 1999. Real GDP per capita then increased at an increasing rate up to 2007 and then increased at a decreasing rate for a short while before increasing at an increasing rate up to 2013. The initial fall in real GDP per capita was due to the poor economic performance in the country, partly as a result of anti-agricultural bias, corruption, macroeconomic mismanagement and chronic overvaluation of the Cedi (Lloyd et al. 2001). The positive trend of real GDP per capita could be attributed to several factors as this study seeks to do. The introduction of the World Bank's Structural

Adjustment Programme in 1983 led to macroeconomic stability and Ghana became one of the best performers in sub-Saharan Africa. Real GDP per capita increased at an increasing rate due to the good macroeconomic performance the country experienced from the early 2000s. It however, increased at a decreasing rate around 2008-2009 due to poor economic performance, such as high inflation, which was around 16% in 2008 and 19% in 2010. Real GDP per capita then increased sharply due to better economic management, which led to single digit inflation in 2011 and 2012.

Aid flows in Ghana was very low in the early 1980s. It started to increase in 1983 and it recorded a sharp increase in the mid-80s to 1988 before fluctuating over the period 1989 and 2002. Foreign aid started to increase in 1983 due to the adoption of the Economic Recovery Programme (ERP). This opens up the country to foreign trade and increase the floor of foreign assistance. Capital goods and inputs such as fertilizer needed in the dominant sector (Agriculture) of the country were available. The flow of foreign aid peaked in 2004 before it decreased sharply until 2008. It then increased shortly before declining in 2011 and 2012. In 2001, the Government of Ghana entered into HIPC, which led to debt relief. The HIPC funds that were release has a significant impact on poverty reduction and also led to economic growth. Ghana growth rate was 4.1%, 5.1 % and 8.43% in 2002, 2003 and 2008 respectively (WDI). This shows an increase in the growth rate of the country within that period.

Money supply as a share of GDP fluctuated between 1980 and 1981 before falling sharply in 1983. It then exhibited a fluctuating pattern throughout the 1980s and peaked in 2002. It then fluctuated again before falling sharply in 2006 and then continues to fluctuate.

Gross capital formation started to decline from 1980 to 1984 before increasing up to 1987. It then shows a fluctuating pattern between 1988 and 2002. Gross capital formation, then increased sharply for the year 2008 before declining sharply in 2009. It then increased sharply again from 2010 to 2012 and declined sharply in 2013. It recorded its lowest levels in 1984 and its highest point in 2012.

Labour force has consistently been increasing over a long period of time as shown on the graph. Since it is the portion of the population, which is economically active, an increase in population will automatically bring about an increase in the number of people actively searching for employment, those employed and those who did not work but have work to return to.

Trade as a percentage of GDP started to fall from 1980 to 1983 before increasing at an increasing rate up to 1988. It then falls before increasing inconsistently up to 2000. It then falls continuously up to 2007 before increasing up to 2012 and fall sharply in 2013.

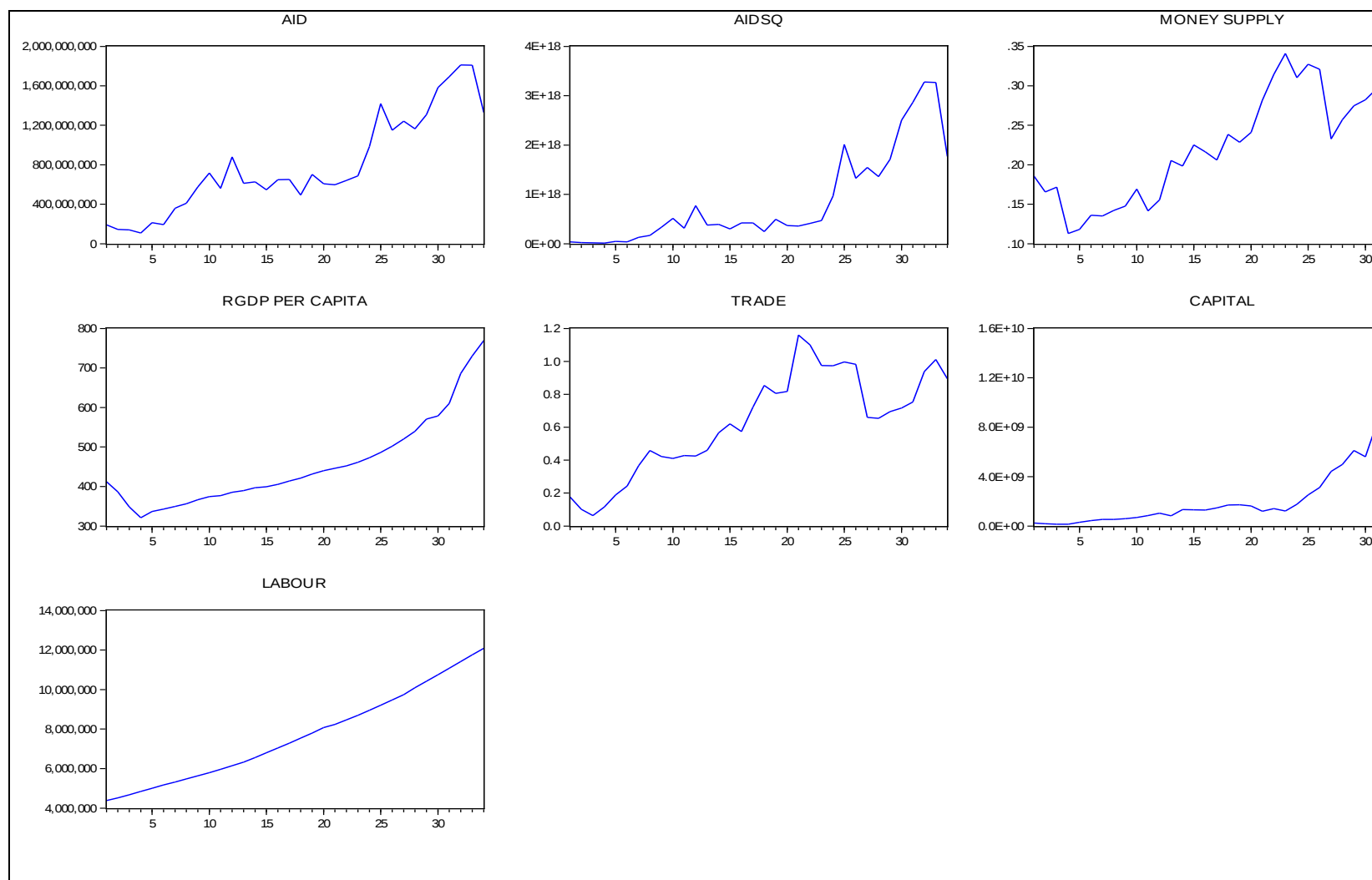


Figure 5.1: Multiple Graphs of Raw Variables from 1980 to 2013

**Source:** Author's Construction from Eviews

### 5.3 Unit Root Test Results

Time series variables are non-stationary by nature. According to Granger (1969) using such data will lead to spurious results. The ARDL Bounds testing of cointegration which is employed in this study requires that the dependent variable should be integrated of the first order I (1). All the variables, however, are transformed into a log form in order to normalize and linearize the data. The log data now act as the level data for the analysis. The Augmented Dickey Fuller and Phillip Perron tests are used for the unit root test. However, this study will use the conclusion from the Phillip Perron unit root test for its analysis. Tables 5.2 and 5.3, show the test for stationarity at levels and first difference for the Phillip Perron and Augmented Dickey Fuller approach respectively. The unit root is done with constant, but without a trend.

Table 5.3: Phillips-Perron (PP) Test for Unit Root from 1980 to 2013

| LEVEL VARIABLES   |                 |          |          |          |          |                      |
|-------------------|-----------------|----------|----------|----------|----------|----------------------|
| VARIABLES         | CRITICAL VALUES |          |          |          | P-VALUES | ORDER OF INTEGRATION |
|                   | Test Statistics |          |          |          |          |                      |
|                   |                 | 1%       | 5%       | 10%      |          |                      |
| <b>In GDP</b>     | 3.156824        | -3.64634 | -2.95402 | -2.61582 | 1        | NS                   |
| <b>In Labour</b>  | -0.971216       | -3.64634 | -2.95402 | -2.61582 | 0.7519   | NS                   |
| <b>In Capital</b> | -0.134228       | -3.64634 | -2.95402 | -2.61582 | 0.9637   | NS                   |
| <b>In Aid</b>     | -2.153277       | -3.64634 | -2.95402 | -2.61582 | 0.2263   | NS                   |
| <b>In AidSQ</b>   | -2.159767       | -3.64634 | -2.95402 | -2.61582 | 0.2240   | NS                   |
| <b>In Trade</b>   | -1.408881       | -3.64634 | -2.95402 | -2.61582 | 0.5660   | NS                   |
| <b>In Money</b>   | -0.90855        | -3.64634 | -2.95402 | -2.61582 | 0.7729   | NS                   |

|                   |              | FIRST<br>VARIABLES | DIFFERENCED |          |        |      |
|-------------------|--------------|--------------------|-------------|----------|--------|------|
| <b>In GDP</b>     | -2.836308*   | -3.65373           | -2.95711    | -2.61743 | 0.0645 | I(1) |
| <b>In Labour</b>  | -3.302202**  | -3.65373           | -2.95711    | -2.61743 | 0.0232 | I(1) |
| <b>In Capital</b> | -4.937736*** | -3.65373           | -2.95711    | -2.61743 | 0.0003 | I(1) |
| <b>In Aid</b>     | -7.268030*** | -3.65373           | -2.95711    | -2.61743 | 0      | I(1) |
| <b>In AidSQ</b>   | -7.226410*** | -3.65373           | -2.95711    | -2.61743 | 0      | I(1) |
| <b>In Trade</b>   | -4.596595*** | -3.65373           | -2.95711    | -2.61743 | 0.0009 | I(1) |
| <b>In Money</b>   | -6.34144***  | -3.65373           | -2.95711    | -2.61743 | 0      | I(1) |

**Source:** Author's Computation from EViews 7, and \*, \*\*, & \*\*\* represent stationarity at 10%, 5%, & 1% respectively. NS denote Not Stationary.

The null hypothesis is that the series is non-stationary. The rejection of the null hypothesis for PP test is based on the MacKinnon critical values. \*, \*\* and \*\*\* indicate the rejection of the null hypothesis of non-stationary at 10%, 5% and 1% significance level respectively.

Table 5.4: Augmented Dickey-Fuller (ADF) Test for Unit Root from 1980 to 2013

|            |                    | LEVEL<br>VARIABLES                |          |          |              |                            |  |
|------------|--------------------|-----------------------------------|----------|----------|--------------|----------------------------|--|
| VARIABLES  | Test<br>Statistics | CRITICAL VALUES                   |          |          | P-<br>VALUES | ORDER<br>OF<br>INTEGRATION |  |
| In GDP     | 3.156824           | -3.64634                          | -2.95402 | -2.61582 | 1            | NS                         |  |
| In Labour  | -1.315721          | -3.64634                          | -2.95402 | -2.61582 | 0.6105       | NS                         |  |
| In Capital | -0.052557          | -3.64634                          | -2.95402 | -2.61582 | 0.9466       | NS                         |  |
| In Aid     | -2.153277          | -3.64634                          | -2.95402 | -2.61582 | 0.2263       | NS                         |  |
| In AidSQ   | -2.159767          | -3.64634                          | -2.95402 | -2.61582 | 0.2240       | NS                         |  |
| In Trade   | -1.39082           | -3.64634                          | -2.95402 | -2.61582 | 0.5748       | NS                         |  |
| In Money   | -1.00605           | -3.64634                          | -2.95402 | -2.61582 | 0.7395       | NS                         |  |
|            |                    | FIRST<br>DIFFERENCED<br>VARIABLES |          |          |              |                            |  |
| In GDP     | -3.00466**         | -3.65373                          | -2.95711 | -2.61743 | 0.0451       | I(1)                       |  |
| In Labour  | -3.24654**         | -3.65373                          | -2.95711 | -2.61743 | 0.0263       | I(1)                       |  |

|            |            |          |          |          |        |      |
|------------|------------|----------|----------|----------|--------|------|
| In Capital | -4.9144*** | -3.65373 | -2.95711 | -2.61743 | 0.0004 | I(1) |
| In Aid     | -7.4421*** | -3.65373 | -2.95711 | -2.61743 | 0.0000 | I(1) |
| In AidSQ   | -7.3902*** | -3.65373 | -2.95711 | -2.61743 | 0.0000 | I(1) |
| In Trade   | -4.5994*** | -3.65373 | -2.95711 | -2.61743 | 0.0009 | I(1) |
| In Money   | -6.3414*** | -3.65373 | -2.95711 | -2.61743 | 0.0000 | I(1) |

**Source:** Author's Computation from EViews 7, and \*, \*\*, & \*\*\* represent stationarity at 10%, 5%, & 1% respectively. NS denote Not Stationary.

The null hypothesis is that the series is non-stationary. The rejection of the null hypothesis for ADF tests is based on the MacKinnon critical values. \*,\*\* and \*\*\* indicate the rejection of the null hypothesis of non-stationary at 10% , 5% and 1% significance level respectively

Table 5.3 shows the unit root test results under the null hypothesis that there is unit root at 10%, 5% and 1%. From table 5.3, all the variables are non-stationary at levels. This warrant first differencing of the variables to make sure they are stationary. From table 5.4, all the variables are stationary after taking the first difference. The variables are said to be integrated of order one. The ARDL approach however does not require the pretesting for the order of integration<sup>15</sup>.

#### 5.4 ARDL Bounds Test for Cointegration Procedure

There are basically three steps in using the ARDL Bounds testing approach to Cointegration developed by Pesaran et al. (1999). The procedures are as follows

- First, test for the existence of long run relationship between the variables
- Secondly, estimate the long run coefficient of the variables and
- Lastly, estimate the short run co-efficient of the variables

<sup>15</sup> Before we can use the ARDL approach, the variables have to be either I (0) and I (1) or both. The pretesting of the order of integration is done to ensure the absence of I (2).

#### 5.4.1 Test for Long Run Relationship between the Variables

The unrestricted Error Correction Model proposed by Pesaran et al. (1999) is estimated with Ordinary Least Square (OLS) to determine the existence of long run relationship between the variables in the model. The optimal lag length of one (1) is determined by the use of Schwarz Information Criterion (SIC) after setting the maximum lag to one (1). This test finds out whether in the long run, there exist any relationship between the dependent variable and the independent variables. The absence of long run relationship will mean that we will be estimating only short run results.

Table 5.5: Bounds Tests for the Existence of Cointegration

| Critical value Bound of F-Statistics: No intercepts and no trend (CASE I) |           |       |           |        |           |       |    |
|---------------------------------------------------------------------------|-----------|-------|-----------|--------|-----------|-------|----|
| K                                                                         | 90% level |       | 95% level |        | 99% level |       |    |
|                                                                           | I (0)     | I (1) | I (0)     | I (1)  | I (0)     | I (1) |    |
| 6                                                                         | 1.75      | 2.87  | 2.04      | 3.24   | 2.66      | 4.05  |    |
| Calculated F-Statistics:                                                  |           |       |           |        |           |       |    |
| $F_Y$                                                                     | (Y/L,     | K,    | AID,      | AIDSQ, | M,        | T,    | D) |
| 3.767469**                                                                |           |       |           |        |           |       |    |

Source: Author's Estimation. Critical values are obtained from Pesaran et al. (2001); P. 300, Table CI (i). \*\* denote statistically significant at 5% and K is the number of regressors.

We test the null hypothesis of no cointegration against the alternative hypothesis that there is Cointegration in the model. The results of the bound test are presented in table 5.5. The calculated F-statistic is above 5% upper critical bounds (3.767469) computed by Pesaran and Pesaran (2001) leading to the conclusion that the null hypothesis of no Cointegration is rejected. This means that there is a long run relationship among the variables in the model.

After establishing the existence of long run relationship, the next step is to use the ARDL Cointegration method to estimate the long run and short run parameters of the model.

#### 5.4.2 Results of Long run Relationship

The rejection of the null hypothesis of no cointegration means there is a long run relationship between real GDP and its determinants, such as labour, capital, aid, aid square, trade and money supply. The results obtained are based on the Schwarz Information Criterion (SIC) with a lag of one.

Table 5.6 :Estimated Long -Run Model using the ARDL Approach

| ARDL(1,0,1,1,1,0,1,0) selected based on SIC |             |                | Dependent Variable : In GDP |           |
|---------------------------------------------|-------------|----------------|-----------------------------|-----------|
| Regressor                                   | Coefficient | Standard Error | T-Ratio                     | P-Values  |
| ln Labour                                   | -0.9846     | 0.4969         | -1.9815                     | 0.0590*   |
| In Capital                                  | 0.1403      | 0.0492         | 2.8490                      | 0.0090*** |
| ln Aid                                      | 2.0166      | 0.9656         | 2.0886                      | 0.0480**  |
| In AidSQ                                    | -0.0493     | 0.2393         | -2.0596                     | 0.0500**  |
| In Money                                    | 0.0624      | 0.0625         | 0.9983                      | 0.3280    |
| In Trade                                    | 0.0413      | 0.0424         | 0.9726                      | 0.3400    |
| D                                           | 0.0458      | 0.0171         | 2.6828                      | 0.0130**  |

**Source:** Author's Estimation from Microfit 4.1. \*, \*\*, and \*\*\* denote significance at 10%, 5% and 1% respectively.

Table 5.6 shows the long run elasticities of the variables with most of the variables having the expected theoretical signs. Some of the coefficients of the variables are significant at 10%, 5% and 1%.

The result indicates that aid has a positive and significant impact on growth. This is consistent with the theoretical prediction of a positive relationship between aid and

growth. Foreign aid in Ghana is used in financing government spending through investment. The provision of infrastructural development, such as roads, schools, hospitals are examples of how aid has been helpful in this country. This positive impact may be due to the adoption of the Multi-Donor Budgetary Support (MDBS) which has ensured that aid is used to support the Ghana shared Growth and Development Agenda of the Government. The result shows that a percentage increase in foreign aid will bring about a 2 percentage increase in growth. This result is consistent with studies done by Lloyd, Morrissey and Osei (2001), Sakyi (2010), Papanek (1973) and Hansen and Tarp (2000).

The second objective of this study is to test whether aid in Ghana faces diminishing returns. The result indicates a negative sign which is in conformity with the aid literature. According to Feeny and McGillivray (2008), diminishing returns to aid is due to absorptive capacity constraint in developing countries. Durberry et al. (1998) however, believe the problem of Dutch disease and capacity constraint to be the reason for diminishing returns to aid. Lensink and White (1999) also considered institutional destruction and the inappropriate technology caused by the inflow of aid for the nonlinear specification of the growth relation. The massive flow of aid has the tendency of weakening governance by increasing rent seeking and the returns to corruption. The coefficient of aid square (-0.05) shows that a percentage increase in aid square will bring about 0.1 percentage fall in growth when the marginal aid impact begin to fall. This is consistent with studies done by Hadjimichael (1995), Durberry et al (1998), Lensink and White (1999) and Feeny and McGillivray (2008).

The coefficient of labour force has a negative sign as opposed to economic theory and is significant at 10%. It is theoretically expected that an increase in labour force all things being equal will lead to an increase in total output of the economy. The possible explanation for this unexpected negative sign may be due to the following:

- The underemployment and disguised unemployment that has engulfed the country. The unemployment rate as percentage of the total labour increased from 4.19% in 2012 to 4.59% in 2013 (World development Indicators table, 2014). Most of the highly skilled labour force is working in low paying jobs or engage in part time jobs when they could be fully employed to propel growth in the country. Some of the labour force is employed in sectors, especially the ministries where their productivity is zero.
- Another reason could be lack of technical know-how among the labour force in this country. The majority of the labour force in the informal sector lacks the needed skills to propel productivity.
- Moreover, the unavailability of the needed equipment to help fast track productivity is a contributory factor.
- Also the rates at which industrial actions take place in this country affect the contribution of labour to growth. They have been constant strikes by Teachers and Education Workers Unions (TEWU), Ghana Medical Association (GMA) and allied Health Workers Groups (HWG).
- Last but not the least could be that most of the labour force is involved in petty commerce rather than production which contribute little to economic growth. The result shows that a percentage increase in the labour force will cause growth to

fall by 0.9 percent. This outcome is consistent with studies by Aryeetey and Fosu (2005).

The result is consistent with economic theory that capital has a positive relationship with growth. This indicates that in the long run, an increase in the capital has the tendency to bring about an increase in growth in Ghana. The positive coefficient (0.1) for capital shows that a percentage increase in capital will bring about 0.1 percentage increase in growth. This result is in line with studies done by Frimpong and Oteng-Abayie. (2006) and Aryeetey and Fosu (2005).

The dummy variable has the expected positive sign which is consistent with expectation and is significant at 5%. This shows that during periods of constitutional regime there exist political and economic adjustments to meet the demands of the society. The uncertainty associated with non-constitutional regimes which increases the cost of doing business is non-existent. This motivates the private sector to invest in the economy, which leads to economic growth. An improvement in constitutional regime by a unit will cause an increase in growth by 0.02 units. This is in line with the study by Lipset (1959).

#### **5.4.3 Result of Short Run Dynamic Model**

The last step in the ARDL model is to estimate the short run results. The results from the short run are basically used to determine whether the impacts of the variables on growth are temporary or permanent. If the resultant signs of the short run conform to the long run, it is an indication of permanent effects on growth. If, however, the signs are different then the impact of the variable in growth is temporary in the short run. The estimation

results of the Error Correction Model as shown in table 5.6 are based on the Schwarz Bayesian Criterion.

Table 5.7 Estimated Short-Run Error Correction Model using the ARDL Approach

| ARDL (1,0,1,1,1,0,1,0) selected based on SIC                                                                                      |             |                            | Dependent Variable: $\Delta \ln Y$ |           |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------|------------------------------------|-----------|
| Regressor                                                                                                                         | Coefficient | Standard Error             | T-Ratio                            | P-Values  |
| $\Delta \ln \text{Labor}$                                                                                                         | -0.4361     | 0.2081                     | -2.0957                            | 0.0470**  |
| $\Delta \ln \text{Capital}$                                                                                                       | 0.0622      | 0.0185                     | 3.3652                             | 0.003***  |
| $\Delta \ln \text{Aid}$                                                                                                           | 0.8932      | 0.3539                     | 2.5243                             | 0.0190**  |
| $\Delta \ln \text{AidSQ}$                                                                                                         | -0.0218     | 0.0088                     | -2.4672                            | 0.0210**  |
| $\Delta \ln \text{Money}$                                                                                                         | 0.0276      | 0.0295                     | 0.9367                             | 0.3580    |
| $\Delta \ln \text{Trade}$                                                                                                         | 0.0183      | 0.0175                     | 1.0435                             | 0.3070    |
| D                                                                                                                                 | 0.0203      | 0.0083                     | 2.4355                             | 0.0230    |
| ECM(-1)                                                                                                                           | -0.4430     | 0.1066                     | -4.1547                            | 0.0000*** |
| ECM = $\ln YP + 0.98459 \ln I - 0.14031 \ln K - 2.0166 \ln AID + 0.049275 \ln AIDSQ - 0.062370 \ln M - 0.041267 \ln T - 0.4583 D$ |             |                            |                                    |           |
| R-Squared                                                                                                                         | 0.72617     | R-Bar-Squared              | 0.64630                            |           |
| S.E. of Regression                                                                                                                | 0.019074    | F-stat. F (7, 24)          | 9.0922 [0.000]                     |           |
| Mean of Dependent Variable                                                                                                        | 0.0036430   | S.D. of Dependent Variable | 0.032071                           |           |
| Residual Sum of Squares                                                                                                           | 0.0087313   | Equation Log-likelihood    | 85.8993                            |           |
| Akaike Info. Criterion                                                                                                            | 77.8993     | Schwarz Bayesian Criterion | 72.0363                            |           |
| DW-statistic                                                                                                                      | 2.1384      |                            |                                    |           |

**Source:** Author's Estimation from Microfit 4.1. \*, \*\*, and \*\*\* denote significance at 10%, 5% and 1% respectively

The error correction coefficient shows the speed of adjustment to equilibrium within a year whenever there is disequilibrium. The coefficient should have a negative sign and should be significant. Bannerjee et al. (1998) concluded that the significant error correction term indicate the existence of a long run relationship. From table 5.7, the coefficient of the  $ECM_{t-1}$  is -0.44, which means that within the coming year, 44% of the deviation in real GDP will be corrected. This shows that the model corrects its previous period disequilibrium at a speed of 44% annually. The negative and statistically

significant coefficient of ECM means that any shock in the short run will be corrected in the long run. The R-square of 0.72617 means that, about 73% of the variation is being explained by the model.

The short run dynamics shows that aid has a positive impact on growth just as the long run results and is significant at 5%. The immediate turnaround of the Ghanaian economy in the late 1980s is a clear example of the positive impact of aid. Ghana was experiencing negative growth rate in the early 1980s and after the adoption of the economic recovery programme and the subsequent inflow of foreign aid, growth has since turned into positive. A percentage increase in foreign aid will lead to a 0.89 percentage increase in growth.

The negative sign of the aid square term is consistent with the long run results and is significant at 5%. This further confirms that aid in Ghana is subject to diminishing returns. Aid has a positive impact on growth up to a certain level and the impact begins to fall as more aid flows in. This could be due to institutional constraints, the problem of Dutch disease and the absorptive constraints in the country. A percentage increase in foreign aid square will lead to 0.02 percentage fall in growth.

The coefficient of capital maintains a positive sign just as in the long run and is significant at 1%. This shows the key role capital plays in the growth trajectory of the country. Within the short run, capital investment has a positive relationship with growth. A percentage increase in capital will cause a 0.06 percentage increase in growth.

The negative coefficient of labour force conforms to the long run result and is significant at 5%. The negative sign could be attributed to the unemployment facing the country, the

quality of labour force and the rate at which industrial actions take place in the country. A percentage increase in the labour force will bring about a 0.44 percentage decrease in growth.

The results from the short run indicate that there is a positive relationship between economic growth and constitutional regime in Ghana. The significant positive impact of the dummy variable on real GDP per capita shows that investors are comfortable in investing in constitutional regime which brings about economic growth. From the short run results an improvement in constitutional regime by a unit will cause growth by 0.02 units. This conforms to a study by Stasavage (2002).

### 5.5 Diagnostic Test Results

The diagnostic tests are carried out for serial correlation, normality of the residuals terms, heteroscedasticity and functional form specification and the results are reported in table 5.5.

Table 5.8 Results of ARDL Diagnostic tests

| Test Statistics       | LM Version                  | F Version                    |
|-----------------------|-----------------------------|------------------------------|
| A: Serial Correlation | CHSQ (1) =0.4975<br>(0.481) | F (1,23) =0.36323<br>(0.553) |
| B: Functional form    | CHSQ (1) =1.1322<br>(0.287) | F (1,23) =0.84363<br>(0.368) |
| C: Normality          | CHSQ (2) =8.8552<br>(0.012) | Not applicable               |
| D: Heteroscedasticity | CHSQ (1) =2.2690<br>(0.085) | F (1,30) =3.0681<br>(0.090)  |

**Source:** Author's Estimation from Microfit 4.1. Figures in parenthesis are the P-value

A: Lagrange multiplier test of residual serial correlation

B: Ramsey's RESET test using the square of the fitted values

C: Based on a test of Skewness and Kurtosis of residuals

D: Based on the regression of squared residuals

From table 5.8, as per the P- values of serial correlation, functional form, normality and heteroscedasticity 0.553, 0.368, 0.012 and 0.085, we fail to reject the null hypothesis of no serial correlation, correct functional form, normally distributed residuals and homoscedasticity at the 1 % level of significance. This implies that the model does not suffer from serial correlation, wrong functional form, heteroscedasticity and non-normality of the error terms.

The cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMSQ) approaches are used to determine the stability of the short and long run coefficients.

## Plot of Cumulative Sum of Recursive Residuals

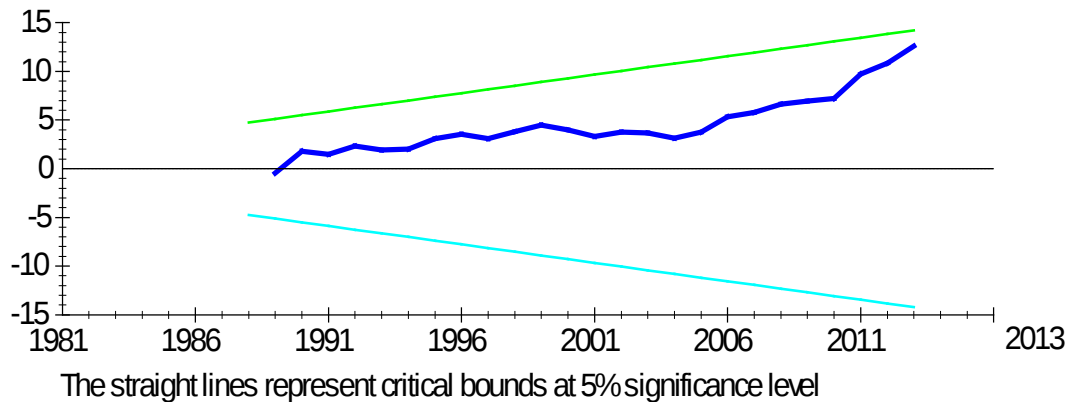


Figure 5.2: Plot of Cumulative Sum of Recursive Residuals (CUSUM)

## Plot of Cumulative Sum of Squares of Recursive Residuals

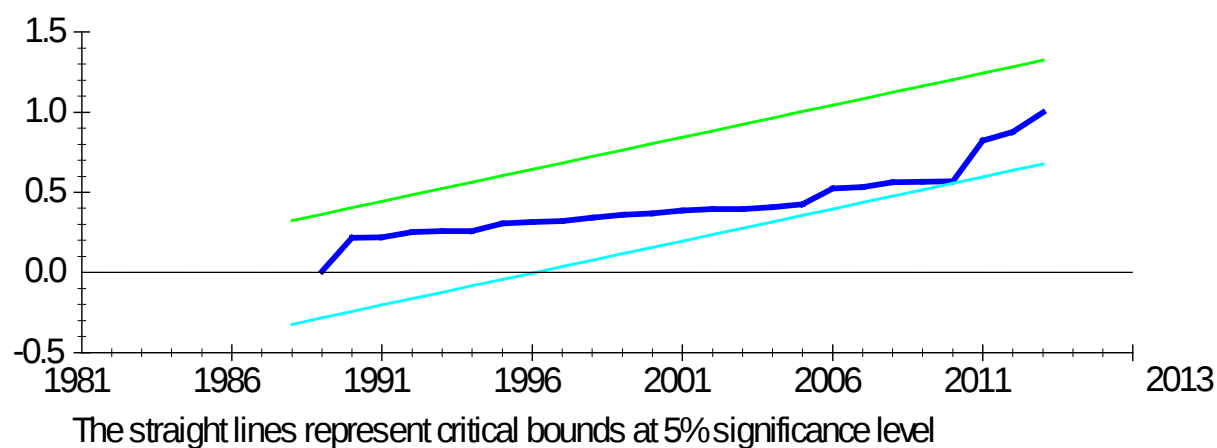


Figure 5.3: Plot of Cumulative Sum of Square of Recursive Residuals

The null hypothesis of stable parameters is tested against the alternative hypothesis that both the long run and short run parameters are not stable. From Fig 5.1 and Fig 5.2, it is clear that the plot of CUSUM and CUSUMSQ lies within the critical bounds, meaning that the estimated model and its coefficients are stable at 5% significance level.

### 5.6 Chapter Summary

The study established that there is Cointegration among the variables in the model. There is a positive significant relationship between economic growth and variables such as foreign aid and capital, both in the short and long run. The study also found out that foreign aid in Ghana is subject to diminishing returns as shown by the significant negative relationship between growth and foreign aid square in the long run. The study,

however, found labour force to be significant and thus have a negative relationship with economic growth both in the short and long run. Money supply and trade as a share of GDP are not significant in both long and short run, but they still have a positive relationship with growth.

The study concluded that the model does not have a problem of serial correlation, wrong functional form, heteroscedasticity and non- normality of the error term. The long and short run coefficients are found to be stable at 5% significance level.

## **CHAPTER SIX**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **6.0 Introduction**

This chapter presents a summary of the main findings from the study and provides some recommendations for policy and future researchers. The chapter is divided into four (4) main sections: the first section summarizes the main findings from the study, while the second section presents recommendations for policy and future research, the third section discusses the limitations of the study and the last section deals with the conclusion.

#### **6.1 Summary of the study**

The main objective of this study is to find out the relationship between foreign aid and economic growth in Ghana. This study uses secondary data from the World Development Indicators (WDI) and Food and Agriculture Organization (FAO) spanning the period from 1980 to 2013. The Autoregressive Distributed Lag (ARDL) bounds testing approach to Cointegration developed by Pesaran et al. (2001) is adopted to test for the existence of the long run relationship among the variables.

Stationarity test was performed by using both Augmented Dickey Fuller and Phillip Perron unit root approaches. The first difference was done since the variables were not stationary at levels. After taking the first difference, all the variables were stationary at 1%, except the log of real GDP per capita and the log of the labour force which were stationary at 5%.

The study found both short and long run coefficient of foreign aid to be positive, indicating that foreign aid causes growth in Ghana. Foreign aid is used in financing Government spending through investment. It is used to support the Ghana Shared Growth and Development Agenda of the Government.

The study also found both the short and long run coefficients of the aid square to be negative thus implying the existence of diminishing returns of aid in Ghana. This shows that real GDP per capita initially increases with an increase in foreign aid up to a threshold level and falls with further increases in foreign aid. This shows an inverted U shape relationship between aid and real GDP per capita in the country.

The study also found capital to impact positively on real GDP per capita, which is consistent with the theory of production. Capital formation brings about expansion in the productive capacity of a country through an increase in the number of firms. This brings about the full utilization of internal resources through competition and efficiency among firms.

Labour force however, was found to be negatively related to economic growth in Ghana. This is not surprising, due to the quality of labour force in the country, the underemployment and disguised unemployment currently engulfed the country not excluding the many industrial actions undertaken in the country.

The study also found money supply as a share of GDP and trade as a share of GDP to be positively related to economic growth but without much significant impact.

Diagnostic test was also carried out to ensure that there is no serial correlation problem, the model has correct functional form and the error term is homoscedastic. Cumulative sum and the cumulative sum of squares were also carried out at 5% significance level, which shows that the variable were stable.

## **6.2 Conclusion**

Foreign aid effectiveness is a very critical and unsettled issue at both theoretical and empirical levels. The study adopted the Autoregressive Distributed Lag (ARDL) Bounds Test Approach to Cointegration to test the long and the short run relationship between foreign aid and economic growth. The results show that there is a positive relationship between foreign aid and economic growth, but it is subject to diminishing returns due to lack of absorptive capacity. The findings from this study shows that though foreign aid impacts positively on growth, over dependence on it could undermine growth due to lack of absorptive capacity in the country. The findings help counter claims that foreign aid is ineffective and its budgets should be reduced or stopped. The results establish that the bulk of foreign aid meant for infrastructural development is put into productive uses. The results also established that, foreign aid when above certain level can cause diminishing returns. For the fact that foreign aid brings about growth, the government should be very careful about the amount it receives as aid so as not to exceed the limit that makes the marginal aid diminish. The government should encourage more domestic savings, broaden the tax base and attract foreign direct investment to supplement aid flows at levels that impact positively on growth.

The findings from the studies show that labour force impact on growth is negative in Ghana. This could be due to the unemployment situation in the country where a lot of graduates have no work to do. Also, the majority of the labour force in the government sector contributes nothing to productivity. Furthermore, the rates at which industrial actions take place in this country affect the contribution of labour to growth. There have been constant strikes by Teachers and Education Workers Unions (TEWU), Ghana Medical Association (GMA) and allied Health Workers Groups (HWG).

Capital has been found to have a positive effect on growth in Ghana. This shows that investment in the capital stock has also led to growth.

It can be concluded from the study that, democratic governance has been a blessing to the country. Ghana has enjoyed peaceful, democratic governance since 1992. If we want to develop, then we should maintain this form of governance which brings in its stead steady growth as compared to the military regime. The country should strengthen its democracy so as to bring about more economic growth.

### **6.3 Limitation of the study**

The major limitation of this study is the quality and availability of data for the various macroeconomic variables. We have tried to obtain data from domestic sources such as the various Ministries but all to no avail. This study had to rely on data from foreign sources such as World Development Indicators (WDI) and African Development Indicators all of which affect the quality of the results.

#### **6.4 Policy recommendations and future research**

The results of this study have implications for policy makers and future researchers.

The results of the study show the existence of diminishing returns to foreign aid. This is as a result of absorptive capacity constraint in the country. The absorptive capacity of a country is affected by institutional weaknesses, budget constraints, aid affecting other macroeconomic variables and uncoordinated donor practices. We recommend policies that should be put in place to address the absorptive constraint problems. Donors could find alternative means of giving aid directly to government institutions. The use of Non-Governmental Organizations (NGO) could be one means of solving the problem. Also, if the Multi-Donor Budgetary Support (MDBS) adopted in Ghana is use effectively, it could also solve the problem.

The positive relationship between foreign aid and economic growth is an indication that aid has been put into productive and fruitful projects and programmes. Most developing countries are currently aid dependent which undermines predictability of government spending and therefore call for long term planning. We recommend that, Ghana should use alternative means of sourcing for resources, such as encouraging domestic saving, attracting more foreign direct investment and perhaps broaden the tax base. This will help implement developmental projects even if the foreign aid flow ceases within a given period of time. There should also be collaboration among donors as well as between donors and recipients countries. This will reduce the incidence of duplications of aid activities.

The study established that trade openness is positively related to economic growth in Ghana. This study recommends more trade liberalization policies which should be carried out to take full advantage of the benefits of international trade. Some selective controls of imports should be instituted to prevent dumping and to protect domestic industries. Furthermore, these policies should be accompanied by major investments in developing the nation's human resources through research and innovation, education and skill development to enable the labour force compete effectively in the globalized world. The Government should promote, develop and diversify output and exports of the country to enhance its foreign exchange.

Moreover, the study recommends that more financial deepening should be carried out since money supply as a share of GDP has positive impact on growth. There is the need to ensure availability of affordable credit for small scale informal private enterprises including the agricultural sector and the service sector. Banks must also pay fair interest rates to depositors and should avoid charging higher rates for their services.

According to economic theory, labour force has a positive impact on growth. Labour force however, can lead to increase in productivity if reforms of the labour sector are put in place. Policies should be directed at human resource development to make the labour more productive. Also, the salary offered should be reasonable and competitive. The single spine salary structure adopted in the country is a step in the right direction.

In case of future research, we recommend that the impact of the various forms of aid should be carried out. This is to determine the form of aid that best suits the Ghanaian

economy. Future research should also be able to find out whether it is project aid, food aid or programme aid that best bring about economic growth.

The study used aggregate aid to establish the positive relationship between aid and growth. Future research also should lastly consider the sectoral contribution of aid to economic growth.

### Bibliography

- Acharya, A., De Lima, A. T. F., & Moore, M. (2006). Proliferation and fragmentation: Transaction costs and value of aid. *The journal of development studies*, 42(1), 1-21.
- Adamu, P. A. (2013). The impact of foreign aid on economic growth in ECOWAS countries. A Simultaneous-equation model (No. 2013/143). *WIDER Working Paper*.
- Addison, T., Mavrotas, G., & McGilliray, M. (2005). Aid to Africa: An unfinished agenda, *Journal of international development*. 17(8), 989-1001.
- Adenauer, I., & Vagassky, L. (1998). Aid and the real exchange rate: Dutch disease effects in African countries, *Intereconomics: Review of International Trade and Development*, 33 (4), pp. 177–85.
- Afzal, M., Farooq. M. S., Ahmed, K. H., Begum, I., & Quddus, M. A. (2010). Relationship between school education and economic growth in Pakistan: ARDL bounds testing approach to cointegration. *Pakistan Economic Review*, 48 (1), 39-60.
- Alesina, A. and Dollar, D. (2000). Who gives foreign aid and to whom and why?. *Journal of Economic Growth*, 5(1), 33-63.
- Amoako- Tuffour, J.(2005). Multi-Donor Direct Budget Support in Ghana: The implication for aid delivery and aid effectiveness. *Centre for Policy Analysis*, 11, 1-22
- Arellano, C., Bulir, A., Lane, T., & Lipschitz, L. (2009). The dynamic implication of foreign aid and its variability. *Journal of Development Economics*, 88(1), 87-102

- Armah, S. E., & Nelson, C.H. (2008). *Is foreign aid beneficial for Sub-Saharan Africa? A panel Data Analysis*. Amereican Agricultural Economics Association Annual Meeting, Orlando, Florida.
- Arndt, C., Jones, S., & Tarp, F. (2010). Aid and growth : Have we come full circle? (No. 2010/96). *Wider Working Paper*.
- Aryeetey, E. (2005). Globalization, Employment and Poverty in Ghana. WIDER ThinkingAhead. *The Future of Development Economics*. Marina Congress Centre, Helsinki, p. 17-18
- Aryeetey, E., and Cox. A. (1997). Aid effectiveness in Ghana. J. Carlson et al. (eds), *Foreign aid in Africa: Learning from country experience*. Motala Grafiska, Sweden.
- Aryeetey, E., & Fosu, A. (2005). *Economic Growth in Ghana: 1960-2000*. AERC Growth Project Workshop, Cambridge.
- Balassa, B. (1978). Exports and Economic Growth: further evidence. *Journal of Development Econonomics*, 5(2), 181-189.
- Balasubramanyam, V. N., Salisu, M., & Sapsford, D. (1996). Foreign direct investment and growth in EP and IS countries, *The Economic Journal*, 92-105.
- Bacha, E., L. (1990). A three-gap model of foreign transfer and the GDP growth rate in developing countries. *Journal of Development Economics*, 32(2); 279-96
- Bandara, J. S. (1995). Dutch disease in a developing country: the Case of foreign capital inflows to Sri Lanka. Seoul, *Journal of Economics*, 8 (Fall), pp. 314–29.
- Banerjee, A., Dolado, J.J., & Mestre, R. (1998). Error-correction mechanism tests for

- cointegration in a single equation framework. *Journal of time series analysis*, 19 (3), 267-83.
- Barro, R. J (1991). Economic Growth in a Cross Section of Countries. *Quartely Journal of Economics*, Vol. 106, pp. 407-443.
- Bauer, P. (1976). *Dissent on development*. Harvard University Press. Cambridge.
- Beck, T., Levine, R., Loayza, N. (2000). Financial and the sources of growth. *Journal of Financial Economics*, 58 (1), 261-300
- Benjamin, N. C., Devarajan, S., & Weiner, R. J. (1989). The Dutch disease in a developing Country: Oil reserves in Cameroon. *Journal of Development Economics*, 30 (1), 71-92.
- Bobba, M. & Powell, A. (2007). Aid and Growth: politics matters. Inter-American Development Bank, *Research Department Working Paper* No. 601.
- Boone, P. (1994). *The impact of foreign aid on saving and growth*. London School of Economics and Political Science, Centre for Economic Performance.
- Boone, P. (1996). Politics and the Effectiveness of Foreign Aid. *European Economic Review*, 40 (2), 289-329.
- Burnside, A.C., and Dollar, D. (1997). Aid, Policies and Growth. *World Bank Policy research working paper*, ( 569252).
- Burnside, C. & Dollar, D. (2000). Aid ,policies and growth. *American Economics Review*, 90 (4), 847-68.
- Chatterjee, S., Giuliano, P., & Kaya, I. (2007). Where has all the money gone? Foreign aid and the quest for growth. *IZA Discussing paper* No. 2858. Germany.

- Chenery, H. B., & Bruno, M. (1962). Development alternative in an open economy: the case of Israel. *The Economic Journal*, 79-103.
- Chenery, H. B., & Strout, A. M. (1996). Foreign assistance and economic development. *The American Economic Review*, 679-733.
- Clay, E. J., Mathew, G., Luisa, N., & Dirk, W., V. (2008). Thematic study, The Developmental Effectiveness of Untied Aid: Evaluation of the implementation of the Paris Declaration and of the 2001 DAC Recommendation of Untying ODA to the LDCs, Phase I Report. Copenhagen, December 2008.
- Clemens M.A., Radelet, S., & Bhavnani, R. R. (2004). Counting chickens when they hatch: The Short term effect of aid on growth. *Center for Global Development working paper*,(44).
- Collier, P., & Dollar, D. (2001). Can the world cut poverty in half? How policy reform and effective aid can meet international development goals. *World development*, 29 (11), 1787-802.
- Dalgaard, C.J., Hansen, H. & Tarp, F. (2004). On the empirics of foreign aid and growth. *The Economic Journal*, 114 (496), F191-F216.
- Devarajan, S., Rajkumar, A., S. & Swaroop, V. (1999). What does aid to Africa finance?, *Development Research Group*, World Bank. Washington, USA.
- Djankov, S., Montalvo, J. G., & Reynal-Querol, M. (2008). The Curse of Aid. *Journal of Economic Growth*, 13(3), 169-194.
- Dowling, J, M., & Hiemenz, U. (1983). Aid,saving and growth in the Asian region. *The Developing Economies*, 21(1), 3-13.

- Durbarry, R., Gemmell, N., & Greenaway, D. (1998). New evidence on the impact of foreign aid on economic growth. *CREDIT Research Paper* 98/8, Centre for Research in Economic Development and International Trade, University of Nottingham.
- Easterly, W. (2003). Can foreign aid buy growth?. *Journal of Economic Perspectives*. 17 (3), 23-48.
- Easterly, W. (2005). What did structural adjustment adjust?: The association of policies and Growth with repeated IMF and World Bank adjustment loans, *Journal of Development Economics*, 76(1), 1-22.
- Easterly, W. (2007a). Are Aid Agencies Improving? *Economic Policy*, 22(52), 634- 678.
- Easterly, W. (2007b). Was Development Assistance a Mistake? *American Economic Review Papers and Proceedings*, 97(2), 328-332.
- Easterly, W. (1999). The ghost of financing gap: testing the growth model used in the international financial institutions, *Journal of Development Economics*, 60 (2), 423-38.
- Easterly, W., Levine, R & Roodman, D. (2003). New Data, new Doubts: Revisiting Aid, Policies, and Growth. *Center for Global Development Working Paper* (26).
- Easterly, W., Levine, R., & Roodman, D. (2004). Aid, Policies and Growth: Comment', *American Economic Review*, 94(3), 774-80.
- Ekanayake E. M., (2007). The effect of foreign aid on economic growth in developing countries, *Journal of International Business and Cultural Studies*.
- Eregba, P., B. (2013). Aid flows and growth diagnosis: empirical evidence for a panel of ECOWAS countries. *Economics Bulletin*, 33 (4), 2627-2633

- Engle, R. F., & Granger, C.W. (1987). Cointegration and Error Correction: representation, estimation and testing. *Econometrica: Journal of the Econometric Society*, 55: 251-276.
- Feder, G. (1983). On exports and economic growth. *Journal of development Economics*, 12 (1), 59-73
- Feyzioglu, T., Swaroop, V., & Zhu, M. (1998). A panel data analysis of the fungibility of foreign aid. *The World Bank Economic Review*, 12(1), 29-58
- Fosu, A. K. (1990). Export composition and the impact of export on economic growth of developing economies. *Economics Letters*, 34 (1), 67-71.
- Franco-Rodriguez, S., Morrissey, O., & McGillivray, M. (1998). Aid and the public sector in Pakistan: evidence with endogenous aid. *World Development*, 26(7), 1241-1250
- Frankel, J. A., & Romer, D. (1999). Does Trade Cause Growth?. *American Economic Review*, 89(3), 379-399.
- Frimpong, J.M., & Oteng-Abayie, E.F. (2006). Bounds testing approach: an Examination of foreign direct investment, trade and growth Relationships. *American Journal of Applied Science*, 3(11): 2079-2085
- Granger, C. W. J. (1969). Investigating Causal Relations by Econometric Models and Cross Spectral Methods. *Econometrica*, 37, 424-438
- Gomanee, K., Girma, S., & Morrissey, O. (2005). Aid and growth in Sub –Saharan Africa: accounting for transmission mechanisms, *Journal of International Development*, 17 (8), 1055-1075.

- Griffin, k. (1970). Foreign capital, domestic Savings and economic development. *Bulletin of the Oxford University institute of Economics and Statistics*, 32 (2): 99-112
- Griffin, K. B., & Enos, J. L. (1970). Foreign assistance: objectives and consequences. *Economic Development and Cultural Change*, 313-327.
- Guillaumont, P., & Chauvet., L. (2001). Aid and performance: A reassessment. *Journal of Development Studies*, 37(6), 66-92
- Gupta, K. L. (1975). Foreign capital inflows, dependency burden and saving rates in developing Countries: A Simultaneous Equation Model. *Kyklos*, 28 (2), 358-374
- Gupta, K. L., & Islam, M. A. (1983). *Foreign capital, saving and growth. An international cross –section study*. International Studies in Economics and Econometrics. D. Reidel Publishing Company. Dordrecht, Holland
- Hadjimichael, M.T., Ghura, D., Muhleisen, M., Nord, R. & Ucer, E. M. (1995). Sub-Saharan Africa: Growth, Saving and Investment, 1986-93. *IMF Occasional Paper* No. 118, IMF, Wahington D.C.
- Hansen, H. & Tarp, F. (2000). Aid Effectiveness Disputed. *CREDIT Resaerch Paper* No 99/10, University of Nottingham.
- Hansen, H. & Tarp, F. (2001). Aid and Growth Regressions. *Journal of Development Economics*, 64(2), 547-570.
- Harrigan, J., & Younger, S. (2000). Aid, debt and growth. *Economic Reforms in Ghana: The Miracle and the Mirage*, 185-208.
- Harvey, C. (1992). Botswana: is the economic miracle over?. *Journal of African Economies*, 1, (3), 335–68.

- Johansen, S. (1991). Estimation and hypothesis testing of cointegration vectors in Gaussian vector autoregressive models. *Econometrica: Journal of the Econometric Society*, 1551-1580
- Karras, G. (2006). Foreign aid and long-run economic growth: Empirical evidence for a panel of developing countries. *Journal of international development*, 18(7), 15-28
- Khan, M. H., & Jomo, K. S. (2000). *Rent, rent-seeking and economic development: Theory and evidence in Asia*. Cambridge University Press, Cambridge.
- Killick, T. (1978). *Development Economics in Action: A Study of Economic Policies in Ghana*. London : Hienemann Educational Books.
- Krugman, P. (1987). The narrow moving band, the Dutch disease and the competitive consequence of Mrs. Thatcher: Notes on trade in the presence of dynamic scale economics. *Journal of Development Economics*, 27(1), 41-55.
- Lensink, R. & White, H. (1999). Is there aid laffer curve?. *Centre for research in economic development and international trade*, University of Nottingham.
- Levy, V. (1988). Aid and growth in Sub-Saharan Africa: The recent experience, *European Economic Review*, 32 (9), 1777-1795.
- Lipset, S. M. (1959). Some social requisites of democracy: Economic development and political legitimacy. *American political science review*, 53 (1), 69-105
- Lloyd, T., Morrissey, O., & Osei, R. ( 2001). *Aid, export and growth in Ghana*. University of Nottingham, Centre for Research in Economic Development and International Trade.

- MacKinnon, J. (1991). *Critical values for cointegration tests*, in R.F. Engel and C.W.J. Granger, eds., *long run economic relationship: reading in cointegration*, Oxford University Press, Oxford.
- McKinnon, R. I. (1973). *Money and capital in economic development*. The Brookings Institution, Washington.
- McGillivray, M. and Feeny, S. (2008). *Aid and Growth in Fragile States*.(No.2008/03), Research Paper, UNU-WIDER, United Nations University (UNU)
- McGillivray, M., Feeny, S., Hermes, N. & Lensink, R. (2006). Controversies over the impact of development aid: it works; it doesn't; it can, but that depends. *Journal of international development*, 18(7), 1031-1050
- McGillivray, M., & Morrissey, O. (2004). Fiscal Effects of Aid in T. Addison and A.Roe (eds), *Fiscal Policy for Development*, Basingstoke: Palgrave Macmillan/WIDER, 72-96.
- Memorandum, F. (2003). *Multi-Donor Budgetary Support Programme in Support of the Implementation of Ghana Poverty Reduction Strategy: An Agreement between the Government of Ghana and Development Partners*. Accra, Ghana, May 16.
- Ministry Of Finance & Economic Planning (2010): *Ghana Aid Policy and Strategy*.
- Ministry of Finance & Economic Planning – Ghana, (2005). *Multi-Donor Budget Support in Ghana: Questions and Answers*. Available [www.mofep.gov.gh/sites/default/files/.../Questions\\_and\\_Answers.pdf](http://www.mofep.gov.gh/sites/default/files/.../Questions_and_Answers.pdf) accessed March 23,2012

- Ministry of Finance & Economic Planning – Ghana, (2005). *Signing of the 2nd Multi Donor Budget Support Framework Memorandum*. Available at <http://www.mofep.gov.gh/?q=node/261>  
Accessed; March 23, 2012.
- Miquel-Florensa, J. (2007). *Aid effectiveness: a comparison of tied and untied aid*. York University, (No. 2007\_3)
- Morrissey, O. (2001). Does aid increase growth?. *Progress in development studies*. 1(1), 37-50.
- Mosley, P. (1980). Aid, saving and growth revisited. *Oxford Bulletin of Economics and Statistics*, 42 (2), 79-95.
- Mosley, P. (1987). *Overseas aid: its defence and reform*. Wheatsheaf Books.
- Mosley, P., Hudson, J. and Horrell, S. (1987). Aid, the public sector and the market in less developed countries. *Economic Journal*, 97 (388), 616-641
- North, D. C., & Weingast, B. R. (1998). Constitutional and commitment: The evolution of institutions governing public choice in seventeenth-century England, *The Journal of Economic History*, 49(4), 803-832.
- Osei, Akwas. (1999). *Ghana: Recurrence and change in a post-independence African State*. Peter Lang Publishing.
- Osei, R., Morrissey, O., & Lloyd, T. (2005). The fiscal effects of aid in Ghana, *Journal of International Development*, 17(8), 1037-1053.
- Ouattara, B. (2004). *The impact of project aid and programme aid inflows on domestic savings: A case study of Cote d'Ivoire*. School of economic studies, University of Manchester, UK.

- Pack, H & Pack, J., R. (1993). Foreign aid and the question of fungibility. *The Review of Economics and Statistics*, 75 (2), 258-265.
- Papanek, G. F. (1972). The effects of aid and other resource transfers on savings and growth in less developed countries. *The Economic Journal*, 82 (327), 934-50.
- Papanek, G. F. (1973). Aid, foreign private investment, saving and growth in less developed countries. *The Journal of Political Economy*, pp. 120-130.
- Pesaran, M.H., & Pesaran, B. (1997). *Working with Microfit 4.0: interactive econometric Analysis (Windows version)*. Oxford University Press.
- Pesaran, M.H., and Shin, Y., (1999). An autoregressive distributed lag modeling approach to cointegration analysis. *Econometrics Society Monographs*, 31, 371-413.
- Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16 (3), 289-326.
- Peter, H. & Howard, W. (2004). Survey of foreign aid: history, trends and allocation. *Discussion paper*, Department of Economics, University of Copenhagen.
- Pettersson, J. (2007). Foreignsectoral aid fungibility, growth and poverty reduction. *Journal of International Development*. 19, 1074-1098.
- Phillips, P.C., & Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika*. 75 (2), 335-446.
- Quartey, P. (2002). *Finance and small and medium enterprise development in Ghana*. Manchester: University of Manchester. PhD thesis.
- Quartey, P. (2005). Innovative ways of making aid effective in Ghana: tied aid versus

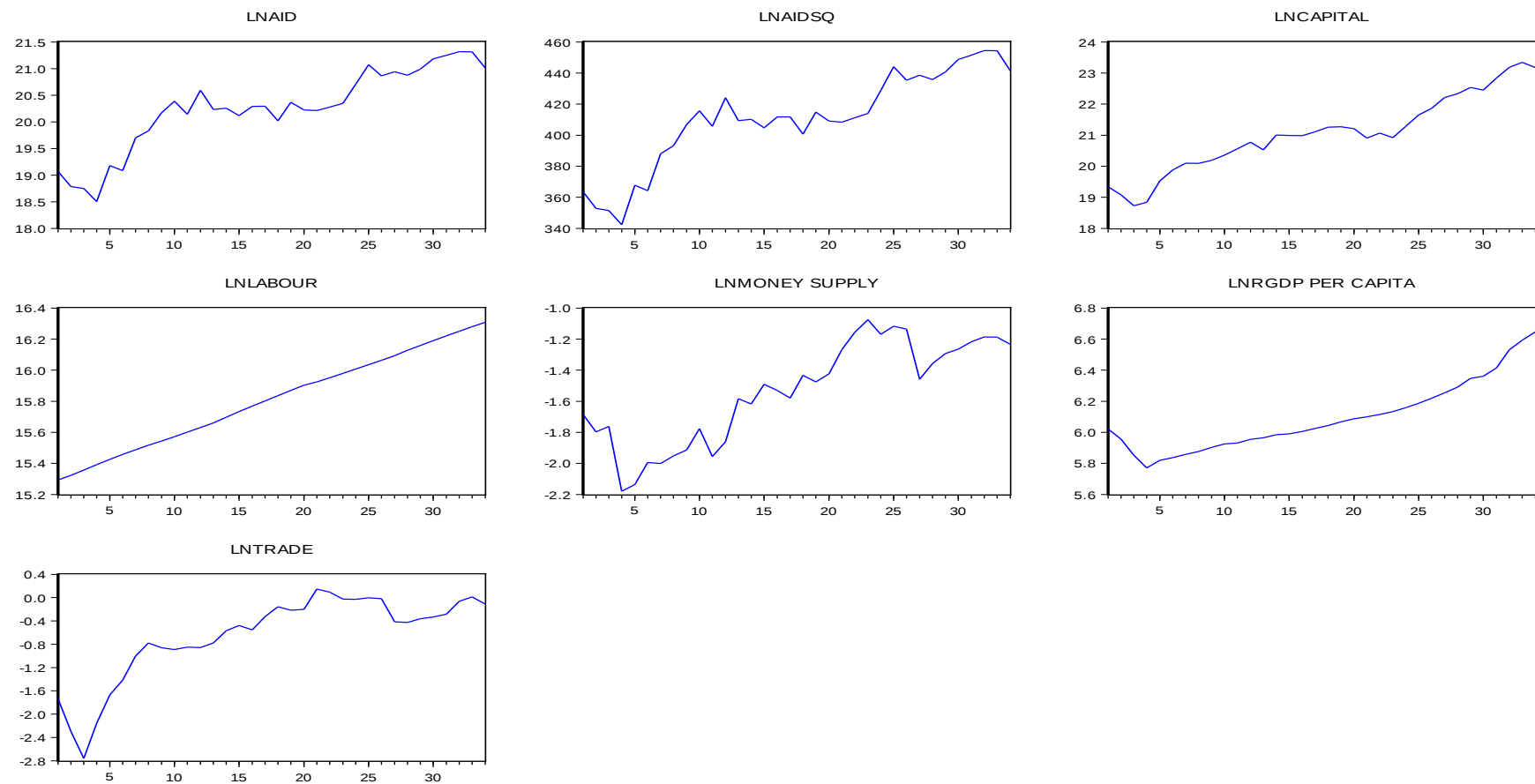
- direct budgetary support. *Journal of International Development*, 17 (8), 1077-1092.
- Quartey, P., Ackah, C., Dufe, G., & Agyare-Boakye, E. (2010). *Evaluation of the Implementation of the Paris Declaration on Aid Effectiveness: Phase II. Ghana, Country Report*; Final Report. OECD.
- Radelet, S. (2006). A Primer on foreign aid. *Center for Global Development Working Paper*, 92.
- Rajan, R. (2005). Aid and growth: The policy challenge. *Finance and Development*; 42 (4), 53-55.
- Rajan, R.G. & Subramanian, A. (2008). Aid and growth: what does the cross-country evidence really Show?. *The Review of Economics and Statistics*, 90 (4), 643-665.
- Reichel, R. (1995). Development aid, saving and growth in the 1980s: a cross section analysis. *Saving and Development*, 19 (3), pp. 52-73.
- Romer, D. (2001). *Advance macroeconomics*. McGraw-Hill/Irwin. Second edition.
- Sakyi, D. (2010). Trade openness, foreign aid and economic growth in post – liberalisation Ghana: An application of ARDL bounds test. *Journal of Economics and International Finance*, 3(3), pp.146-156.
- Sackey, H. A. (2001). *External aid inflows and the real exchange rate in Ghana*. Research Paper 110 African Economic Research Consortium, Nairobi.
- Sachs, J. (2006). *The end of poverty: economic possibilities for Our Time*. Penguin Press, New York.

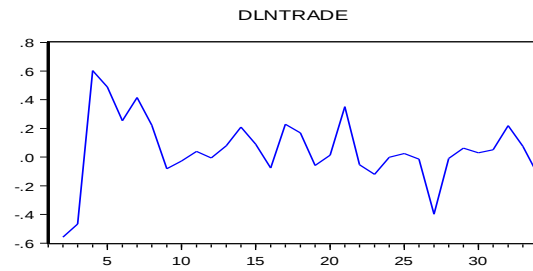
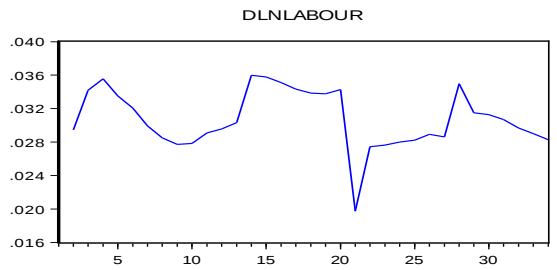
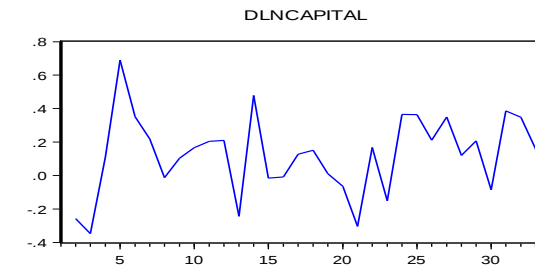
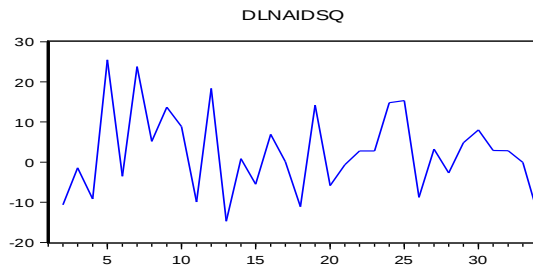
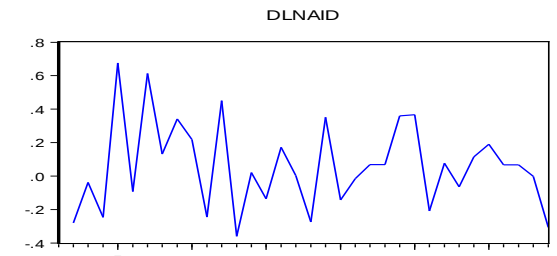
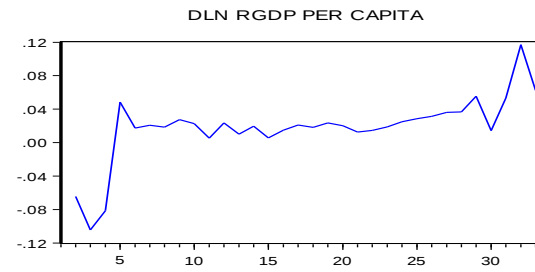
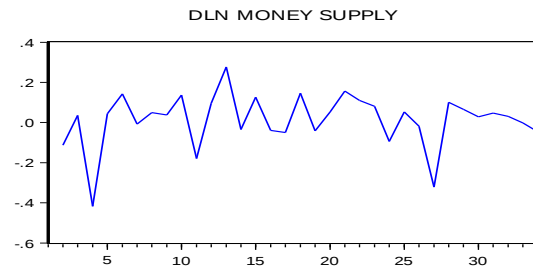
- Sacks, J., McArthur, J.W., Schimdt-Traub, G., Kruk, M., Bahadur, C., Faye, M., & McCord, G. (2004). Ending Africa's poverty trap, *Brookings papers on economic activity*, 2004 (1), 117-240.
- Shaw, E. (1973). *Financial deepening in economic development*. Oxford University Press, New York
- Singh, R.D. (1985). State intervention, foreign economic aid, saving and growth in LDCs: Some Recent Evidence. *Kyklos*, 38 (2), 216-32.
- Smith, A. (1937). *An Enquiry into the Nature and Cause of the wealth of Nations*. New York, Modern Library.
- Snyder, D. (1990). Foreign aid and domestic savings: A spurious correlation?. *Economic Development and Cultural Change*, 39 (1) , 175-181.
- Stasavage, D. (2000). Private investment and uncertainty. *Discussing paper No. DEDPS 25*, London school of economics and political science. London
- Swaroop, V., Jha, S., & Rajkumar, A. S. (2000). Fiscal effect of foreign aid in a federal system of governance: The case of India. *Journal of Public Economics*, 77 (3), 307-330
- Taslim M., A. & Weliwita, A. (2000). The inverse relation between saving and aid: An alternative explanation. *Journal of Economic Development*, 25 (1), 75-94.
- Tsikata, M. T. (1999), Aid effectiveness: A survey of the recent empirical literature. *International Economic Policy Review*, 1, ed. by Paul Mason, Podma Gotur, and Timothy Lane (Washington: International Monetary Fund), 73–90.

- African Development Bank Group. (2010). *The Tunis consensus: Targeting effectiveness development, from aid effectiveness to development effectiveness*. [www.aideffectiveness.org/tunisconsultations](http://www.aideffectiveness.org/tunisconsultations).
- Vos, R. (1998). Aid Flows and “Dutch Disease” in a General Equilibrium Framework for Pakistan. *Journal of Policy Modeling*, 20 (1), 77–109.
- White, H., & Wignaraja, G. (1992). Exchange rates, trade liberalization and aid: The Sri Lankan experience. *World Development*, 20 (10), 1471–1480.
- White, H. (Ed). (1998). *Aid and macroeconomic performance: Theory, empirical evidence and four country cases*. Macmillan Press, London
- White, H. (1998a). The macroeconomic impact of development aid: A critical survey. *Journal of Development Studies*, 28 (2), 163-240.
- World Bank, (1998). *Assessing aid: What works, what doesn't and why*. Oxford University Press, New York.
- WorldBank,(2007). *Aid Effectiveness Research*,  
<http://www.worldbank.org/research/aid/overview.htm> Accessed; MAY 7, 2014.  
[www.ghanaweb.com/ghanahomepage/business/Finance-Minister-seeks-more-foreign - aid-351223](http://www.ghanaweb.com/ghanahomepage/business/Finance-Minister-seeks-more-foreign-aid-351223) (20 March, 2015)
- Younger, S.D. (1992). Aid and the Dutch disease: Macroeconomic management when everybody loves You. *World Development*, 20 (11), 1587–1597.

## APPENDIX A

**FIGURE A1: PLOT OF VARIABLES IN LEVELS AND FIRST DIFFERENCES**





## APPENDIX B

### Long Run Results

Estimated Long Run Coefficients using the ARDL Approach

ARDL(1,0,1,1,1,0,1,0) selected based on Schwarz Bayesian Criterion

\*\*\*\*\*

Dependent variable is LYP

32 observations used for estimation from 1981 to 2013

\*\*\*\*\*

| Regressor | Coefficient | Standard Error | T-Ratio[Prob] |
|-----------|-------------|----------------|---------------|
| LI        | -.98459     | .49690         | -1.9815[.059] |
| LK        | .14031      | .049247        | 2.8490[.009]  |
| LA        | 2.0166      | .96555         | 2.0886[.048]  |
| LASQ      | -.049275    | .023925        | -2.0596[.050] |
| LT        | .041267     | .042429        | .97261[.340]  |
| LM        | .062370     | .062474        | .99834[.328]  |
| D         | .045832     | .017083        | 2.6828[.013]  |

\*\*\*\*\*

## APPENDIX C

### Short Run Results

Error Correction Representation for the Selected ARDL Model

ARDL(1,0,1,1,1,0,1,0) selected based on Schwarz Bayesian Criterion

\*\*\*\*\*

Dependent variable is dLYP

32 observations used for estimation from 1981 to 2013

\*\*\*\*\*

| Regressor | Coefficient | Standard Error | T-Ratio[Prob] |
|-----------|-------------|----------------|---------------|
| dLI       | -.43612     | .20810         | -2.0957[.047] |
| dLK       | .062148     | .018468        | 3.3652[.003]  |
| dLA       | .89328      | .35387         | 2.5243[.019]  |
| dLASQ     | -.021826    | .0088467       | -2.4672[.021] |
| dLT       | .018279     | .017517        | 1.0435[.307]  |
| dLM       | .027627     | .029493        | .93672[.358]  |
| dD        | .020301     | .0083354       | 2.4355[.023]  |
| ecm(-1)   | -.44295     | .10661         | -4.1547[.000] |

\*\*\*\*\*

List of additional temporary variables created:

dLYP = LYP-LYP(-1)

dLI = LI-LI(-1)

dLK = LK-LK(-1)

dLAI = LAI-LAI(-1)

dLAISQ = LAISQ-LAISQ(-1)

dLT = LT-LT(-1)

dLM = LM-LM(-1)

dD = D-D(-1)

```
ecm = LYP + .98459*LI -.14031*LK -2.0166*LAI + .049275*LAISQ -.041267
*LT -.062370*LM -.045832*D
```

```
*****
```

|                            |          |                            |              |
|----------------------------|----------|----------------------------|--------------|
| R-Squared                  | .72617   | R-Bar-Squared              | .64630       |
| S.E. of Regression         | .019074  | F-stat. F( 7, 24)          | 9.0922[.000] |
| Mean of Dependent Variable | .0036430 | S.D. of Dependent Variable | .032071      |
| Residual Sum of Squares    | .0087313 | Equation Log-likelihood    | 85.8993      |
| Akaike Info. Criterion     | 77.8993  | Schwarz Bayesian Criterion | 72.0363      |
| DW-statistic               | 2.1384   |                            |              |

```
*****
```

R-Squared and R-Bar-Squared measures refer to the dependent variable  
dLYP and in cases where the error correction model is highly  
restricted, these measures could become negative.