College of Business and Economics (CBE)

P.O BOX 1514 KIGALI, RWANDA

Evaluating the Effect of Foreign Aid on Economic Growth of Rwanda

Prepared by: SEKANABO Desire

Cell phone: +250783232227

e-mail:sekanabod1@gmail.com

College of Business and Economics; (CBE)
School of Economics
MSc. of Science in Economics
Academic Year: 2014/2015-2015/2016

College of Business and Economics (CBE)

P.O BOX 1514 KIGALI, RWANDA

Gikondo Campus

MASTERS IN ECONOMICS 2014-2016

A thesis Submitted in Partial Fulfilment of the Requirement for the

Award of the Degree of Masters of Economics of the University of

RWANDA

Evaluating the Effect of Foreign Aid on Economic Growth of Rwanda

Prepared by: Desire SEKANABO   Supervisor: ProfessorAlmas HESHMATI

Student N°: 215031607

Cell phone: +250783232227

e-mail:sekanabod1@gmail.com

Kigali, June 2016

DECLARATION

I, Desire SEKANABO hereby declare that this dissertation entitled « Evaluating the Effect of Foreign Aid on Economic Growth of Rwanda » is my original work and has not been presented for a degree in any other University.

Signed.....................................Date.....11...07....2016......

Desire SEKANABO

AUTHORISATION OF SUBMISSION OF POST GRADUATE THESIS

Student's Names: DESIRE SEKANABO

Registration Number: 215031607

Topic: Evaluating the effect of Foreign Aid On Economic Growth of Rwanda

Department: Economics

Period of study: 2014 - 2016

Supervisor's Names: Prof Almas Heshmati

As Supervisor of the thesis, I authorize him/her to submit his/her thesis

Panel member

Date and signature of the Supervisor:

Panel member

Dr. Charles Ruhara

11/07/2016

DEDICATION

This thesis is dedicated to someone who inspired me during a period of five months to read and to keep reading no matter the challenges in academia. I would also like to dedicate this thesis to my late mother whose tireless encouragement have helped me come this far.

ACKNOWLEDGEMENTS

The process of writing a thesis is a long and difficult one and would not be feasible without the support of many people. First and foremost, I am indebted to the multiple individuals that were willing to share their thoughts and opinions with me during my time in writing.

I am sincerely grateful to God for seeing me through the entire program and the research process. I am thankful to the University of Rwanda staff and all the staff in the in the Department of Economics of Rwanda University.

Thank you for all your support and for the knowledge that you have diligently imparted to me during the course of my program. I extend special thanks to my supervisor; Professor Almas Heshmati, for his encouragement and valuable comments during my program and for the guidance he gave during the process of writing my thesis. I appreciate the encouragement given to me by my family, friends, colleagues and to all those who read parts of this thesis and gave their valuable comments. Special thanks to my mother Nyiramugwera Rachel without whose unfailing support and prayers I would not have completed my thesis.

ABSTRACT

This research analyses the effects of foreign aid on the economic growth of Rwanda. It uses annual data on a group of 29 donor countries of net bilateral aid flows. The sample countries cover Australia, Asia, Europe and America for the period from 1995 to 2013. The study uses the gross domestic product (GDP) in terms of real per capita for measuring economic growth; aid inflows and net Official Development Assistance (ODA) for capturing foreign aid. The two key variables allow focusing on the aid-growth relationship at the macro-level. The data was collected from the World Bank database has been analysed in order to evaluate the relationship between variables. Single developed estimated equation used an ordinary least squares (OLS) method is employed to cheek the robustness of estimator since the method possesses optimal properties in the form of linearity, minimum variance and being unbiased. The hypothesis is that there is no relationship between foreign aid and economic growth. The relationship is tested based on panel data series for foreign aid and growth by employing regression analysis using panel data methodology. The study reveals that foreign aid inflows are associated with economic growth rate and per capita growth rate in from of aid effectiveness. The study alsoshowsthat aid is positively associated with economic growth in a good policy environment andgiven aid flows investible in some developmental projects can boost the nations GDP and reduce the poverty level in the country. These results will be useful for macroeconomic policymakers considering allocation of resources to promote technology transfer and development, promoting saving and investment, and capital accumulation that enhance further economic growth.

Keywords: Foreign aid; GDP per capita; Rwanda; Panel data; economic growth.

JEL classification codes: P46; O15; O47; F35; C51.

LIST OF ACRONYMS AND ABBREVIATIONS

AfDB   Africa Development Bank

BNR   Banque National du Rwanda

CIA   Central Intelligence Agency

DAC   Development Assistance Committee

EDPRS   Economic Development and Poverty Reduction Strategy

FDI   Foreign Direct Investment

FE   Fixed effects

GDP   Gross Domestic Product

GLS   Generalized least squares

GoR   Government of Rwanda

IFI   International Financial Institutions

IMF   International Monetary Funds

IRLS   Iteratively Reweighted Least Squares

MDCs   More Developed Countries

MINECOFIN Ministry of Finance and Economic Planning

ODA   Official Development Assistance

OECD   Organization for Economic Cooperation and Development

OECD   Organization for Economic Cooperation and Development

OLS   Ordinary Least Squares

PRSP   Poverty Reduction Strategy Papers

RE   Random effects

RWF   Rwandan Francs

USD   US dollar

VCE   Estimation of the variance-covariance matrix of the estimates

WLS   Weighted least squares

TABLE OF CONTENTS

List of Tables

List of figures

CHAPTER 1: GENERAL INTRODUCTION

1.1. Background to the Study

The tradition means of giving foreign aid to developing countriesincluding Rwanda or aid-needing countries began after the 2nd War World. Before aid was supplied to the war-devastated nations to rebuild their ravaged economies. Then in the beginning of 1950s, the Soviet Union as well as United States of America (USA) started distributing aid to strengthen the military capability of their allies in order tospread their political ideologies. Besides, the concept of foreign aid or official development assistance (ODA) it took origin in the United Nations charter adopted during the conference in San Francisco in June 26th 1945. This is known as foreign aid today. More aid is now channelled through international financial institutions (IFIs) such as IMF, World Bank, and OECD[1].ODA consists of resources transfers from the public sector, in the term of grants and concessional financial at terms of loans to developing countries.

1.2. Brief focus on aid inflows

A fundamental argument for aid inflows, at least developed countries, is that it stimulates to economic growth in recipient countries. The role of foreign aid on economic growth is primary developed by the theory of "Two Gap" model proposed by Chenery and Stout (1966). The theory assumes or postulates that the underdeveloped countries remain underdeveloped because of foreign exchange and savings constrains. This has been the principal driving economic goal and objectives of foreign aid for decades by establishing this "two gaps" model often concentrating not only the impact of foreign aid on savings or investment but also on growth rate.

The fact that the role of foreign aid has become highly significant in international relations; many empirical studies have used econometric analysis to test the aid-growth effect at the macro level, by case-study evidence at the project level complemented. Econometric tools based on panel data have been employed to assess for non-linear

[1]. Official development assistance (ODA) Net disbursements of loans or grants made on concessional terms by official agencies, historically by high-income member countries of the Organization for Economic Cooperation and Development (OECD).

effects of aid on growth, endogeneity of aid and other variable in the last few years, to link economic growth to foreign aid. As conclusion, they break a new ground in the field compared to previous works. Studies in the empirical literature on the effectiveness of foreign aid have tried to assess if aid reaches its main objective; this includes the promotion of economic development and welfare of developing countries.

The main traditional purpose of foreign aid in relation to economic growth of developing countries shows that the results obtained by estimation according to the approach used are somehow different and sometimes inconsistent. Studies at the micro-level, mainly using cost-benefit analyses, support the view of those in favour of the effectiveness of foreign aid. In contrast, the results obtained in studies at the macro-level involving cross-country regression studies, are, to say the least, ambiguous. Mosley called this contradiction view/observation the "micro-macro paradox".

Current studies (new growth literature) about aid effectiveness which encompasses different modifications of neoclassical growth by Solow-Swanmodel and endogenous growth models based on some variant of endogenous or neo-classical growth models and assess the impact of aid on growth controlling for other determinants, especially estimators of economic policy. The prominent view is that the correlation between aid and growth is, at best weak. This is according to Burnside and Dollar (1997).Aid inflow only appears to be effective in countries with appropriate economic policies, that is, "ODA works in a good policy environment" (World Bank, 1998).These lead to third-generation of cross-country regression studies and achieved the macro results foreseen by those in favour of the effectiveness of foreign aid and, therefore, the "micro-macro paradox" ceases to exist. From this perspective, good policy is a necessary condition for aid effectiveness.

It is this contradiction (positive, negative even mixed) results that gave new impetus to discuss about aid effectiveness in relation to good policy which is a necessary condition for aid effectiveness. To evaluate the effect of Foreign aid on economic growth of Rwanda, we attempt to improve model specification further by examining the growth impact of foreign aid within a model involving both policy variables and all the major sources of investment finance – foreign aid, private and other inflows, and domestic savings in order to avoid the problem of endogeneity caused by single equation.

1.3 Problem Statement

Depending on whether aid inflows have been temporary or permanent, and whether they were spent on imports or domestically country produced different goods and services, they have had various repercussions for low-income countries which typically face fundamental constraints or financing gaps. The first repercussion is that domestic savings rates are insufficient to provide the resources to meet target levels of investment. Second, export earnings are not adequate to finance the importation of capital goods. Thirdly, credit to the banking system and increased public spending especially on development projects the management of aid has been characterized by a combination of foreign exchange accumulation. As a result this produces "Dutch disease "issues for the macroeconomic management of the economy.

Strategies to achieve the real exchange rate at considerable focus area of augmented aid inflows have kept inflation high (Younger, 1992), consequently, such countries are constrained in their ability and capacity to attain a target growth rates level. In this approach, the contribution of aid is to finance investment, including imports and capital good, exchange rate and trade reform occupied a core position. The real exchange rate, by virtue of its impact on the international competitiveness of an economy, assumed an overriding importance among the cohorts of policy variables.

Since 1994, ODA to Rwanda has played and continues to play an important role in supporting national efforts on development and poverty reduction due to genocide. This is apparently why Rwanda is treated as a 'special case' by international institutions, like World Bank as well as the IMF, and provided with critical loans. Furthermore, foreign aid is effective only in the presence of good policy that has an enormous effect on donors and policy makers. A key implication is that aid should be channelled only to countries that have good policies (Burnside and Dollar, 2000). Since 2006, Rwanda found itself at a crossroads, moving from the humanitarian assistance phase associated with the 1994 genocide into one of sustainable development. For that the Government of Rwanda has stabilised the political situation, whilst putting the overall economy back on track and field with considerable assistance from development partners. To achieve this program, Rwanda started to use foreign aid by focusing on government's

preferences like Rwanda's Aid Policy because it is said to be the guiding framework and supportive tool form that day.

Despite these positive trends, it is important to keep in mind that a considerable percentage of the population still lives under the poverty line (56.9% in 2005/06 and 39.1% in 2013/2014). Additionally, many are concerned about rising inequality in Rwanda. For example between 1985 and 2000, Rwanda's Gini coefficient rose from 28.9 to 46.8 according to The Central Intelligence Agency (CIA, 2011), and the African Development Bank (AfDB, 2008) estimates that, in 2006, it rose again to 51.42%. This is seems to be true as it was mentioned that economic growth has a positive relationship with income inequality in developing and transition nations Heshmati(2007).

As consequences, a number of problems remain such as capacity, predictability, transaction costs, information on aid flows, alignment and volume of assistance, lacked clear structures and guidelines for the mobilisation and management of external assistance even if Rwanda has developed at impressive rates since the genocide. From this perspective, the overall objective of this study is to examine the role played by foreign aid in Rwanda towards achieving economic growth and development. This is first help to avoid the conflict of 'micro-macro paradox'. Mosley (1987) refers to failing to find significant aid growth effects occurred in many literatures. Secondly it will clarify the econometric aid-growth literature which has been criticised on several grounds: sample size and composition, data quality, econometric technique and model specification.

The remainder of this study are discussed in Chapter 2 through 8, respectively, covering theory, method, data, model specification and estimation, analysis of the results and policy implications of the results.

1.4. Objectives of the Study

The overall objective of this study is to examine the role played by foreign aid in Rwanda towards achieving economic growth and development.

Specific objectives are

To determine role of foreign aid in economic growth of Rwanda

To evaluate the opportunities for improving the composition of different forms of foreign aid in Rwanda

To establish the measures that can be taken to improve foreign aid effectiveness

1.5. Research Questions

The specific questions are:

- What is the role of foreign aid in economic growth of Rwanda?
- What are the opportunities for improving the composition of different forms of foreign aid in Rwanda?
- What are the measures that can be taken to improve foreign aid effectiveness?

1.6. Research Hypothesis

Based on the objective and research questions listed above, two hypotheses tests are developed and tested: (i) Foreign aid has had a positive impact on economic growth of Rwanda, and(ii) Poor policy in Rwanda has been a cause of ineffective application of foreign aid. Assume 5% level of significance, and test the following null and alternative hypothesis:

- H0: $\beta=0$, There is no relationship between foreign aid and economic growth.
- H1: $\beta\neq0$, it means that there is positive relationship between foreign aid and economic growth.

The assumption of the study is that Foreign aid has a number of positive effects on Rwanda's economic growth and development.

CHAPTER 2: LITERATURE REVIEW

2.0. Introduction

Foreign aid in developing countries is assumed to facilitate and accelerate the process of development in a number of ways; importantly in economic development; stimulating economic growth to supplement domestic sources of finance such as saving, thus increasing the level of investment opportunities and capital stock adds the scholar and increases the capacity to import capital goods and technology. According to McGillivray*et al.* (2006), four main alternative views on the effectiveness of aid have been developed and namely, (a) aid gets decreasing returns, (b) aid effectiveness is influenced not only by external but also climatic conditions, (c) effectiveness of foreign aid is influenced by political conditions, and (d) aid effectiveness depends on institutional quality of the receiving countries. The slow rate of economic growth and large foreign aid inflows to the receiving countries stimulates to undertake empirical study to investigate the linkage between foreign aid and economic growth of some country.

In the aid literature, various theoretical and empirical studies have been conducted on less developed countries (LDCs) to determine the actual effects of foreign aid on economic growth. For example, pro-aid researchers Burnside and Dollar, 1997, 2000, 2004; Hansen and Tarp, 2001; found a positive impact of foreign aid on economic growth. However, Griffin and Enos (1970), Boone (1996), Lensink and White (2001), Easterly (2003), while challenging this finding, proved on the grounds that aid is ineffective, contributing to the anti-aid literature. Despite having several literature on this matter, a consensus has not been reached on the impact of aid on growth in different countries, and yet the results are still inconclusive (Ekanayake and Chatrna, 2010; McMillan(2011); suggesting that both aid and growth are neither negatively, nor positively related. These paradoxical results obtained in various studies carried out on aid recipient nations and anecdotal views of prominent development economists demand that this subject needs further study.

2.1. Theories and foreign Aid

The modernization theory and foreign aid: This was built on a simplistic model of saving and investment. According to Rostow (1990)'s analysis, modernization takes place in a series of five stages. More specifically, it says that in the lack of aid recipient control, the growth rate of national income will be directly related to the savings ratio Todaro(2011). Rostow assumed the validity of the primary economic model of growth at the time, the Harrod- Domar growth model which was the basis for the savings+investment = growth formula. According to Dunn(2013), modernization theory defines less developed countries (LDCs), under which sub-Saharan Africa including Rwanda falls as being at an earlier stage of economic development and advocates that these 'traditional' societies can follow the same type of country-building as that followed by northern countries (MDCs) if they adopted similar economic and social structures.Therefore, according to many authors, about the Harrod-Domar growth model, Chenery and Strout two-gaps model are over-simplified by saying that growth depends on investment, which is financed by savings (domestic plus foreign).

Theory of gap analysis assumes that foreign aid plays a complementary role of filling the gap to foreign exchange constraint by utilization of domestic resources. This allows them to undertake new investments and ultimately raising the rate of economic growth. From this basis, when southern countries fail to efficiently and effectively utilize their domestic resources due to balance of payment deficits, foreign aid disbursement contributes to fill the gap by allowing them to fully utilize their resources. Contrary, there are evidence that foreign aid flow with negative effects. Evidences reveal that aid can results into crowding-out effect on domestic savings and creating political tumours in recipient countries. For that reason, from the beginning of the 2000s, aid flows have been a matter of extremely heated debate because the results however may be viewed disappointing because recipient countries remain at low levels of development in many dimensions, not only in terms of per capital income but also of human development Sindzingre (2012)

Conventional aid theory has its origins in Keynesian economics and in particular in the theories of economic growth that writes in the Keynesian tradition applied to industrialized economies. Specify the model instead of the following:

7

Aid→increase in domestic investible resources→increase in domestic investment more→rapid rate of economic growth (see Weisskopf, 1972b, 1973).

Keynes, own theory was not one of dynamic growth, however it was left to Harrod and Domar model to extend the basic ideas of Keynesian analysis to the long term. The different theories related to aid are outlined below:

The dependency theory and foreign aid: Dependency is defined as an explanation of the economic development of a state in terms of the external influences, economic, and cultural political, about national development policies (Osvaldo Sunkel, 1969). Theotonio dos Santos (1971) emphasizes the historical measure of the dependency relationships which shapes a certain structure of the world economy such that it helps some countries to the harm of others and limits the development possibilities level of the subordinate economics or a situation in which the economy of a certain group of countries is conditioned by the development and expansion of another country or economy, to which they are subjected.

Interactionism and foreign aid: Symbolic interactionism is obtained from as a result of the work of George Herbert Mead in 1934. The main assumption of this theory is that people behave toward things based on the meaning those things have for them; and these meanings are derived from social relation and changed through translation. In other words human beings are best understood in relation to their environment. The term "symbolic interactionism" is coined by Blumer (1969) and identified three basic proposition antecedent proved of the perspective.

Feminism and foreign aid: Contrary interactionism, feminism provides an explanation through which economic models, budget frameworks, policies and processes have not adopted a gender projection, and how this has caused women to bear the brunt of poverty. The theory condemns that economic model, policies and budgetary frameworks that are adopted by different African nation and some institutions often by ignoring the existence realities of women; but that the majority of men dominate and control all means the production ofproduction and economic decision-making. Almost nations in sub-Saharan Africa region involved dual economies that consist of both informal and formal sectors. In the formal sector men are dominant, while in the informal and communal sectors women dominateMakaza-Mazingi (2009).

2.2 Aid, growth, and development

Foreign aid totals are typically captured by ODA figures recorded by the Organisation for Economic Cooperation and Development (OECD), which define ODA as: Flows of official financing administered with the promotion of the economic development, welfare of poor countries as the main objective, and which are concessional in character with a grant of special part of 25% (at fixed 10% rate of discount). By convention, ODA flows comprise contributions of donor country agencies, to poor countries ("bilateral ODA") and to multilateral institutions at all levels.

By the above definitions, lending by export credit agencies with the pure purpose of export promotion is excluded. ODA totals exclude certain types of development assistance, such as remittances, foreign direct investments, or aid from private donations. Furthermore, ODA from countries such as China, who choose not to submit their aid totals to the OECD, is not captured in ODA totals. Chenery and Carter (1973), following the previous two-gap derived model of Strout and Chenery (1966) by using data from 50 Nations over the period 1960-1970, show that the effects of ODA about development performance of government under study are different among certain groups of countries. Singh (1985) also finds that foreign aid has a strong positive impact on economic growth in less developed countries for the periods 1960-1970 and 1970-1980.

Considering aid and growth, some evidences show that on average, aid has a positive relationship with growth according to Hansen and Tarp (2000, 2001) ,on average and controlling for some factors (such as geography, political conflict, policies, and institutions), aid has contributed to growth. Scholars in this camp argue that aid has positive relationship between aid and growth emerges. Second, aid has no effect on growth and may actually undermine development and growth according to Mosley (1980); Mosley, Hudson and Horrell (1987); scholars in this camp point to the potential for aid to undermine private sector investment incentives and productivity, to reduce domestic savings, and to cause currency to appreciate and undermine the profitability of tradable goods ("Dutch Disease"). Third, aid has a conditional relationship with growth. The most vibrant debate in this camp refers to Burnside and Dollar's (2000) claim that aid produces better outcomes in countries with good policy and, therefore, by

extension should be targeted to countries with good policy. Fayissa and El-Kaissy (1999) came out with the same conclusion as (Chenery and Strout, 1966), that ODA accelerates economic growth by supplementing domestic capital formation (economic theory of foreign aid). The results showed that that foreign aid positively affects economic growth in developing countries. However Pedersen (1996) in a related study asserted that it is still not possible to conclude that aid affects growth positively.

Aid effectiveness and macroeconomic policy has been dominated by cross-section studies using single-equation estimation methods, producing heterogenous empirical results. Among early investigations, Papanek (1973) appeared to overturn the negative estimation of Enos and Griffin(1970) by disaggregating capital flows into foreign aid and private inflow capitals reporting a positive and significant aid coefficient. On the other hand Voivodas (1973) also obtained the similar result produced by Pedersen (although not significant) for a sample of 22 LDCs for the period 1956-1968. Using later data Dowling and Hiemenz(1983) tested the aid-growth relationship for the Asian region on 13 countries focusing pooled data and obtain a positive and significant impact of aid on economic growth. For sub-Saharan Africa, Levy (1988) reports also a significant positive relationship in a regression model for 1968-1982. Similarly Burnside and Dollar (1997), adopting a model including policy variables, find that though the ratio of aid to GDP often does not significantly affect growth in LDCs with policy variables does. Boone (1996) however said that aid has had no impact on both investment and income growth.

In sum, the empirical findings criticism are firstly, of single equation models is well known and low growth into larger aid allocations is ignored. Gupta (1975) showed that if there is no direct effect, primary estimates of a negative effect of foreign capital can be overturned. By contrast Mosley (1980), founda weak, negative correlation by using a simultaneous equation model between aid and growth.

Secondly, there is limitation of much of this literature is the incompleteness of the underlying growth models. Mosley (1987), Dowling and Hiemenz (1983), however introduced variables capturing the role played by government and trade, while Burnside et al (1997) seem to be the first ones including macroeconomic policy variables. Fischer, (1993); Easterly(1993) and Barroand Sala-i-Martin(1995), on the other view,

the largely separate literature about growth determinants in developing countries which has examined the role of policy has not examined the impact of aid, generally including savings and investment variables.

The impact of economic growth on development: According to Todaro (2011), anincrease in the real GDP per capita during a specific period of time is called economic growth. It canbe shown by an outward shift of the production possibility curve (see Figure 1). The production possibility curve shows the combination of two goods that a country can produce using all of its resources at a given level of production in the mostly efficient way.

At a given technology and a given amount of physical as well as human resources, the production possibility curve portrays the maximum attainable output combinations of any two commodities. This means that a larger labour force is employed, and a large overall population increases the potential size of domestic markets which result in economicgrowth. Thiswould eventually lead to a general improvement of peoples' living standards as trickle down occurs. The improvement of standard living by Michael P. Todaro 11thedition.

Macroeconomic Policy and Growth: Many scholars main institution have confirmed that a stable macroeconomic policy environment is a necessary condition for economic growth and effective implementation of foreign aid for recent years. According to theWorld Bank this requires low and a given predictable level of inflation; appropriate real interest rates; real exchange rates which are competitive; stable; sustainable fiscal policy predictable and a balance of payments which is perceived as viable

The effectiveness of aid in terms of capital will be greater when there is macroeconomic stability and few distortions. This is according toKormendi and Meguire (1985), Fischer(1993) and Easterly (1993) within the 'new' growth paradigm on the contribution provided by macroeconomic factors and distortionary policies in a set of tests about macroeconomic growth determinates like monetary variance, government spending, inflation and trade. Fischer (1993) andBleaney (1996) go further, suggesting that to argue that "macroeconomic stability is necessary for sustainable growth is too strong, but macroeconomic stability is conducive to growth". Furthermore, Burnside and Dollar (2000) build upon the consensus that policy is

important for growth by investigating the role of economic policy in determining the effectiveness of foreign aid in their build paper. Findings suggest that aid conditioned on good policy does raise growth in developing economies. These have considered variations and extensions of the Burnside and Dollar methodology. Some researchers have supported Burnside and Dollar's findings while others have rejected them. Recent work by Easterly stands out from these findings by using the same specification as Burnside and Dollar and only updating and expanding the data sample.

Burnside and Dollar's main contribution is to include a measure of foreign aid in the regression and connect it with an estimator of economic policy: per capita real GDP, policy variable, monetary policy, and the budget surplus and a dummy variable constructed by Sachs and Warner (1995) to measure the openness of the economy. The empirical result about effect of aid on the real exchange rate reports mixed results. Elbadawi (1999) in a panel econometric study of 62 recipient countries, including 28 from Africa, found that unsustainable aid inflows have caused substantial incomplete real exchange rate overestimation in many African and non-African countries.

In Rwanda 2011 for example, inflation was maintained at moderate levels despite global and regional high inflationary pressures (see Table 1). Annual headline inflation stood at 8.3% in December 2011 from 0.2% in December 2010. The annual average inflation increased to 5.6% in 2011 after 2.4% in 2010.

Table 1: Rwanda selected macroeconomic performance indicators 2005-2011

Indicators	2005	2006	2007	2008	2009	2010	2011
Real GDP growth (%)	9.4	9.2	7.7	11.5	6.2	7.2	8.6
Nominal GDP per capita(US$)	288.6	332.6	391.4	479.6	520.5	540.1	594.8
Average exchange rates(RFW/US$)	557.8	548.0	547.0	546.8	568.3	583.1	600.3
Current Account Deficit(% of GDP)	14.6	12.3	11.9	15.2	19.6	18.0	19.4
Gross Reserves	7.6	6.8	7.0	5.1	6.2	6.0	5.8
Annual aver inflation (%)	9.1	8.9	9.1	15.4	10.3	2.4	5.7
Gross Domestic Investment(% of GDP)	16.0	16.0	18.0	23.0	22.0	21.0	22.0

Source: BNR Annual Report 2011

In 2010, due to better performance in food production, a decline in import prices, and stable Rwandan Francs (RWF) against the US dollar (USD), Rwanda has continued to experience low inflation, a sustained trend observed since the 2009. Annual headline inflation stood at 0.2% in December 2010 from 10.3% in December 2009. The annual average inflation was 2.4% in December 2010 after 10.3% in December 2009. GDP per capita in nominal terms registered an increase of 3.9%, from USD 520 in 2009 to 540 in 2010.The rate of real growth rate is somehow stable according to this table.

Relationship between aid and economic growth:Voivodas (1973) found that for a sample of 22 least developed countries from 1956- 1968 aid has a negative impact on economic growth. However, Boone (1994) also found that aid had not raised any growth rates in the developing countries. He found that aid does not have any positive impact on any factor that promotes economic growth e.g., human resource and local investmentcountry. Vasquez (1998) founda similar conclusion by using a sample of 73 countries from 1971 to 1995.Rather; he found that aid as a percentage of GDP is negatively related to economic growth. Hudson and Mosley (2001), studied aid, focusing on its rate of return. They found that aid contribute to a diminishing return; which is, the impact of aid on growth becomes negative after a certain threshold is attained. The considerable level of aid as a relative magnitude of GDP varied from 25% to 45%. In contrast, some studies found that aid have positive effect on economic growth Levy (1988) studied the effect of aid on economic growth in Asian continent. This was obtained through a sample of 13 Nations receiving a substantial amount of aid. After controlling for the effect of trade, finance and an intervention of country, they found that aid has positive and significant effect on economic growth.

Similarly, Levy (1988), Gemmell and Greeaway (1998) studied the effect of aid in a sample of Sub-Saharan African countries from 1968 to 1982, by using different econometrics models, found a significant and positive relationship between the ratio of aid to GDP and economic growth. With good macroeconomic policies, optimal aid level as percentage of GDP is around 40% to 45% would enable recipient countries to generate economic growth. Similarly Burnside and Dollar (2000), studying a panel of 56 countries and four year time periods from 1970-1973 until 1990-1993found the same result. However, easterly test again the results of Burnside and Dollar (2000) with the same model specification and econometric technique; but with more data.

For Rwanda, aid has positive and significant effect on economic growth .The value for Rwanda GDP growth was 4.68(annual %) in 2013. As the Table 2 below shows, over the percentage aid has positive as well as significant effect on the rate of economic growth last 52 years this indicator reached a maximum value of 35.22 in 1995 and a minimum value of -50.25 in 1994. The value for Industry, value added (annual % growth) in Rwanda was 9.32 during 2013. By referring the graph below shows, over the past 47 years this indicator reached a maximum value of 48.40 in 1995 and a minimum value of -65.35 in 1994.

Table 2: Relationship between aid and industry growth rate.

Year	GDP growth	GDP per capita	Industry Growth rate	FDI	Inflation	ODA per capita
1995	35.22	228.38	48.40	0.17	48.249	122.66
1996	12.75	233.13	17.05	0.16	13.434	78.47
1997	13.85	286.15	17.79	0.14	11.689	35.49
1998	8.86	277.47	10.25	0.36	6.842	48.83
1999	7.58	231.46	5.41	0.09	-2.423	47.51
2000	8.32	206.65	1.53	0.48	3.901	38.29
2001	8.67	191.17	13.66	0.28	3.359	34.80
2002	13.51	186.64	6.31	0.16	1.981	40.38
2003	1.45	202.27	4.14	0.25	7.445	36.73
2004	6.95	225.75	15.25	0.37	11.98	52.96
2005	6.91	273.77	8.18	0.31	9.122	61.23
2006	9.24	321.95	11.44	0.99	8.831	62.42
2007	7.61	380.28	9.09	2.18	9.081	72.78
2008	11.16	469.20	15.05	2.15	15.44	91.32
2009	6.27	504.19	1.40	2.24	10.346	88.66
2010	7.31	525.85	8.53	0.74	2.036	95.25
2011	7.85	574.89	17.62	1.66	5.668	113.42
2012	8.79	630.11	8.48	2.21	6.286	76.72
2013	4.68	638.67	9.32	1.47	4.223	91.80

Source: World Bank National accounts data, and OECD National Accounts data files.

This finding contributes to substantial supports for policy makers, and has caused a substantial increase in amount of aid because it is said that with good macroeconomic policies, aid as percentage of GDP around 40% to 45% would enable recipient

countries to generate economic growth. See Table 3, for trend variation of GDP growth rate 1999-2013.

Table 3: Trend variation of GDP growth rate between from 1999 to 2013.

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Gr rate	5.3	5.8	5.0	4.0	3.5	0.9	5.2	5.8	6.0	11.2	4.5	6.5	8.8	7.7	7.5

Source: World Bank accounts National data, and for OECD National Accounts data files.

From this table the highest growth rate between from 1999 to 2013 is for 2008 with 11.2%. The lowest value is 3.5% for 2003. This post genocide period is called second regime and was marked by reorganization of society, economic recovery and economic building Yanagizawa and Bigsten (2005). Different techniques were developed and implemented to improve public administration, budgeting and financial management implementation. These techniques in term of reforms include: privatization of public enterprises, creation of a system of public accounts, liberalization of trade facilitation and the banking sector as well as creation of different specialized institutions including RwandaRevenue Authority to get budget support and Nation Tender Board. In 1999 tax on coffee exports was abolished in collaboration of the maximum level from 100% to 40%. Rwanda also joined the World Trade Organization .Year 2000, mid and long-term economic development strategies have been adopted and implemented. Economic Development and Poverty Reduction Strategy (EDPRS) and Vision 2020. The results of these reforms Rwanda's economy contributes at an average growth rate of 8.5% per year between 1995 and 2013.

2.3. Relationshipbetween aid and growth of different economic sectors

*Aid and poverty reduction:*Radelet and Bhavnani*et al* (2004) said that emergency and humanitarian aid has no effect on growth. Reduction in poverty makes growth strategies important to developing countries. Deininger and Squire (1998) in a fashionable model explore interaction about growth and inequality and investigate how

those two factors in turn affect efforts to minimize poverty in the view of economic development which is measured as GDP.

Svensson (1998) argues that large foreign aidsometimes do not necessarily occurred in general welfare gains and high expectation of aid may increase rent seeking and reduce the expected public goods quality**.** Baku (1993) by applying a Granger causality test between foreign aid and economic growth and other diagnostic tests finds no causal relationship between foreign aid loans. Easterly, Roodman and Levine (2003) by conduct a new test on the work of Burnside and Dollar (1997). With a larger sample size from 1970 to 1997 in relation to BD's 1970-1993), they findthat the result is not as robust as before and therefore claim that the issue of effectiveness for foreign aid is still inconclusive.

In a recent study, Le and winters (2001) investigates the effect of aid polices onpoverty for one country. They argue that growth is commonly cited as the primary driver of poverty reduction. Studies carried out by Kosack (2003) and based on GNIgrowth rate; reveal that aid can directly increase welfare but only in democracies. Mosley and Hudson(2001), find that there is strong evidence that foreign aid has an indirect impact on poverty reduction and well-being of recipient countries. The analytical framework adopted by Le and Winters(2001), assert that the effective use of foreign aid to reduce poverty requires optimally allocating among thefollowing three components: promotion of economic growth; direct targeting of the poor; and the provision of safety nets and direct transfers. In related studies, (Bell and Rich, 1994; Ravallion and Chenery, (1997)conclude for the positive correlation between sustained economic growth and poverty reduction.

For Rwanda, these situations are quite similar when we look at the trendsthe value for gross national income (GNI)growth during 2013, Rwanda was 4.15(annual %). As the Table 4below shows, over the past 42 years this indicator attain a maximum level of 36.38 for 1995 and a minimum level of -50.10 in 1994.The latest value for GDP per capita (current US$) in Rwanda was estimated at $638.67 during 2013. Over the past53 years, the value for this indicator has fluctuated between $638.67 in 2013 and $37.52 in 1966. Net ODA received per capita (current US$) in Rwanda was 91.80 as of 2013.

The highest value over this period was 124.25 in 1994, while its lowest value was 2.17 in 1963.

Table 4: Relationship between aid and GIN growth rate

Year	GDP per capita	GNI growth rate	ODA per capita	Multilateral Growth rate
1995	228.38	36.38	122.66	78.93
1996	233.13	11.24	78.47	79.96
1997	286.15	13.93	35.49	76.56
1998	277.47	8.77	48.83	78.30
1999	231.46	7.97	47.51	76.96
2000	206.65	8.01	38.29	77.29
2001	191.17	8.18	34.80	78.08
2002	186.64	13.79	40.38	79.57
2003	202.27	0.98	36.73	81.44
2004	225.75	6.97	52.96	83.41
2005	273.77	7.47	61.23	88.84
2006	321.95	9.33	62.42	77.31
2007	380.28	8.10	72.78	77.08
2008	469.20	10.86	91.32	82.17
2009	504.19	6.33	88.66	70.77
2010	525.85	7.25	95.25	70.03
2011	574.89	7.76	113.42	74.29
2012	630.11	8.56	76.72	69.10
2013	638.67	4.15	91.80	55.34

Source: Development Assistance Committee of the Organisation for Economic Co-operation and Development.

A general summary of the literature, in particular those listed above, and their findings is presented in Table 5.

Table 5: General summary of literature review.

Name	Findings
Barro and Sala-i-Martin, (1995)	The case of aid effectiveness remains an unresolved issue.
Boone (1994)	In LDCs, aid does not promote economic growth.
Gemmell and Greeaway (1998)	Economic growth and the ratio of aid to GDP are correlated.
Mosley (1980)	Found a weak, negative correlation between aid and growth.
Papanek (1973)	Foreign Aid had a greater impact on economic growth
Chenery and Carter (1973)	ODA accelerated economic growth in some countries but retarded it in some
Griffin and Enos (1970), Boone (1996), Lensink and White (2001), Easterly (2003)	Aid does not contribute to economic growth. It is howeverineffective, contributing to the anti-aid literature.
Singh (1985)	Foreign aid had a strong positive impact on economic growth.
Ekanayake and Chatrna(2010), Mcmillan (2011)	Aid and growth are neither positively, nor negatively related.
Fayissa and El-Kaissy (1999)	ODA accelerated economic growth.
McGillivray, et al. (2006)	Aid has decreasing returns.
Radelet and Bhavnani (2004)	Humanitarian aid and emergency has no effect on growth.
Morrissey (2001)	Foreign aid had positive impact on economic growth because it increases investment.
Pedersen (1996)	Foreign aid had positive impact on economic growth because it increases investment.
Pedersen (1996)	Used game theory to show that foreign aid distorts development.
Burnside and Dollar (1997)	Aid effectiveness is still inconclusive.
Svensson (1998)	Aid inflows do not result in welfare gains.
Burnside and Dollar (1997)	Aid had a positive impact on growth in countries with good governance.
Burnside and Dollar (2000)	Aid conditioned on good policy does raise growth in developing economies.
Bell and Rich(1994), Ravellion and Datt (1994)	Positive correlation between sustained economic growth and poverty reduction.

Mbaku (1993	No causal relationship between foreign aid and loans.
Le and Winter (2001)	Growth as the primary driver of povertyreduction.
Mosley and Hudson(2001)	Foreign aid has an indirect impact on poverty and the well-being of recipient countries.
Vasquez (1998)	Aid inflows is not positively associated with economic growth.
Ravallion and Chenery (1997)	Poverty reduction and economic growth are correlated.

2.4 .Implication of literature review

One extreme of the debate strongly support the view that foreign aid does have some positive impact on growth, conditional on a stable macroeconomic policy environment, this was done by some scholars like Papanek (1973), Hansen and Tarp (2000), Burnside and Dollar (2000). On the second extreme Milton Friedman and development economist likeVoivodas (1973), Boone (1994) and Vasquez (1998) have argued that aid does not have a positive impact on economic growth, and in some cases it might even ruin the countries that aid is given to. However, Burnside and Dollar (2000), provide evidence that positive role of aid on growth can be realized when a given conditions like good macroeconomic environment, political stability and less corruption exist.

For that larger proportion of these empirical studies concluded that economic growth would be stimulated by foreign direct investment (FDI) said by 'Fischer-Easterly model' (1993) and the so-called 'Barro model' Barro and Sala-i-Martin, (1995) on endogenous growth models. They found other controversial arguments because they focused on the role of economic policy, fifty years since the first official development assistance (ODA) programs were instituted. Concerning aid effectiveness, scholars showed that the question of its effectiveness remains an unresolved issue given that foreign aid is important for supplementing domestic resources thereby relieving domestic savings and foreign exchange constraints Boone (1996). Ekanayake *et al.* (2010) indicated that the main role of foreign aid for economic growth is to sustain/enhance to domestic finance and thus increasing investment and capital stock.

2.5.Rwanda and development assistance

Net bilateral aid flows from DAC donors: Are the net disbursements of official development assistance (ODA) or foreign aid given by members of the Development Assistance Committee (DAC). Net disbursements are summation or gross disbursements in terms of grants and loans subtract repayments of principal on earlier loans. ODA consists of loans made on concessional terms of money (with a grant part of at least 25%, calculated at a rate of discount of 10%) and grants made to increase economic development and provide well-being in countries and territories in the DAC list of ODA recipients. Official is defined as aid flows from official country donors to countries and territories in part II of the DAC list of recipients: more developed countries of Central even Eastern Europe, the countries of the former Soviet Union, and certain advanced developing countries and territories. Developing countries receive two other major sources of foreign exchange public (official) bilateral and multilateral development assistance and private (unofficial) assistance provided by nongovernmental organizations. Both of these activities are forms of foreign aid, although only public aid is usually measured in official statistics Todaro (2011).

Official aid is provided under terms and conditions similar to those for ODA. Part II of the DAC List[2]take an end in 2005. Data collection on official aid and other resource flows to Part II countries ended with 2004 data. Regional aggregates include data for economies not specified elsewhere.Figure 2 provides trend variation of net bilateral aid.

The Figure 2 shows that trend variation of net bilateral aid flows from DAC donors between 1995- 2013 has started to increase from 2001.In general the value for DAC has been increased and reached at 7 billion for 2011.

Figure 1: Trend variation of net bilateral aid flows from DAC donors from1995 to 2016, total(current US$)

---

[2]DAC members are Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Republic of Korea, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom, United States, and European Union Institutions
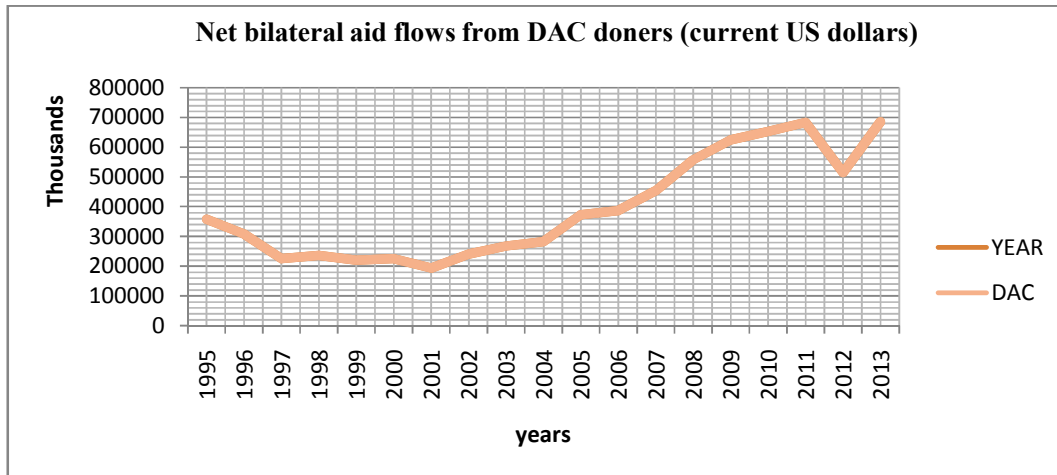
Net bilateral aid flows from DAC doners (current US dollars)

Source: Development Assistance Committee of the Organisation for Economic Co-operation and Development.

Over the past 53 years, fluctuation value between aid flows from DAC donors reachedat $685,000,000 in 2013 and $6,260,000 in 1964. This was due to the pre-genocide period where economic strategies were based on import substitution and industrialization policies. Goods and services (% of GDP) declined from -1.8% in 1973 to -11.1% in 1989 in external balance.Value addition in industry also Declined from 3.6% to 2.8% for this period. This period was marked by rigid price and foreign exchange controls with high export taxes on coffee to raise revenue.

The years 1990-1994, was the period in which the Rwandan economy was devastated by conflict and genocide. These led to a huge drop in economic activity for different production sectors. This period also was marked by cancellation of most promised aid with donors countries. The government's failure to meet conditions regarding to eliminating of high coffee price guarantees and adoption of structural adjustment programmes was also another obstacle for development. Table 6 provides flow of aid from ODA to Rwanda between 1960 and 2013.

Table 6:Aid from ODA to Rwanda between1960 to 2013.

Year	Value		Year	Value		Year	Value
1960	$7,510,000		1978	$101,500,000		1996	$307,590,000
1961	$7,170,000		1979	$112,500,000		1997	$224,710,000
1962	$10,810,000		1980	$118,050,000		1998	$235,690,000
1963	$7,060,000		1981	$122,240,000		1999	$219,630,000
1964	$6,260,000		1982	$116,200,000		2000	$224,720,000
1965	$7,720,000		1983	$103,530,000		2001	$193,710,000
1966	$11,590,000		1984	$111,410,000		2002	$240,420,000
1967	$13,110,000		1985	$114,880,000		2003	$267,460,000
1968	$15,480,000		1986	$143,090,000		2004	$282,830,000
1969	$16,420,000		1987	$158,410,000		2005	$372,450,000
1970	$19,640,000		1988	$176,290,000		2006	$386,560,000
1971	$23,100,000		1989	$164,220,000		2007	$453,780,000
1972	$26,960,000		1990	$219,150,000		2008	$558,130,000
1973	$33,180,000		1991	$254,370,000		2009	$624,810,000
1974	$37,970,000		1992	$270,040,000		2010	$652,280,000
1975	$70,470,000		1993	$237,430,000		2011	$682,860,000
1976	$64,720,000		1994	$533,080,000		2012	$513,890,000
1977	$72,520,000		1995	$357,250,000		2013	$685,000,000

Source: World Bank, International Debt Statistics.

The latest estimated value for aid from DAC countries, total (current US$ in terms ofnet bilateral) in Rwanda was $685,000,000 as of 2013. This means that the value for indicator has fluctuated between $685,000,000 in 2013 and $6,260,000 in 1964 over the past 53 years.

From 2007, Aid from ODA to Rwanda increased significantly peaking in 2011. This may be explained by measures government undertook to attract and promote foreign investment during this period. Foreign direct investment (FDI) declined dramatically during the period of conflict and genocide and remained low for most of the earlier years of the post genocide period. This was largely associated with erosion of foreign investor confidence in the political stability of Rwanda. This among others included efforts in improving conditions of doing business (African Development Bank (AfDB), AUC, and UNECA, 2012). As the Figure 2 above gives the trend of DAC. Table 7 shows Rwanda's macroeconomic indicators, 1995-2013.

Table 7: Rwanda macroeconomic indicators, 1995-2013.

Year	GDP grow	Inflation	ODA per capita	Multilateral Growth rate
1995	35.22	48.24	122.66	78.93
1996	12.75	13.43	78.47	79.96
1997	13.85	11.68	35.49	76.56
1998	8.86	6.84	48.83	78.30
1999	7.58	-2.42	47.51	76.96
2000	8.32	3.90	38.29	77.29
2001	8.67	3.35	34.80	78.08
2002	13.51	1.98	40.38	79.57
2003	1.45	7.44	36.73	81.44
2004	6.95	11.98	52.96	83.41
2005	6.91	9.122	61.23	88.84
2006	9.24	8.831	62.42	77.31
2007	7.61	9.081	72.78	77.08
2008	11.16	15.44	91.32	82.17
2009	6.27	10.346	88.66	70.77
2010	7.31	2.036	95.25	70.03
2011	7.85	5.668	113.42	74.29
2012	8.79	6.286	76.72	69.10
2013	4.68	4.223	91.80	55.34

Source: World Bank national accounts data, and OECD National Accounts data files

For years, Rwanda's impressive GDP growth – often approximately 8% – has made economists to take notice. In this period, GDP per capita, when adjusted for purchasing power, has grown from $575 in 1995 to almost $1,170 in 2012 .ODA per capita also

has growth from 122.66 even though it was being fluctuated after that period. Rwanda has often been labelled a donor darling and foreign aid estimated at 20% of GDP in 2011, with Rwandans receiving $113 a head. For that, economy of Rwanda grew at an average of 8.5% per year between 1995 and 2011. For the post-genocide period (1995-2011) were much higher than those for the pre-genocide period (1973–1989).By having dipped during the year of genocide in 1994, the trend of real GDP (Table3) show that the post-genocide periods on the average increased two times over the pre-genocide periods (Table 6). This change may be attributed to policies and programs adopted by the Government in the implementation of EDPRS and Vision 2020.

CHAPTER3: METHODOLOGY

3.1. Introduction of Methodological framework

Traditionally, the normative theory of economic growth according to many authors, the Harrod- Domar growth model and the Chenery and Strout two-gap model, growth is influenced by an investment and financed by domestic savings plus foreign aid.If the effect of aid on domestic savings is positive, Foreign aid can spur growth.This is according to Harrod-Domarmodel and gap models**.**

Until the mid-nineties, empirical studies of the aid-growth relationship were carried out and influenced by the early growth theories, which asserted that the ability to surpass the constraints regarding the accumulation of physical capital can stimulate the growth process. For that the key for economic growth was generally recognized as investment. Traditionally, the lack of savings crucial (due to low income generation in developing countries) to investment was regarded as the most important limitation to the economic growth of developing countries due to their low per capita income (investment gap). Investment can also be constrained either by a lack of domestic savings known as the savings gap or by a shortage of exports earnings (the trade gap). For this reason, the original Harrod-Domar model was expanded in the sixties in the Chenery and Strout (1966, 1979) two-gap model by introducing foreign exchange shortage as another possible growth constraint.

3.3. The variables needed theoretically

There have been several theories which had been developed to study economic growth and development. Each of these has its strength and weaknesses with different ideological perceptions, empirical conclusions and theoretical behaviour. They include; the classic theories of economic development and the endogenous growth model. After analysing modernization theory and its relatives towards economic growth, the Classic theories also have four approaches:

- The Linear-stages theories weregeneralized by; the Rostow's stages of growth and the Harrod-Domar growth model,
- Structural Change models were administered by the Lewis theory of development and structural deviation.

- The dependency revolution among countries includes the Neoclassical Dependence Model, false paradigm model and the Dualistic-Development Thesis, and
- The traditional neoclassical growth model

The motivation for the endogenous growth model is derived from the lack of the neoclassical theories to explain the sources of long-run economic growth. The neoclassical theory fails to explain the core or inherentcharacteristic of economies that causes them to grow over extended period of time. This was caused by the focus on the dynamic process through which capital-labour ratios approach long-run equilibrium. In lack of technological change for external country, which is not clearly explained in the neoclassical model, all economies will move towards to zero growth rate.

Neoclassical theory see rising GDP as a temporary phenomenon resulting from thechange of technologyor equilibrating for a short-term process in which an economy approaches its long run equilibrium. The theory acknowledges the contributionof economic growth to a completely independent process of technological progress.

This theory also provides aconceptual theoretical framework foranalysing endogenous growth, persistent GNP growth that is estimated by an adoption of the system controlling the production process rather than by forces outside that system. In contrast to traditional neoclassical paradigm/ theory, the models serve GNP growth to be a natural consequence of long-run equilibrium. Models of endogenous growth hold some structural which are similarto their neoclassical counterparts, but they differ considerably not only about their underlying assumptions but also to their conclusions drawn.

3.4. Conceptual Framework

In order to evaluate the effect of foreign aid and its effectiveness on economic growth, the study applies a panel data approach for the annual data for the period between 1995 and 2013collected from 29 countries of bilateral aid toRwanda. The Solow growth model has been used to evaluate the growth rate effects of foreign aid in Rwanda. Thus, the general empirical model for this study is presented by referring on Cobb-Douglas production function as follows:

(1) $\quad\quad Y_{it} = A_{it}L^{\alpha 2}{}_{it}K^{\alpha 3}{}_{it}$

In this study, the standard growth accounting model can also be expressed in linear logs:

(2) $\quad\quad GDP_{it} = \alpha_1 + \alpha_2 Labour_{it} + \alpha_3 Capital_{it} + A_{it}$

Where GDP is economic growth (usually terms as γ_{it}), Capital and Labour represent aid and private foreign inflows respectively. A_{it} stands for the growth rate of total factor productivity which explains the output growth that is caused by other factors of production that are not specified in the above model. i and t indicate bilateral aid donor and time periods. Note that α_2 and α_3 are the elasticity of output with respect to Labour and Capital, respectively. But in this study we will use linear relationship model without consideration linear logs. The model is expended by including other variables to avoid endogeneity problem. To estimate the variables corresponding to parameters of interest from the data under consideration, we employ a panel data estimation, an empirical exposition of which is provided a general representation of the panel model. Assume that $\alpha_1 =$ constant, $\alpha_2 Labour_{it} + \alpha3 Capital_{it} = explanatory\,variables$ expression of total factor productivity for this study is expressed as:

(3) $\quad\quad \gamma_{it} = \beta'X_{it} + \alpha_{it} + \varepsilon_{it}$

Where γ_{it} is the dependent variable; X_{it} is the vector of repressors; β is the vector of coefficients/parameters unknown to be estimated including other variables and ε_{it} is a random disturbance term which is assumed to satisfy the usual properties of mean zero and constant variance. Non-linear OLS regression is a technical tool of estimating conditional mean functions by minimizing sums of squared errors (Gujarati D. 2004); α_{it} is initial real GDP or country specific effects and ε_{it} the error term or disturbance term with normal distribution with mean zero and a constant variance allowing to estimate the vector for the standard error; $i = 1, ..., N$ and $t = 1, ..., T$. From the previous information, expression of Model1 is as the following:

3.4.1 Conceptual Model

Effectiveness of foreign aid and economic growth:In order to evaluate this effectiveness of aid inflows to Rwanda,the Burnside-Dollar Framework model is used. The basic specification used by Burnside et al is a principal standard growth regression that expresses the growth rate of per capita real GDP as a function of the initial level of foreign aid ; economic policy per capita real GDP, and a set of control variables. This specification is aim at capturing the conditional towards per capita income predicted by the neoclassical theory of growth. Per capita income for initial levels, other things equal, would be expected to grow at a constant rate.

Burnside and Dollar's main contribution is to include a measure of foreign aid in the regression and interact it with a measure of economic policy. From the information that has been provided above in equation (3) the regression equation is specified as the following:

(5) $\qquad g_{it} = \beta_1 a_{it} + \beta_2 p_{it} + control \ variables + \varepsilon_{it}$

Where g_{it} growth rate of per capita real GDP is, a_{it} is foreign aid measured as a share of GDP; p_{it} is a composite policy variable, and ε_{it} the regression error. The composite policy variable combines the effects of these three macroeconomic variable policiesthat are associated with growth rate. These include monetary policy (measured by the performance of inflation) including budget surplus like a share of GDP (this is meaningless for Rwanda), Sachs and Warner (1995) constructed a dummy variable to measure the openness of the economy. The composite policy measure is computed by first regressing per capita GDP growth on income, the control variables, and the three policy variables (minus aid variable). Burnside et al use this composite measurement in order to separate policy variables which are highly correlated with each other, causing multicollinearity problem when used together as independent variables in growth regressions.Also by substituting (3) into (2), we will be specified in chapter 5 to get regression model specification model 2 that will help to estimate the effect of foreign aid in relation to the policy variables.

Then Model2 (effectiveness of foreign aid on economic growth) is expressed as the following:

Conceptual Model

Per capita growth=f(per capita, GDP, aid, inflation, exchange, other inflows).

Explanation: justification of use of variables and expected theoretical impacts of these variables are illustrated in chapter four and chapter five respectively.

3.4.4 Selection of Variables

Aid policy is one of the most important instruments of economic growth. In order to estimate the effect of foreign aid inflows on economic growth rate and also on per capita in Rwanda, a model is established in which real growth rate and per capita growth rate is a function of foreign aid and other variables. However, since foreign aid is not the only determinant of real growth rate and per capita growth rate, some other variables are included like exchange rate, GDP per capital, openness, terms of trade, Private investment and other explanatory variables for Model1based on the Solow growth model form Cobb-Douglas production functionto obtain single expanded equation that reduce endogeneity problem. Furthermore, based on the basic specification used by Burnside and Dollar is a standard growth regression that expresses the growth rate of per capita real GDP as a function of the initial level of per capita real GDP is used, foreign aid, economic policy, and a set of control variables for Model2. This specification is intended to capture the conditional convergence of per capita income forecasted by the traditional neoclassical theory of growth. Like the majority of growth regression studies, both studies explained above employ the reduced form equation proposed by Papanek (1973) as their basic model. Derivation originalof the Papanek regression was based on the Harrod-Domar growth equation as well asthe behaviour of equation in which investment depends on its major financing components, including domestic savings and a variety form of foreign inflows (ODA, private and other official inflows).

The first practice we have changed was that of expressing the dependent variable in per capita terms. Real per capita GDP is the most common estimator of standard of living for population. This implies a small change to the Harrod-Domar growth equation, in order to incorporate the effects of economic growth. The empirical model we have chosen to use is therefore a static panel data model, most growth regression studies assume that foreign aid is an exogenous variable, even though aid is expected in growth

regressions to be endogenous. For other view, foreign aid may present issues of reverse causality, especially because, if aid is highly influenced by the level of income, it will necessarily depend on economic growth. If reverse causality is not captured, it can produce serious inaccuracies in research results. Not only are the parameter estimates inconsistent, but the level of magnitude and the significance of the aid parameter is altered as well. On the other hand, the error term in a given model may include factors that both affect growth and are correlated with aid, thus rendering the parameter estimates inconsistent. Consequently, we have employed single developed estimator to deal with the issue of endogeneity inestimation of panel data models.

We assume in Model1 that growth of foreign aid inflows increases the total factor productivity growth, which in turn raises the rate of overall economic growth of aid. Morrissey (2001) has pointed that foreign aid can stimulate aneconomic growth by increases in physical and human capital investment.Increases the capital to import and technology are associates with technology transfer. Besides, foreign aid also does not have immediate impact that can reduce investment or savings rates. Hence, foreign aid increases will increase economic growth not only for productivity but also for efficiency gains by host countries.

For Model2 about effectiveness of foreign aid on economic growth, Burnside and Dollar's main contribution is to include a measure of foreign aid in the regression and interact it with a measure of economic policy as it was explained above. They compute average growth rates over during a periods of four years and match these with averages of the explanatory variables. This helps to lessen the influence of short-term variation in growth literature that is not related to longer-term forces. For Rwanda because the data is not extended to the long period, there is no need to divide them into different periods. One difference between the data for Rwanda data and Burnside et al and Easterly et al. is the use of net official development assistance, which includes both grants and loans, as my aid variable instead of effective development assistance, which includes grants and only the concessional part of loans. The aid series used by Burnside and Dollar was computed by Chang (1999) and has not been updated beyond 1995.

Burnside and Dollar (2004) raise the possibility that the relationship between growth, aid, and policy is non-linear Therefore, we propose an alternative methodological and econometric procedure to heighten the accuracy of aid-growth studies.

Most of studies can be criticised on a number of grounds. The endogeneity problem of single equation models, whereby the result of low growth into larger aid allocations is ignored. Gupta (1975) showed that if a given indirect effects are involved, early estimates of a negative effect of foreign capital can be overestimated. Mosley (1980) by contrast, using a simultaneous equation model, found a weak, negative correlation between aid and growth, even though for the 'poorest' countries in his sample, He did find a positive and significant relationship.

In short in this study we attempt to improve model specification further by examining the growth impact of aid within a model involving both policy estimators and all the major sources of investment finance – foreign aid, private and other inflows, and domestic savings in order to avoid the problem of endogeneity caused by single equation. To select the right estimator for the model, different tests had been carried out to check whether classical OLS assumptions hold for the model and remedies are suggested. Then the growth foreign aid model has been estimated using appropriate method(s), but random effects (RE) was not applied because of few observations in this study.

The study also uses linear regression with the application of OLS technique to estimate parameters about a panel of aggregate data of macroeconomic indicators on 29 countries and different kinds of foreign aid to Rwanda collected from World Bank and International Debt Statistics. The justification behind adopting this technique is based for the analysis of the results section because the data used in the analysis is secondary in nature. Secondly, the regression technique possesses optimal properties in the form of linearity, minimum variance and unbiased. Thirdly, the linear regression does not require much data to carry out its estimations, unlike the minimum variance, vector auto regression and other similar estimation statistics. Finally, this technique has been used by many previous researchers, and the results derived have been acceptable, satisfactory and optimal.

3.4.3. Data source

Data for this study is secondary in nature because the researchers were not the originators of the data which covers an 18 years period, from 1995 to 2013, 29 foreign aid donors, are from the World Bank (World Development Indicators) 2015 and MINECOFIN (2015), CIA Factbook (2008), and central bank of Rwanda (BNR). The data are compiled by the World Bank annually, based on the information provided by OECD and Development Assistance Committee.

Data presentation for Model: Data relating to real growth rate per capita, Official Development Assistance, Total net private capital flows, Domestic savings as a percentage, All other inflows Trade openness and macroeconomic stability Financial repression as an average for the real interest rate, the stabilising roleplayed bygovernment, Inflation rate, interest rate, per capita income and exchange rate for Model are collected. The summary of the two data sets for Model for individuals years are presented in Table 8.

Table 8: Data presentation of Model

Year	PERCAPITA	GDP	FAIDOECD	OTHERIFS	INFLAT	EXCHRATE
1995	36.77	-	35.22	0.17	51.27	140.70
1996	7.69	-	12.75	0.16	10.92	262.18
1997	4.33	-	13.85	0.14	15.62	306.82
1998	-1.75	-	8.86	0.36	2.23	301.53
1999	-1.78	5.3	7.58	0.09	-9.19	312.31
2000	1.32	5.8	8.32	0.48	2.83	333.94
2001	4.15	5.0	8.67	0.28	0.97	389.70
2002	10.64	4.0	13.51	0.16	-5.31	442.99
2003	-0.09	3.5	1.45	0.25	22.69	475.37
2004	5.46	0.9	6.95	0.37	13.66	537.65
2005	4.93	5.2	6.91	0.41	11.65	577.45
2006	6.62	5.8	9.24	0.99	9.09	557.82
2007	4.72	6.0	7.61	2.18	11.82	551.71
2008	7.96	11.2	11.16	2.15	14.27	546.96

2009	3.17	4.5	6.27	2.24	8.24	546.85
2010	4.27	6.5	7.31	0.74	2.64	568.28
2011	4.88	8.8	7.85	1.66	7.31	583.13
2012	5.81	7.7	8.79	2.21	6.00	600.31
2013	1.85	7.5	4.68	3.43	4.77	614.30

Source: World Bank national accounts data, and OECD National Accounts data files.

3.5. Description, justification of use of variables and expected theoretical impacts

Official development assistance (ODA) refers to Foreign aidin terms of loans and grants. Ratios are computed through U.S. dollars and converted into official exchange rates. Growth of foreign aid inflows increases the total factor productivity growth, which in turn raises the rate of overall economic growth of aid. Morrissey (2001) has pointed out that aid inflows or foreign aid can promote economic growth through increases in physical and human capital investment. This must be associated with technology transfer. Besides, foreign aid also does not have or contribute deceiving indirect effects that reduce investment or savings rates. Aid tends to cause real appreciation by changing the component of the demand for commercial and non-commercial goods, according to the "Dutch disease" theory of foreign aid.

TOT and WOPEN: Openness to trade is often hypothesised to raise growth through several channels, such as access to high or advanced technology from outside country, contingency of catch-up, greater access to a different kind of inputs for production, and access to enlarge markets that can increase the efficiency of local production through increased specialisation. Openness of the economy is obtained by taking the sum of exports and imports of goods and services measured as a share of gross domestic product. It would cause real depreciation (appreciation) if it reduces (increases) the demand for non-tradable.

$TOT = px/pm$ .The effect of the terms of transaction or trade on the rate of real exchange depends on whether the substitution or the income effect dominates. If the income (substitution) effect is prevalent then a deterioration of the TOT tends to cause real depreciation (appreciation).

TRADE measured by the ratio of the export to import price indices is used to capture the impact of trade, or openness of the economy on economic growth.

GDP growth per capita is the average growth rate of per capita GDP. It is defined as the aggregate market value in terms of USA dollars of all final goods as well as services produced within the country in a one calendar year and used to represent the economic growth of a country.

INFLAT: Average annual inflation rate is percentage in increase of the level of prices of goods and services in an economy.

OTHERIFS: All other inflows (including other net long-term inflows) as percentage of GDP.

EXCHRATE: Real exchange rate is defined as the quantity of domestic goods required to buy one foreign good or it is price of traded goods relative to the price of nontrade (domestic) goods. This is expressed in terms of the price levels Real Exchange Rate. In the absence of readily available indices of tradable and no tradable goods, the real exchange rate value has to be proxied by available domestic and world price indices and nominal exchange rates.

TOT and WOPEN: Two measures to reflect trade openness and macroeconomic stability (policy index).

INFSTD: This is the standard deviation of the inflation rate over the period 1995-2013. It gives an indication of the extent of volatility in inflation at a given period of time and is assumed to proxy for general macroeconomic instability. We expect that this variable will be negatively related to growth.

The expected signs (effects) of the explanatory variables on GDP and GDP per capita consistent with the theories explained above are reported in Table 10.

Table 9: Expected Signs of Variables

Variables	Expected Sign
GDP: Real growth rate per capita %	undetermined
FAIDOECD: Official Development Assistance (DAC)	+/-
OTHERIFS: All other inflows % of GDP	+/-
INFSTD: standard deviation of the inflation rate 1995- 2013	+/-
PERCAPITA:GDP per capita growth as per capita on income	Undetermined
EXCHANGE	+

Source: World Bank national accounts data, and OECD National Accounts data files.

3.6. Justification

Official Development Assistance (DAC) tends to cause real appreciation by changing the composition of the demand for traded and non-traded goods, according to the "Dutch disease" theory of foreign aid.

Openness of the economy would cause real depreciation (appreciation) if it reduces (increases) the demand for non-tradable.

The effect of the terms of trade on the real exchange rate depends on whether the substitution or the income effect dominates. If the income (substitution) effect dominates then a deterioration of the TOT tends to cause real depreciation (appreciation).Changes in the money supply (expansionary monetary policies) would tend to raise the general price level and thus lead to an appreciation of the RER.

3.7. Empirical model specification, estimation and testing

The model in equation (2) is derived from the theoretical postulations of the Endogenous growth theory by Solow model in collaboration with Harrod-Domar model of economic growth.

3.7.1 Model Specification

It is assumed that inflows of foreign aid will continue to impact the economy growth for years after its initial introduction, at increasing growth rate of economy. It would

howeverbe suitable to use an ordinary least squares estimation method, since it would only take consideration aid inflows in the year they were received and after.

To analyse the relationship between economic growth and foreign aid growth in Rwanda the study will include ODA and other variables such as trade openness etc.,

In the economic growth literature, we were interested in the rate at which Rwandawith itscurrent positions and their desired long-run growth path, an external source of capital represented by foreign aid (AID_{it}), openness to economy as estimated or measured by the ratio of the sum of imports and exports to the GDP, often proxies by foreign transaction or terms of trade (TOT_{it}), From equation3, the specified of model 1 is as the following:

Referring to equation5, the Model (effectiveness of foreign aid on economic growth) is transformed in other to obtain the following specified regression equation:

(6)
$$g_{it} = \beta_0 + \beta_1 PERCAPITA_t + \beta_2 GDP_{it} + \beta_3 FAIDOECD_{it} + \beta_4 INFLAT_{it} + \beta_5 EXCHANGE_{it} + \beta_6 OTHERIFS_{it} + \varepsilon_{it}$$

Where A_{it} is GDP growth rate, AID_{it} refers to foreign aid inflows from donor countries as a share of GDP. OTHERIFS are All other inflows (including other net long-term inflows) used as a proxy for Capital as a percentage of GDP, TOT and WOPEN: Two measures to reflect trade openness and macroeconomic stability (policy index) in terms of exchange rate,and ε_{it} is the random error term.

Total official development assistance inflows as share of GDP are proxy to AID_{it} $Labour_{it}$be growth rate of country total labour force. GDP_{it} Stands for real GDP of Rwanda. $Capital_{it}$ Stands for capital stock measured by investment as share of GDP. GOV_{it} is government consumption as part of GDP. The data for estimators were collected from Summer-Heston Penn World Table database. All estimators are expressed in quadratic form.

3.7.2.Justification of the model specification

In the economic growth review, scholars or researchers have been interested in the rate at which countries close the gap between their current situation and standing point and

their desired long-run growth path. To determine the responsiveness of foreign aid to income growth rate and the traditional the sources of economic growth such as investment in physical

Model assumes that growth of ODA inflows can increases the aggregate or total factor productivity growth. As a result this in turn raises the rate of overall economic growth of foreign aid as Morrissey (2001) has postulated. Hence, aid from foreign increases will contribute to economic growth through productivity and efficiency gains by host countries. Andersen surveyed analyses indicate the existence of a positive link between trade and growth, but the validity of findings seems to be questioned in terms of (i) the robustness tests performed by Rodriquez and Rodrik; (ii) the fact that many of the findings or analyses lack to address even to solve the endogeneity problem; and (iii) the "open endedness" of growth theories. Durlauf (2000) explain growth theories, like "open ended" in the sense that if one variable influences growth it does not typically induce or employ that other variables cannot do it. For this, the error term is the accumulation of omitted growth determinants and a main instrument is sometimes uncorrelated with these estimators.

Model allows us to recognize the ceteris paribus growth rate effects of aid using an established conditioning set of policy variables, and to evaluate the robustness of inclusion of aid, and other forms of, investment finance among the growth determinantsin order to maintain effectiveness use of aid that can increase the per capita income for people as well as foreign cooperation.

The economic theory distinguishes between two sources of GDP-per-capita growth: capital accumulation that includes human and labour as well as productivity growth. Both may be affected by openness. First, openness to international flows of capital may increase the rate at which physical and human capital is accumulated locally (at least temporarily). Second, openness may push productivity growth through faster technological progress, empirical evidence suggests that (i) increase in capital is not the primary source of growth (Hall and Jones 1999, and (ii) growth impact of trade and other transactions work primary through productivity (Frankel and Romer 1999). Therefore, we focus on the effects of international trade on productivity growth.

CHAPTER 4: DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1. Introduction

By applying OLS to equation, some relevant residual and specification tests are rigorously carried out to select the right estimator for the model and remedies are suggested. Since the presence of serial correlation in the residuals reduces the efficiency and forecasting powers of the estimators based on OLS estimates, the Durbin-Watson test for first order partial correlation about the residuals or error term is conducted to ensure that there is no autocorrelation in the residuals. The White's test for heteroscedasticity will also be performed. The presence of heteroscedasitcity itself does not invalidate standards least squares. However, ignoring it may result in loss of efficiency in the estimated variables. The null (H_0) hypothesis shows that hetorscedasticity is not present. The model is correctly specified if the F-statistic is insignificant at the given error level (mostly 5%).

To estimate the results, we applied the panel data method. There are several types of panel analytic models; with the most commonly, estimated models are probably pooled OLS, fixed effects (FE) model and random effects (RE) models.

General Linear Model is the foundation of linear panel model estimation:

- Ordinary Least Squares (OLS)
- Weighted least squares (WLS)
- Generalized least squares (GLS)

Least-squares result from estimation of panel models mainly entails three steps:

- Data transformation or first-stage estimation
- Estimation of the variables by using Ordinary Least Squares method
- And estimation of the variance-covariance matrix of the estimates.

Parameter estimates are usually refined and cleared using iteratively reweighted least squares (IRLS), a maximum likelihood estimator.

4.2. Summary statistics

Summary statistics of the data used in themodel are presented in Table 11

Table 10: Descriptive Statistics of parameters.

Variable Description	Mean	Std. Dev	Min	Max
PERCAPTA:GDP growth rate per income	4.2607	3.1157	-1.78	10.64
FAIDOECD: Official Development Assistance (DAC)	7.7533	2.7016	1.45	13.51
INFLAT: as percentage of GDP	6.7627	7.9542	-9.19	22.69
GDP:Real growth rate	5.8500	2.3992	0.90	11.20
OTHERIFS: All other inflows % of GDP	1.1760	1.0451	0.09	3.43
EXCHANGE:% change in average real interest rate	509.2513	96.3903	312.31	614.3

Source: Author's calculation using Eviews

4.3. Estimation of parameters

The estimation result based on Model 1 and Model using OLS estimation method are presented in Table 13. The results using pooled OLS and GMM are reported in Appendix Tables 14 and 15.

Table 11: Estimation of parameters. Sample / Period 29 countries / 1995-2013

| Dependent Variable	GDP Percapita growth	
Estimation method	OLS method: 6 Parameters	
	Model 2	
Variable	Estimate	StdErr
Intercept	-12.3561	1.7407
FAIDOECD	1.1844***	0.1110
OTHERIFS	-0.2578	0.3708
INFSTD	0.1150***	0.0408
GDP-level	-0.2833***	0.1331
EXCHRATE	0.0169***	0.0038
Observations	18	
R2	0.9496	
F-value	33.9338	
Prob (F-statistic)	0.0001	
Breusch-Pagan	1.9504*	
Jarque-B Test	1.0620***	

Source: Author's calculation using Eviews

Notes: * denotes significant as 10% confidence level; ** denotes significant as 5% confidence level; *** denotes significant as 1% confidence level.

4.4. Interpretation of the slope coefficients (β1- β8) in the estimated Model 1

The parameters β1-β6measures the trade-off between foreign aid and economic growth. The numbers are measured as percentages (both for aid and GDP). A 1 unit (percentage point) change in foreign aid results in β1 units (percentage point) change in economic growth. The estimated output indicates that a 1 (unit) percentage point increase in foreign aid is on average associated with approximately 1.1844 (units) percentage points increase in economic growth. The performance of the model in estimation of the effects in model and its confidence interval is presented in Figure 3.

Figure 2: Forecasting static test for Model
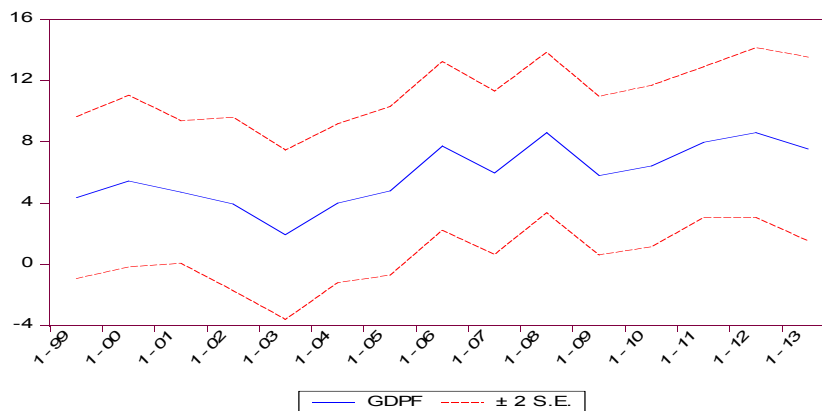
Source: Author᾽s calculation using Eviews

4.5.Testing the result of model specifications

When running OLS estimation the first place to look in the output, is at the F-statistic and its p-value. In EViews the hypothesis tested by the F-test in the basic OLS model is that the union of all used repressors have a significant effect on economic growth rate. In our model we found that the regresses used to have a significant effect on y (the p-value is 0.0890 for Model thusthe null hypothesisis rejected. The test of each specific variable and its significance and effect on y is somewhat similar to the analyse OLS. The high value of the R^2 shows that the overall model is statistically significant. The results also show that there is absence of autocorrelation in the residuals. The Durbin-Watson statistic of 1.9504 is closer to 2 (no autocorrelation) than to zero (perfect autocorrelation). Also, the first order autocorrelation coefficient which is 0.111 is closer to zero (no autocorrelation) than 1 (perfect autocorrelation).

The Durbin-Watson statistic fails to conclusively determine the presence autocorrelation and serial correlation. Theestimation and analysis of the residuals, however, shows that it is not a statistically significant problem. The model was also tested for the presence of heteroskedasticity, not only across time but also cross sections referring to the Breusch-Pagan Test. The results of this test fail to show statistically significant evidence of heteroskedasticity.

4.6. Empirical results and interpretations

The results provide insight as to foreign aid's effectiveness in a number of ways. Most obvious is that it has a positive, though modest effect on economic growth, significant at the 0.01 level. One million US dollar increase in foreign aid will result in an increase in GDPpercapita of approximately 95%(Model2), ceteris paribus.The weighted openness measure (EXHANGE), FAIDOECD, appears to perform much better than OTHERIFS (is not significant) and GDP; the coefficients on the latter being wrongly signed (negative) but insignificantly different from zero. Omitting the significant like budget surplus term reduces the parameter on OTHERIFSas expected which is nowinsignificant.

As we control for fiscal policy in addition to inflation and trade openness, aid becomes positively associated with high growth. However, this result is weakened because the sample size drastically drops in the budget deficit/surplus variable. The main conclusion on linear specification estimation is that there is strong mixed evidence that aid has a significant effect on growth. Evidence of a positive effect and significance appears only when both monetary, trade and budget surplus are positively but budget surplus data in Rwanda are not available.These results suggest care must be taken regarding to interpretation and comparison of foreign aid effectiveness of with other sources of capital.

The findings from equation permit us to conclude that policies the major that stimulate the growth rate also determine aid effectiveness in Rwanda. Thus these findings suggest that foreign aid influences positively the growth rate in a good policy environment. The findings regarding the effect of policies are advocated by some scholars like the conclusion of Burnside and Dollar (2000) that aid has a positive impact on growth in LDCs countries with good fiscal, trade andmonetary policies.

However, these findings also contradict Burnside et al (2000) primary argument that aid holds a positive impact on growth in the absence of policies. By making the critical argument, the budget deficit seems to becritical point for decision makers who are motivated to improve the standard of living for Rwanda people. However, this claim is limited only policy's effects regarding to aid effectiveness: any other effects of budget deficit on the Rwanda economy are beyond the scope of this study.

When assessing the effectiveness of different sources of capital we find that foreign capital has a considerable impact than domestic savings when comparingtheir estimated coefficients. Private foreign capital inflows seem to contributeparticularly strong growth effects. Similar results were obtained by Dowlinget al (1983).Surprisingly it is not perhaps that private capital flows have agreater impact than foreign aidinflows. Private capital are mostly and efficiently directed to projects and activities with higher expected private rates of returns in Rwanda while the latter are mainly directed towards infrastructure building, education, health, communication, water supply and so on

Aid allocation for Rwanda can facilitate to increase absorptive capacity to make an improvement of different areas of economic development. This is similar to the assumption of McGillivray (2008).They indicated that there are diminishing returns to aid due to recipient countries having absorptive capacity[3] constraints.Feeny and McGillivray (2008) supported Hansen and Tarp (2000) in their findings but argued that the capacity of foreign aid to accelerate economic growth depends on the absorption capacity of aid recipients.

3.Absorptive capacity refers to an aid recipient's ability to utilize foreign aid inflows effectively.

CHAPTER5: SUMMARY CONCLUSION AND RECOMMENDATION

5.1. Summary

This study tends to immensely benefit a cluster of beneficiaries among them the Government of Rwanda (GoR), Civil Society, the general citizens and other researchers. The Government of Rwanda is the intended especially beneficiary of the results of this research. The findings of the study puts Rwanda into the driver's seat and help to devise development programs of Rwanda and in leading coordination processes to improve the relationship between country and the donor countries to becomes mutually beneficial. It will motivate and stimulate other researcher's throughintellectual vigour to continuously advance scholarship into this seemingly grey area.

In Summary, foreign aid is an important capital resource and is considered to influence economic growth and development of the recipient country. A number of studies have been undertaken to assess the impact of foreign aid on the economic growth. The results of these studies shows that aid contribute to economic growth of Rwanda. However, some studies generate mixed results. This study analysed the effects of foreign aid on economic growth of Rwanda by using aid flows in ODA member countries for the period of 1995 to 2013. The panel data approach based on pooled OLS method were used to evaluate the impact of aid on economic growth of these Rwanda.

Some caveats are in order however. The results presented in this study suggest negligible percapita growth effects of foreign aid by taking account on small and statistically insignificant variables like budget surplus) in low income countries like Rwanda. A second issue concerns the choice of sample period because data from underdeveloped countries are sometimes difficult to find.

The results suggest that for Rwanda, foreign aid is found to have significant positive influence on economic growth. This implies that the null hypothesis that foreign aid does not lead growth is rejected. As was proposed in Burnside and Dollar's (2000) who claim that aid produces better outcomes in countries with good policy and, therefore, by extension should be targeted to countries with good policy because enhance political stability can attract foreign trade investments. For further studies wesuggest to evaluate

the channels through which foreign aid can affect economic growth of Rwanda and compare it with corresponding effects for other countries.

In sum, by combination ofmicro- and macro-levels, evidence consistent withaid effectiveness emerges by showing that paradoxis not revealed. For that, an overall bleak pessimism of much of the recent aid-growth literature is unjustified and the relating policy implications derived from this literature are often inappropriate and unhelpful. Aid has been and remains an important tool for enhancing the economic growth and development prospects of poor nations.

Finally, nearly all participants in the aid-growth debate recognize the potential for aid to do better, particularly in fostering productivity growth. The evidence indicates that sustaining foreign assistance programs at reasonable levels can be expected to enhance the living standards of the world's poorest people. Abolishing foreign aid, or drastically removing it, would be a blunder and is not authorized by any reasonable interpretation of the evidence especially in Rwanda as a country faced a special problem of genocide. The challenge is to improve foreign assistance effectiveness so that living standards of poor people are substantially advanced for getting basic needs.

5.2. Conclusion

In conclusion, the objective of this study was to investigate the effect of foreign aid on economic growth in terms of not only economic growth as an outcome but also the policy environment in Rwanda, a main receiver of per capita aid in Africa, during the period from 1995 to 2013. Adding some socio-political and economic variables, we also investigated how far policies influence aid effectiveness flow into the Rwanda. Single- equation model is estimated byOLS method to test the growth impact of aid. By using foreign aid, aid-openness, aid-inflows and aid-inflation interaction terms and other socio-political variables, the result reject the null hypothesis for two models (Model 1 and 2) estimated.

Secondly, some development indicators were adopted to replace socio-political variables with aid and so-called aid interaction terms in the second model to assess its effectiveness. These models' findings suggest that aid can have a positive impact on economic growth rate when it is interacted with trade openness and private inflows

whereas it contributes a negative impact when interacted with private capital inflows and interest rate. Although Rwanda has been experiencing budget deficits, the aid-private inflows association had a positive effect on growth rate of economy. Therefore, the findings of these two models allowconcluding that aid is positively associated with the growth rate of economy with a good policy environment in Rwanda even though some other researchers found contradictory contribution.

5.3 Recommendations

As recommendations, aid conditional on improving the quality of governance might be working to encourage Rwanda to be more responsive to use foreign aid in collaboration with donors. For this reason, the governments need to be held accountable for the use of aid in smoothly way that can stimulate economic growth and development. In addition, the donor countries can also create a mechanism to encourage Rwanda to be more accountable and responsive. The political will of the Rwanda government to reform its institutional structures and policies is a necessary condition for aid to be effective. Without the political will at the top level, reforming governance is very challenging. This is because past experiences in various countries had shown that a bad government country tends to use aid to prolong the control of the country's elites and to ignore the suffering of the majority of the people.

References

Andersen L.and R. Babula (2008).The Link between Openness and Long-Run Economic Growth. *Journal of International Commerce and Economic*, 5(1): 1-20

Barro, R. (1990). Government Spending in a Simple Model of Endogenous Growth. *Journal of Political Economy*, 98(5):103-125

Barro, R.J. and X. Sala-i-Martin (1995). Economic Growth, New York, McGraw-Hill, Inc.

Bigsten A.and D. Yanagizawa (2005). Growth and Poverty Reduction. Evaluating Rwanda's First PRS. *Country Economic Report,* 3(7): 106-117

Bleaney, M.F. (1996). Macroeconomic Stability, Investment and Growth inDeveloping Countries. *Journal of Development Economics*, 48(2):461-477.

Blumer,H.(1969). Symbolic Interactionism: Perspective and Method. Berkeley: University of California Press.

Boone, P. (1994). The Impact of Foreign Aid on Savings and Growth. Mimeo 677, London School of Economics.

Boone, P. (1996). Politics and the Effectiveness of Foreign Aid. *European Economic Review*, 40(2): 289-329.

Burnside, C.and. D. Dollar (1997).Aid, Policies and Growth. *The American Economic Review*, 90(4):847-868.

Burnside, C.and. D. Dollar (2000). Aid, policies and growth. *American Economic Review* 90(4): 847-68.

Chenery, Carter. (1973). Foreign Assistance and DevelopmentPerformance, 1960-1970. *American Economic Association*,LXIII(2):466-467

Chenery, H.B. and A.M. Strout(1966). Foreign assistance and economic development. *American Economic Review* 56(4):679 - 733.

Deininger, K. and L. Squire (1998). New ways of looking at old issues: inequality andgrowth. *Journal of Development Economics* 3(7): 259-287.

Dowling, J.M. and U. Hiemenz (1983). Aid, Savings, and Growth in the Asian Region.*The Developing Economies*, 21(1):1-13

Durlauf, S. (2000). Econometric analysis and the study of economic growth: a sceptical perspective. In *Macroeconomics and the real world*, ed. R. Backhouse and A.Salanti, 249-262. Oxford: Oxford University Press.

Easterly, W. (1993). How Much Do Distortions Affect Growth?*Journal ofMonetary Economics*, 32:187-212.

Easterly, W. (2003). Can foreign aid buy growth? *Journal of Economic Perspectives*, 17(3):23–48.

Elbadawi, I.A.(1999). External aid: Help or hindrance to export orientation in Africa. *Journal of African Economies* 8(4): 578-616

Feeny, S. and M. McGillivray (2008). Aid allocation to fragile states: absorptive capacityconstraints.*Journal of International Development*, 20(7):1031-1050

Fischer, S. (1993). The Role of Macroeconomics Factors in Growth. *Journal ofMonetary Economics*, 32(3): 485-512.

Frankel, J.A., and D. Romer(1999). Does trade cause growth? *American EconomicReview,* 89 (3): 379-399

Griffin, K.B. and J.L. Enos(1970). Foreign aid and Economic Development - Objectives and consequences.*Economic Development and Cultural Change*, 18(3):313 -327.

Gujarati, D. (2004). Basic Econometrics, McGraw-Hill.Inc.4th edition

Gupta, K.L. (1975). Foreign capital inflows, dependency burden, and saving rates in developing countries: A simultaneous equation model. *Kyklos*, 28, 358-74

Hall, R.E., and C.I. Jones(1999). Why do some countries produce so much more output per worker than others? *The Quarterly Journal of Economics* 114 (1): 83-116.

Hansen, H. and F. Tarp (2000). Aid effectiveness disputed.*Journal of International Development*, 12(3):375–398

Hansen, H.and F. Tarp (2001).Aid and growth regressions. *Journal of Development Economics*, 64(2): 547-570

Heshmati A. (2007). Global Trends in Income Inequality. Hauppauge, NovaScience Publishers, NY.

Hudson, J. and, P. Mosley (2001). Aid, Policies and Growth: in Search of Holy Grail? *Journal of International Development*, 13(7): 1023-1038

Kormendi, R.C and P.G. Meguire (1985). Macroeconomic Determinants of Growth, Cross-Country Evidence. *Journal of Monetary Economics*, 16(2): 141-163

Kosack, S. (2003), Effective Aid: How Democracy Allows Development Aid toImprove the Quality of Life, *World Development*, 31(1): 1-22.

Le, T.H. and P. Winters, (2001). Aid policies and poverty alleviation: the case of Viet Nam. *Asia-Pacific Development Journal,* 8(2): 27-44.

Lensink, R.,and H. White(2001). Are there negative returns to aid? *Journal of Development Studies* 37 (6), 42-65

Levy, V. (1988). Aid and growth in Sub-Saharan Africa: the recent experience. *EuropeanEconomic Review* 32(9): 1777-1795.

Makaza-Mazingi, L. (2009). The feminization of poverty in Southern Africa. National Coordinator of Youth Empowerment and Transformation (YET) in Zimbabwe

Mbaku, J.M. (1993). Foreign aid and economic growth in Cameroon. *Applied Economics* 25, 1309-14

McGillivray, M., Feeny, S., Hermes, N. and R. Lensink (2006). Controversies over the impact of development aid: it works; it doesn't; it can, but that depends. *Journal ofInternational Development*, 18(7):1031–1050.

Mcmillan, L. (2011). Foreign aid and economic development. *School of Doctoral Studies (European Union) Journal*, 158-165.

Mehrara M., B.A. Firouzjaee (2011). Granger Causality Relationship between Export Growth and GDP Growth in Developing Countries: Panel Co integration Approach. *International Journal of Human Social and Science,* 1(16): 223-231

Morrissey, O. (2001). Does aid increase growth?*Progress in Development Studies*, 1(1):37-50.

Mosley, P. (1980). Aid, savings and growth revisited. *Bulletin of the Oxford University Institute of Economics and Statistics* 42(2): 79-95

Mosley, P. (1987). Overseas Aid: Its Defense and Reform. Brighton, England: Wheatsheaf Books.

Mosley, P. Hudson, J. and S. Horrell (1987). Aid, the public sector and the market in less developed countries.*Economic Journal*, 97(387):616–641.

Papanek, F.G. (1973).Aid, Foreign Private Investment, Savings, and Growth in Less Developed Countries. Journal of Political Economy,81(1): 120-130.

Pedersen,K.R.(1996).Aid, Investment and Incentives. *Scandinavian Journal ofEconomics* 98(3):423-438.

Reddy, S.G.and C. Minoiu(2006). Development aid and economic growth: A positive long run relation. DESA WP 29, United Nations, NY.

Rostow, W.W. (1990), The Stages of Economic Growth: A Non-communist Manifesto, third ed, Cambridge University Press: New York and Melbourne.

Sachs and Warner (1995), Economic Reform and the Process of Global Integration. *Brookings Papers on Economic Activity*, 1: 1–118.

Sindzingre A. (2012).Theoretical Criticisms and Policy Optimism: Assessing the Debates on Foreign Aid: Working Paper, 24(8): 989–1007.

Sunkel,O. (1969). National Development Policy and External Dependence in Latin America.*The Journal of Development Studies*, 6(1):23

Svensson, J. (1998). Investment, Property Rights and Political Instability: Theory and Evidence. *European Economic Review* 42(7): 1317─41.

Theotonio DosSantos(1971). The Structure of Dependence, in K.T. Fannand Donald C. Hodges eds., Readingsin U.S. Imperialism. Boston: Porter Sargent p.226.

Todaro, M and Smith, S. (2011) Economic Development, Prentice Hall; 11th ed.

Vasquez, I. (1998).Official Assistance, Economic Freedom, and Policy Change: Is Foreign Aid likeChampagne? *Cato Journal*, 18(2):275-286.

Voivodas, C.S. (1973). Exports, foreign capital inflow and economic growth. *Journal of International Economics*, 3(4):337-349.

Younger, S.D. (1992). Aid and Dutch disease: Macroeconomic management when everybody loves you. *World Development*. 20 (12):1589–97.

Appendices

Appendix A

Table 12: Effectiveness of foreign aid on economic growth

Dependent variable: per capita growth, 18 observations.

Estimation method	Pooled OLS
Constant Term	0.0001(-7.0986) ***
GDP	0.0622(-2.1285) ***
FAIDOECD	0.0000(10.6769) ***
OTHERIFS	0.5045(-0.6952) ***
INFLAT	0.0201(2.8186)***
EXCHRATE	0.0016(4.4412) ***
R-squared	0.9496
Adjusted R-squared	0.9216
S.E. of regression	0.8722
F-statistic	33.9337
Prob (F-statistic)	0.0001
Durbin-Watson stat	1.0606

Source: Author͵s calculation using Eviews.