Predictability of Foreign Aid and Economic Growth in Ethiopia

TewodrosGirma

A Thesis Submitted to

The Department of Economics

Presented in Partial Fulfillment of the Requirements for the Degree of Master of Science in Economics (Economic Policy Analysis)

Addis Ababa University

Addis Ababa, Ethiopia

June, 2016

Addis Ababa University

School of Graduate Studies

This is to certify that the thesis presented by TewodrosGirma, entitled: *Predictability of Foreign Aid and Economic Growth in Ethiopia* submitted in partial fulfillment of the requirements for the Degree of Master of Science (Economic Policy Analysis) complies with the regulations of the University and meets the accepted standards with respect to the originality and quality.

Signed by the Examining Committee:

Examiner_____ Signature _____Date_____

Examiner_____Signature_____Date_____

Advisor_____ Signature _____Date_____

_____

Chair of Department or Graduate Program Coordinator

Table of Continent

List of Table

List of Figure

Abstract

Foreign aid is one source of physical capital accumulation in Ethiopia. It is also a main media of government revenue in meeting increasing trends of government expenditure. To investigate the impact of foreign aid flow on economic growth, various empirical studies were conducted, but they came up with mixed result. This leads to raise question of why impact of aid on economic growth in Ethiopia continues to be paradoxical in its findings. To assess the effectiveness of foreign aid in Ethiopia; this study sets predictability of foreign aid and economic growth in Ethiopia as a general objective. Specifically, the study sought to examine the contribution of foreign aid and the macroeconomic policy environment to economic growth in the country. In order to meet the aforementioned objective, the study employed an autoregressive distributed lag (ARDL) approach over the period 1981-2014. The empirical finding shows that in the long run, foreign aid has a positive contribution to economic growth, but in the short run its effect appeared to be insignificant. The predictability of foreign aid has a positive effect both in the short and long run. Macroeconomic policy index also has a positive effect in the long run, but its short run effect become negative. Based on the listed empirical finding, the study came up with policy recommendation; the government should allocate the external assistance on the successful development projects. Moreover, to make the flow of aid more predictable and persistent over time, both the government of Ethiopia and the donor communities should come up mechanism of transparently working jointly.

Acknowledgements

First and foremost, I acknowledge and give praises to our Almighty God, who has supported me in my every endeavor of life.

I would like to extend my deepest gratitude to my advisor Dr. AlemayehuGeda for his comments, constructive criticism on the thesis as this inputs makes me to develop sense of impact and contribution. The errors and inconsistencies will have to remain to me.

Last but not least, I wish to mark my friends and parents who have been with me and alongside to show me real passion, my family who has taught me what commitment and dedication looks like, gave me love and support, in all the matters I needed.These are the ones who deserves honored and respected with celebration and heartfelt appreciation.

Acronyms

ADF	Augmented Dickey-Fuller
AIC	Akaike Information Criteria
ARDL	Autoregressive Distributed Lag
CUSUM	Cumulative Sum of Square
CUSUMSQ	Cumulative Sum of Square Recursive
ECM	Error Correction Model
EPRDF	Federal Democratic Republic of Ethiopia
GDP	Gross Domestic Product
GTP	Growth and Transformation Plan
IDA	International Development Association
IMF	International Monetary Fund
LDCs	Least Developed Countries
MDGs	Millennium Development Goals
MoFED	Ministry of Finance and Economic Development
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Square
RGDP	Real Gross Domestic Product
UN	United Nation
UNDP	United Nation Development Program
UNICEF	United Nation Children's Emergency Fund
VECM	Vector Error Correction Model
WDI	World Development Indicator
WEO	World Economic Outlook
WFP	World Food Program

"I have made revenue collection a frontline institution because it is the one which can emancipate us from begging, from disturbing friends… if we can get about 22 percent of GDP we should not need to disturb anybody by asking for aid….instead of coming here to bother you, give me this, give me this, I shall come here to greet you, to trade with you."

-YoweriMuseveni, President of Uganda (which collects 11% of GDP in taxes and receives a further 11 % of GDP in aid), Washington DC, September 21, 2005.

CHAPTER ONE

INTRODUCTION

1.1. Background of the study

It is widely accepted that domestic capital accumulation is needed to promote economic growth in developing countries. However, it is insufficient. Foreign aid therefore becomes one potential external source of capital to fill the resource gap. Accordingly, the debate on the relationship between foreign aid and economic growth has been greatly heightened for decades. Although economic theories are fairly consistent with respect to the pivotal role of aid in spurring growth, the empirical evidence has remained controversial. While some studies have found the significantly positive relationship between foreign aid and final economic outcomes (e.g. Hansen and Tarp, 2000; Juselius et al, 2014), others have reached to the conclusion of insignificant or even significantly negative relation between aid and growth (Boone, 1994, 1996; Easterly (1999), Ogudipe et.al, 2014). For example, Easterly (2003) asserts a skeptical viewpoint about aid‘s role and concludes that aid cannot buy growth.

While a rising concern was perceptible about the problems raised by volatility, several papers, followed by more official documents and political declarations, have underlined the problem induced by aid volatility (Fielding and Mavrotas 2005; Lensink and Morrissey 2000; Pallage and Robe 2001; Rand and Tarp 2002) if aid is volatile, it may contribute to macroeconomic instability, and then be itself a factor of vulnerability. This concern has been reinforced by the prospect of an acceleration of disbursements in order to achieve the Millennium Development Goals (MDGs).

On the other side, the international community has adopted the concept of the ‘predictability of aid’ through the Paris declaration (2005) of aid effectiveness in which donors committed to providing ‘better aid’ for the purpose of MDGs’ attainment. As highlighted by Celasun and Walliser (2008), ‘more predictable aid would improve recipient countries’ ability to plan for aid flows and allow them to more effectively

execute the activities financed with such aid. Low predictability, by contrast, is costly by requiring adjustments to government consumption and investment plans with potential harmful effects on the objective attached to the spending of aid resources.

It is a general consensus among scholars that volatile and unpredictable aid flows impair the effectiveness of foreign aid in promoting the economic and social development of recipient countries. Kharas (2008) estimates the deadweight loss associated with aid volatility to be between 15 and 20 percent of the total value of aid. Kodama (2012) argued that unpredictability "significantly damages aid's growth-enhancing effect." Kodoma (2012) also underscores the point made earlier by Celasun and Walliser (2008) that both aid shortfalls and windfalls tend to undermine macroeconomic management in the recipient countries. Mokoro (2011) concludes from detailed country studies that "the characteristic unpredictability of aid has serious costs at all levels of public finance management and therefore for development results." Bulir and Hamann (2008) argue that it is mainly in poor, aid-dependent recipient countries that volatile aid has adverse macroeconomic effects. However, this claim is disputed by Hudson and Mosley (2008).

The debate seems to be mainly driven by the results from cross-country regression analyses, whilst there have been few studies that adopt specific-country approach to investigate the impact of aid volatility on economic growth. However, aid effectiveness is diverse across countries. Although cross-country empirical analyses have progressively developed and enormously contributed to understanding of aid-growth link, there is a need for country case studies to capture country-specific heterogeneous features. Hence, this study makes a contribution to the less researched country-level literature on aid unpredictability. A very striking feature of aid flows is that they are highly volatile (see Bulir and Hamann, 2006). In particular, for Sub-Saharan Africa, evidence (see Vargas 2005) reported that aid flows are: five times more volatile than GDP of Africa, Seven times more volatile than GDP of OECD countries and Volatility of aid receipts is twice volatility of tax revenue receipts in Africa.

In Ethiopia the government is the main source of the budget deficit. The inadequacy of the domestic economy to expand domestic revenue sources to finance the deficit by itself also

makes inflows of foreign capital an important source to mitigate the challenge. Thus, the presence of these resource gaps in one way or another shows that the domestic economy has not been capable of generating enough finance to close these gaps and make the country's aid dependent.

With respect to country specificity, Ethiopia appears to be an interesting case study. Ethiopia has received significant amount of Official Development Assistance (ODA) since 1993 and has been one of the major ODA recipients in Sub-Saharan Africa countries. There is a general belief that foreign aid programs and projects have made substantial contribution to Ethiopia's success in achieving remarkable economic growth. However, to date, research evidence remains scant and ambiguous.

This paper is intended as a contribution to the literature on the predictability of aid and economic growth. The study will draw attention to the potential importance of a previously neglected factor, namely that aid receipts (and capital inflows more generally) volatility and its impact on growth. As capital inflows are important determinants of investment decisions, their volatility may in turn influences growth.

Similarly, aid is an important component of government revenues therefore volatility of receipts may impact on fiscal behavior that in turn may influence growth. Thus, this study will investigate whether uncertainty associated with (volatility or instability of) the level of aid inflows affects the impact of aid on growth.

1.2. Statement of the Problem

The development aid flows' unpredictability is associated with reductions in government spending and/or increases in taxes (see for example Gemmell and McGillivray, 1998). According to Lensink and Morrissey (2000), aid uncertainty may negatively affect the impact of aid on economic growth. Pallage and Robe (2003) underscore that the lack of predictability due to aid delivered late compared with the original plans could at the same time be a source of pro-cyclicality, with aid flows arriving when the economic downturn is over and reinforcing economic cycles rather than dampening them, imposing costs on economic management and reducing welfare.

Meanwhile, evidence shows that OECD donors do not honor their aid commitments (see for example Bulir and Hamman, 2001, 2003, 2005; Celasun and Walliser, 2008). In addition, external and domestic shocks affecting donors in their host countries (usually developed countries) can lead to a sudden decrease in the remittances sent. In such circumstances, the public finances in developing countries could be severely affected and prompt the interested countries to adopt fiscal consolidation measures.

The finding of Celasun and Walliser (2008) that aid unpredictability is more prevalent in poor countries is therefore not surprising. Vargas (2005) also found that on average for sub-Saharan Africa, the difference between commitments and disbursements was as much as +/- 20 per cent of commitments, and that on average over the period 1975–2002, disbursements were less than commitments by up to 4.9 per cent. OECD (2008) also described that less than 50 percent of committed aid is on average delivered on schedule. If such unpredictability were to restrict growth, the poorer countries' growth would be most affected.

Aid unpredictability in general would hurt the recipient's ability to plan and effectively execute investments financed through such funds. Such occurrence would necessitate a re-organization of the recipient's consumption plans particularly if the activities that were meant to be funded by donor funds cannot be postponed. This may negatively affect growth. Lensink and Morrissey

(2000) made a similar suggestion, that aid uncertainty may affect growth negatively. Studies (Bulǐř and Hamann, 2001, 2003, 2005; Pallage and Robe, 2001; Rand and Tarp, 2002 and Chauvet and Guillaumont, 2008) have examined the issue of aid volatility arguing that it may contribute to macroeconomic instability. According to Kodama (2012), the effect of aid unpredictability on economic growth is significant and results in a waste of one-fifth of the aid.

The volatility of aid may have a significant role to determine the effectiveness of foreign aid on economic growth in the developing countries. Chervin and Wijnbergen (2009) for instance tried to analyzed effectiveness of foreign aid by examining the impact of the volatility of aid on economic growth, controlling the level of aid. Using a four year panel analysis of 155 countries over the period 1996-2001, they found that once the volatility of aid was controlled for, aid had a positive impact on economic growth. Similarly, volatility of aid flows was found to be negatively related to growth.

Dozens of Studies on impact of aid in Ethiopia economic growth shows that aid has come up with conflicting impact on the Economic growth. For instance, Abeba (2002) found that foreign aid has negative contribution on RGDP growth both in short run and long run in Ethiopia. In the long-run and short run on average, a one percentage increase in the aid-to-RGDP ratio leads to a decrease in RGDP growth by about 0.65 % and 0.28% respectively, other variables being constant. In contrast to this, Girma (2015) showed that Foreign aid interacted with policy index has positive coefficient showing that the effectiveness of aid depends on macroeconomic policy.

In similar studies such as Tadesse (2011) also found that aid contributed positively to economic growth in the long run, but its short run effect appeared insignificant. In the contrary, when aid is interacted with policy, the growth impact of aid is negative implying the deleterious impact of bad policies on growth in the long run. Aid squared, unlike the theoretical view, has got a positive sign, pointing the absence of capacity constraint in the flow of aid to Ethiopia. Indeed, this call for a deeper investigation and further research on the absorptive capacity of the country regarding aid flow. The main purpose of this paper is

however, to investigate and examine the inconsistency in findings and solve intellectual puzzles on the literature of effectiveness of aid in Ethiopia.

This raises the question of why impact of aid on economic growth in Ethiopia continues to be with paradoxical findings and relationships. This paper explores this question by analyzing the impact of aid unpredictability on economic growth in Ethiopia. The only literature addressing aid uncertainty in Ethiopia Tadesse's (2011) which included the uncertainty of aid in the economic growth regression. The author found that volatility of aid by creating uncertainty in the flow of aid has a negative influence on domestic capital formation. But methodologically rather than computing aid unpredictability, the author introduced expected aid flow based on autoregressive estimates. This study will add to literature that the aid predictability indicator is introduced rather than proxing aid uncertainty. Therefore, this study will focus on the effects of aid flow uncertainty on economic growth in Ethiopia; as it switches from traditional measures of aid dependency to one feature of its delivery: its unpredictability.

1.3.Objectives of the study

The main objective of this study is to assess the effect of foreign aid predictability on the economic growth in Ethiopia. Specific objective of the study is:

- Empirically determine the effect of external assistance on economic growth in Ethiopia.
- Analyze the impact of aid unpredictability (deviation of aid commitment and disbursement) on economic growth
- Investigate the effect of macroeconomic policy environment on the economic growth.

1.4.Research Question

- What is the impact of the volume of foreign aid on economic growth in Ethiopia?
- What is the impact of aid unpredictability (deviation of aid commitments and disbursements) on economic growth?
- What is the effect of macroeconomic policy environment on the economic growth?

1.5. Hypothesis of the study

- Foreign external assistance has a positive effect on the economic growth in Ethiopia
- Uncertainty of foreign aid (deviation of aid commitments and disbursements) in Ethiopia has a negative effect on economic growth.
- Stable macroeconomic policy environment index could have a positive contribution to economic growth in Ethiopia.

1.6. Significance of the Study

This study has importance in informing public mandate towards foreign aid predictability-economic growth nexus in Ethiopia and give glimpse of ideas on debates surrounding the mixed results from empirical literature on the contribution of foreign aid towards economic growth in Ethiopia.

To Ethiopian government, policy recommendations from this findings thereof are of great importance in as far as on effectiveness of foreign aid in spurring economic growth in the country.

Moreover for researchers with interest on effectiveness of foreign aid, this research will give a connotation in further analyzing the required the institutional and political set up on the operation of government.

1.7. Scope and Limitations of the Study

The study was delimited to the period 1981-2014 mainly due to the data's on variables of aid predictability and other variables in the model are available for this period. The study was also limited in the scope to which the effect of aid flow had been felt at macro level.

1.8. Organization of the Study

This study is organized as follows. Chapter one is an introduction that gives background information about the foreign aid flow and its predictability. Chapter two deals with the literature review and focus on the theoretical and empirical literature. Chapter three focuses on the methodology. The theoretical framework for the study, the estimation procedure and estimation method are also presented. Chapter four presents descriptive analysis on Ethiopian economic growth performance Chapter five provides the study findings, while conclusions and policy implications are presented in chapter six.

CHAPTER TWO

LITERATURE REVIEW

2. Theoretical literature

2.1. Theories of Foreign External Assistance and Economic Growth

External finance is one source for capital formation in developing countries and it can make an important contribution by transferring technology, strengthening institutions, diversifying investment, opening new development opportunities, supporting appropriate policies and helping stabilize political situations in rough period (Nicolas, 1991). Qian (2014) also inferred that foreign aid is one of the most important policy tools that rich countries use for helping poor countries to improve population well-being and facilitate economic and institutional development.

In the early 1950s and 1960s, the economic growth theories were introduce that emphasize precisely capital formation is the major determinant to achieve economic growth in the developing countries, but capital formation was actually missing in LDC's thus capital oriented development model were developed to address the shortage of capital formation in these countries. Among those capital oriented models, the big push theory developed by Paul Rosentein-Rodan in the early 1960's and the Chenery-Strout (1966) two gap model (the saving gap and the foreign exchange gap) become popular and were broadly used as a bases for both administration of foreign aid programs in the country level and estimation of global aid requirement.

In the 1960, Rostow explained the transition of development from underdevelopment to development through his stage theory. The stage consists of: traditional society, pre-condition for takeoff, self-sustaining growth, the takeoff, drive to maturity and high mass consumption. Rostowsuggested that domestic savings during the takeoff period (i.e. a rise in productive

investment and the development of manufacturing sector with a high rate of growth) could be supplemented by imported capital (which through external assistance) so as to increase the level of investment required to increase the growth rate.

The big push theory of Rosen-Rodan (1961), similarly examined the backwardness and under development was caused by insufficient investment across sectors of the economy and infrastructure. Hence, the authors argued that developing countries, especially poor countries were trapped in the vicious circles of poverty as their growth was constrained by low savings and lack of foreign exchange. The theory was used to determine the financing requirements gap that must be removed in order to achieve the minimum required economic growth rate. Therefore, aid in the big push theory was considered as a temporary assistance to encourage certain long term behavior such as tax collection, investment in physical and human capital, increasing savings and the establishment of good institution (cited in Aime 2010).

The other theory that was used to explain the crucial role of external assistance for several years was the “two gap” model of Chenery and Strout (1966). According to the authors, in the underdeveloped countries, country’s progress toward the goal of self -sustaining growth at a given target rates could be constrained during different periods by (a) the skill constraint; (b) the savings constraint or the saving gap; (c) the foreign exchange constraint or the trade gap. They argued that foreign aid could play a vital role to avoid these constraints and this assistance which used as a supplementary to the available resources and alleviates both saving and foreign exchange constraints in the developing countries and increases growth through increasing the rate of investment and the level of income in the economy (Mikesell et.al, 1982).

In the Chenery-Strout two gap model, the capital output ratio was fixed, but they recognized that it would be changed over time with increased in productivity. Similar to the Harro-Domar growth, the two gap model was also capital oriented, they described physical capital formation as a driving force for economic growth and the level of required investment in capital goods was derived from a targeted growth.

The two gap model stated that in many developing countries investment could increase more rapidly than saving or the ability to increase investment exceeds the initial ability to raise savings (which is the saving gap). The inadequate savings create the gap that results into low level of capital formation, which in turn leads to low level of domestic investment. Usually, investment creates job opportunities and increase income to the country there by promoting the growth of overall economy. A saving gap therefore happens, when the domestic savings alone become insufficient to finance the required investment to attain a targeted growth rate (Rosenstein and Rodan, 1961). In the Chenery-Strout two gap model, the difference between investment and saving expected to be filled by the foreign assistance.

The trade or foreign exchange gap of Chenery-Strout two gap model arises largely from the limited flexibility in the productive structure of less developed countries. The model assumed that the imported commodity was essential for the production of investment goods. Most of the developing countries export depend on primary products, for which income and price elasticity are generally low; based on this fact exports alone are not sufficient to cover the required imported goods for a given level production and thus, the trade would undermine productive investment due to limited import capacity of capital goods needed for investment. On the other study, Hjertholm et al (1998) suggested that foreign aid or external capital inflow was the source of foreign exchange, which can be used to fill the gap between export earnings and import required and expand the capacity to import.

However, this Chenery-Strout two gap model has been widely criticized; one of the criticism of the model is that due to its assumption of the relationship between output and international trade towards foreign exchange constraint implication and dominant role given to capital in the growth process; the assumption of the model that capital inflow constitutes a net addition to domestic capital investment. A net inflow of resources might not necessarily increase the level domestic investment at equal amount to the additional external capital assistance, resources are fungible and aid for a particular project may simply take the place of domestic capital, with the result that aid simply increases domestic consumption rather than increase the level of domestic investment (Mikesell et.al, 1982)

The other criticism cited by Mikesell et.al (1982) was that the saving function employed in the Chenery-Strout two gap model, which was essentially the Keynesian savings hypothesis based on the existence of a marginal propensity to save (i.e. MPS), has been rejected by a number of economists in favor of other types of saving functions such as the Friedman permanent income hypothesis, or the Modigliani life cycle hypothesis. Also statistical studies do not bear out the assumption that the average saving rate increases with the growth in per capita income.

In the 1990, Bacha extended the two gap model in to "Three Gap Model'' by introducing the fiscal constraint as a third gap that create a limitation on the growth prospects of highly indebted developing countries. The fiscal constraint is intended to reflect the impact of the availability of resources to finance the public investment required to support a given level of potential output. According to Hjertholm et al (1998), In the Chenery-Strout two-gap model import taken as aiding capital accumulation, whereas the three-gap model reflect the fact that output may be constrained by low capacity utilization due to lack of spares and intermediate goods rather than lack of investments.

Hjertholm et al (1998) relates fiscal gap to capacity utilization. In the literature, capacity utilization, i.e. the extent to which new and existing productive capacities (the legacy of past investments) are utilized, has been found to be of major importance for growth in developing countries. Government efforts to increase capacity utilization are thus important, and involve spending on infrastructure, education, and health services etc. Curbing these efforts to increase capacity utilization can occur when government resources for investment and imports are insufficient, as a result of large public debt service; indeed, evidence is available suggesting that government expenditure in the sub-Saharan African region has been curtailed by foreign debt service (e.g. Fielding 1997, Gallagher 1994 and Sahn 1992, 1990). The closing of this fiscal gap could thus be facilitated by external resources directed to the government budget.

2.2. Theories on the Unpredictability of Aid and Economic Growth

Theoretical literatures on aid placed importance of aid as component of government revenue and stimulating economic growth by supplementing domestic sources of finance such as savings, thus increasing the amount of investment and capital stock. But the volatility (unpredictability) of aid may have different feature on determining the success of foreign aid in improving the growth rates of recipient economies. Gemmell and McGillivray (1998) revealed that unpredicted shortfalls in aid tended to lead to decrease in government expenditure and increases tax rates.

The variation of the supplied amount of aid by donor countries arises due to the difference between commitment and actual disbursement of aid. In least developing countries equivalent to the volume of aid, uncertainty of aid is an important issue to understand its effect on recipient's economic growth, the donors also principally accepted that predictability in aid relationships is important. They illustrated; Paris Declaration of 2005, donors committed "to provide reliable indicative commitments of aid over a multi-year framework and disburse aid in a timely and predictable fashion according to agreed schedules" (cited in Bacarreza et.al, 2014).

The subsequent Accra Agenda for Action in 2008 strengthened this commitment: "Beginning now, donors will provide developing countries with regular and timely information on their rolling three- to five-year forward expenditure and/or implementation plans, with at least indicative resource allocations that developing countries can integrate in their medium-term planning and macroeconomic frameworks". However aid flows continue to be unpredictable from the perspective of various recipient countries (cited in Bacarreza et.al, 2014).

The richer recipient countries have better chances to keep deviations in check, while mainly poor countries, which also tend to be more dependent on aid, are likely to suffer from less predictable aid. Even if the effect of aid differs across aid recipient countries, the lack of aid predictability can have adverse consequences in aid dependent countries. One of the main consequences of aid

unpredictability is that it makes fiscal planning and implementation of recipient countries of development agenda extremely difficult, since aid commitment has shorter terms than governments' development planning; aid unpredictability also makes the ownership of development programs by recipients much more difficult since they are relying on funds that are uncertain (Kangoye, 2014).

The lack of predictability of aid may increase the likelihood of fiscal and monetary instability (Bulir and Lane, 2002). Uncertainty of aid inflows could have an adverse effect on the level of investment (especially public investment), constrained policy (i.e. aid short fall could increase the budget deficit) and thus on growth (Lensink and Morrissey, 2000). According to the Authors, aid is an important component of revenue and therefore uncertainty could have adverse effect on fiscal policy.

Celasun and Walliser (2008) assessed government investment behavior in response to an unpredictable of aid by two scenarios (i.e. change in a budget aidand non-budget aid). Budget aid is aid that supports the recipient government's budget. This aid does not specify its purpose. In other words, the recipient government can use the aid for any purpose. Celasun and Walliser noted that the government investment's responses to unpredictable changes in budget aid differ between an unpredictable aid increase (aid-windfall) case and an unpredictable aid decrease (aid-shortfall) case. Even if an aid amount increases unpredictably, it is difficult to increase government investments. A plan is necessary for the government to increase its investment, and time is required to make such a plan.

In contrast, if aid decreases unpredictably, investment reduces significantly. A government does not execute an investment plan funded by budget aid until the aid is received. If the aid is not disbursed, the investment is simply not executed. As a result, in the budget-aid-windfall case, the government investment does not increase, and in the budgetaid- shortfall case, it reduces considerably.

In the non-budget case, the aid's intended purpose is specified by the donor. However, considering so-called "fungibility" of aid, the specification of aid's intended purpose becomes

less strict. When aid is fungible, the roles of non-budget aid become rather similar to those of budget aid(Kodam, 2012). The aid fungibility paradigm explains that aid delivered for a project that the recipient government would have undertaken anyway could end up financing some expenditure other than the intended project (Devarajan et.al, 1999).

2.2. Empirical Literature

2.2.1Empirical Literature on the Foreign Aid and Economic Growth

For the last 60 years various empirical studies was conducted to investigate the relation between aid and growth by using different data, model, time period and method of analysis. However, they came up on different conclusion; some studies concluded that aid has a positive effect on growth; others argue that aid has a negative impact; the rest provided that aid has a positive effect under some conditions such as macroeconomic environment and institutional quality of the recipient countries.

Rajan and Subramanian (2011) cited in their studies, the external assistance flows to less developed countries has either positive or negative outcomes to the economic growth. The authors depicted that foreign aid may relieve credit constraints faced by the government and allow it to invest in the development of public infrastructure and human capital, which can in turn increase growth or inflows of foreign aid may have unintended consequences such as triggering the Dutch Disease, where the increase in aid increases the exchange rate, which increases the price of exports and thus reduces the competitiveness of the manufacturing sector.

Various literatures empirically analyzed that foreign assistance have an important role by stimulating the recipient economy to supplement domestic sources of finance such as savings, thus increasing the amount of investment and capital. Morrissey (2001) noted in his study, aid had a contribution to economic growth, by increases investment in physical and human capital, and increases the capacity to import capital goods or technology. The Author argued that foreign aid did not hurt investment or saving rates, rather by transferring technology aid increases the productivity of capital and promotes endogenous technical change. Subhay et al. (2013) also analyzed that foreign aid increase economic growth through the channels of: (i) foreign aid is

complement to domestic savings and increase domestic investment and (ii) foreign aid assists to close the foreign exchange gap, provides access to modern technology and managerial skills, and allows easier access to foreign market.

Hansen and Trap (2000) assessed empirical cross country analysis on aid effectiveness by classified previous studies in to three generations. According to them, the first generations were focused on aid and saving relationship, while the second generations explore the link between aid and economic growth via investment and the third generation literatures studies on the effectiveness of aid. They testified that the first and the second generation studies concluded that aid does tend to increase both total saving and investment respectively, but not as much as the aid flow, because of some proportion of aid would be consumed. The Authors denoted that aid improves economic capabilities, thus with no micro- or macro contradiction even in recipient countries with destructive policy conditions. In their conclusion, aid increases both investments and aggregated savings therefore there is a positive correlation between aid and growth. All three generations signify a positive link between aid and growth.

Gomanee et.al, (2005) examined the relationship between foreign aid and economic growth by taking a sample of 25 Sub-Saharan African countries over the period 1970-1997 and they concluded that foreign aid had a significant positive contribution on economic growth. In the recent study, Raheem and Ogebe (2014) using a panel data for the period 1981-2011; analyzed the interaction between foreign aid, policies and economic growth for Sub Saharan countries. They applied a Generalized Method of Moments technique for their analysis and they similarly found that foreign aid had a positive and significant effect on economic growth; in contrast the interaction between foreign aid and policy index had a negative impact to growth and they concluded that foreign aid to be effective, macro policies should be properly formulated and implemented.

In 2006, Karras examined the correlation between foreign aid and growth in per capita GDP using annual data from 1960 to 1997 for a sample of 71 aid-receiving developing countries and the study concluded that the effect of foreign aid on economic growth was positive, permanent, and statistically significant; the Author further found that an increase in foreign aid by $20 per person leads to an increase in the growth rate of real GDP per capita by 0.16 percent.

By conducting panel cointegration analysis method, Hatami and Irandoust (2005), investigated aid-growth relationship of Swedish foreign assistant for the developing countries (Botswana, Ethiopia, India, Kenya, Sri-Lanka, and Tanzania) over the period 1974-1996. The Authors concluded that the Swedish foreign aid had a positive and significant impact on economic activity for all countries in the sample. Zahara (2014) recently studied the relationship between foreign aid and economic growth for Sub Saharan countries by using cross section regression analysis from the year 2000-2012. The study suggested that different forms of aid were created different outcomes: i.e. short and medium term aid stimulated the country's economy while long term aid such as infrastructure and education should create growth for the recipient economy.

Another strand of literatures argued that external capital assistance creates a significant negative impact on the economic growth for the recipient countries. Aid inflow to the recipient economy may have a detrimental effect through: (i) aid transfer to the government may induce politicians to engage in its misappropriation; and (ii) large inflows can result in overvaluation of exchange rate of a recipient country, which may render its exports less competitive in the world market (Subhayu et.al, 2013). Boone (1996) argued that neither human development nor investments increases significantly with aid, although he denoted that government size increases, growth in government size results in government spending which in turn requires government revenues.

Foreign assistance has neither accelerated growth nor helped to foster democratic political regimes. According to Griffen and Enos (1970), aid might have retarded development by leading to lower domestic savings, by distorting the composition of investment and thereby raising the capital-output ratio, by frustrating the emergence of an indigenous entrepreneurial class, and by inhibiting institutional reforms. Similarly Boone (1995) discovered that in the 1970s and 1980s, aid intensive African countries experienced no economic growth though foreign aid as measured by share of GDP was actually increasing

Rajan and Subramanian (2005) concluded that aid inflow had a systematic adverse effect on the relative growth of labor intensive, exports and average growth rate of manufacturing sectors, through the channel of exchange rate overvaluation which is induced by aid. In their conclusion,

the Authors identified that foreign aid in the long run might weaken institutions and adversely affect a country's competiveness. High level of aid had the potential to erode institutional quality, increase rent-seeking and corruption, thus affect economic growth negatively (Knack, 2000; cited in Ojiambo, 2009). Djankov et al (2008) on the other hand studied Official Developmental Assistance from OECD countries using a panel of 108 countries during 1960-1999 and institutional quality data from the Polity IV data base. They found that foreign aid reduces democracy for recipient countries.

In 2011, Rajan and Subramanian exploited cross-country and cross-industry variation for a panel of 32 countries during the 1980s and 1990s that receive foreign aid greater than one percent of the recipient's GDP. This study found that aid inflows reduce the relative growth rate of export industries and provides some evidence that the main mechanism is real exchange rate appreciation caused by aid inflows.

Subhayu et.al, 2013, examined the effects of ODA grants, concessional ODA loans and private offshore bank loans on growth rate of 131 developing countries over the period 1996 to 2010. The Authors found that the growth-grant relationship had an inverted U shaped, which indicated as strong diminishing return. On the other hand, the relationship between loans and growth had U shaped, suggested that loans have increasing returns and the offshore bank loans were a market determined variable, and the substitubility of this loans by/for aid did not have a direct relevancy for policy purpose. Djankov et.al, 2006, suggested that by increasing the responsibility of recipient countries (by providing loans instead of grants in a credible policy environment), reducing the cost of remittances to developing countries, and improving the coordination of donors able to improve the effectiveness of foreign aid.

By applying Generalized Method of Moments estimation technique, Ogudipe et.al (2014) examined the relationship between foreign aid and economic growth in Sub Sahara Africa for the period 1996-2010 covering 40 countries. According to their result, foreign aid did not significantly influenced GDP per capital, but after controlled the role macroeconomic environment in the model the aid growth relation become changed.

The rest studies examined, foreign aid has positive effect on the recipient countries economy depend on certain conditions such as macroeconomic environment, political stability, and level of corruptions. According to Chauvet, and Guillaumont (2004), effectiveness of aid depends on policy, structural economic vulnerability and political instability. For instance; as indicated in Zahara (2014) study, due to a high level of corruption in Sub Saharan region aid does not have a significant effect on economic growth.

Burnside and Dollar (1997) by employing 2SLS estimation technique for a panel data of 56 countries over a period of 1970-1993; examined the relationship between foreign aid, economic policies and growth per capital GDP. The Authors found that foreign aid had a positive effect on growth in developing countries with good economic policies, which they measured as a function of the budget surplus, inflation and trade openness. They suggested that aid would be more effective if it were more systematically conditioned on good policy. Whitaker (2006) similarly concluded that aid and economic growth has a positive relationship especially in countries that have better macroeconomic policies. In his finding, the Author additionally cited factors like conflict and geography negatively influenced effectiveness of aid.

Using augmented Fisher-Easterly type model and conducting both cross-section and panel data techniques for the sample of 68 developing countries over the period 1970-1993, Durbarry et.al (1998) studied aid-growth relationship. According to the Authors, the positive effect of foreign aid on economic growth conditional on macroeconomic policy environment. Additionally, they found that factors like income level, level of aid allocation and geographical location determines aid-growth relations. In contrary, Ram (2004) argued that foreign aid to the countries with better policies did not lead to higher economic growth and poverty reduction. As a result, based on his study, Ram concluded that evidence is lacking to support the leading belief that foreign assistance to countries with good 'policy' will increase the impact on growth or poverty reduction in developing countries.

In 2004, Burnside and Dollar reassessed the relationship between aid and growth using a new data set focusing on the 1990. They concluded that the impact of aid depends on the quality of state institution and macroeconomic policies, which implied that the interaction of aid and institutional quality has a robust positive relationship with growth. On the other study, Cordella and Dell'Ariccia (2003) argued that the relationship between aid, policies, and growth depends on whether the aid is delivered in budget support or project financing. The Authors found that no effect of aid by itself or coupled with policies. However, they explain this result as the effect of pooling together aid delivered in form of budget support and project financing. When the product of aid by policy is broken into two different variables (budget support by policies and project aid by policies), they found statistically significant results.

Some studies argued that foreign aid has a mixed effect on economic growth to developing countries. Ekanayke and Chartner (2007) analyzed the effect of foreign aid on economic growth and the differences in income levels using panel data series for 85 developing countries covering Asia, Africa, Latin America and Caribbean countries as over 1980-2007. In order to show clearly the aid-growth relationship, the model was estimated for different time period, regions and income levels. When the model was estimated for different time period and different regions, foreign aid had an adverse effect on economic growth. But exceptionally for Africa region, foreign aid has a positive effect on the economic growth. When the model was estimated for different income levels, foreign aid had a positive effect on economic growth in developing countries. However, this variable is negative for low-middle income countries indicating that foreign aid had a negative effect on economic growth in these countries. Generally, the study indicated that foreign aid had a mixed effect on the economic growth in developing countries.

In the cross country case, Lloyd et al. (2001) investigated the effectiveness of foreign aid for the case of Ghana. The study found that aid contributes to long-run growth in private consumption and that policy reform enhanced the effectiveness of aid. On the other study, Boakye's (2008) also assessed the long and short-run relationships between foreign aid and economic growth in Ghana by applying Autoregressive Distributed lag (ARDL) approach for the period 1970 to 2005. The Author come up with a different result to Lloyd et al. (2001), which was foreign aid had significantly negative impact to economic growth in Ghana.

By conducting Vector Auto regression (VAR) model, M'Amanja and Morrissey (2005) examined the effect of foreign aid on investment and economic growth in Kenya over the period 1964-2002. In their findings the Authors concluded that aid in the form of net external loans had a significant negative impact on long-run growth in the Kenyan economy. Feeny (2005) investigated the impact of foreign aid on economic growth in Papua New Guinea using time-series data for the period 1965 to 1999. Using ARDL estimation method, the Author concluded that foreign aid become more effective during periods when the country adopt a Structural Adjustment Program (SAP).

Using Johansen cointegration technique Bhattaraia (2009) examined the effectiveness of foreign aid in Nepal for the period 1970-2002. The result showed that aid had a positive and significant relationship between per capita real GDP, savings and investment in the long-run. Additionally the Author found that effectiveness of aid improved in a good macro policy environment. However, the author found that in the short run foreign aid contributed negatively to economic growth due to lack of absorptive capacity and a high volatility of the inflow of aid. In 2013, Mitra studied the long run effect of foreign aid on economic growth of Cambodia for the period 1971-2009. Using VECM estimation technique, the Author found that foreign aid has a significant and positive contribution to economic growth in Cambodia.

Fasanya and Onakoya (2012) analyzed the impact of foreign aid on economic growth in Nigeria during the period of 1970-2010 by using neo-classical growth model. In their finding, the Authors concluded that foreign aid had a significant positive impact on economic growth in Nigeria. Similar, Trinh (2014) investigated the relationship between foreign aid and economic growth to Vietnam for the period 1993-2012 by conducting Autoregressive Distributed Lagged (ARDL) approach. The empirical result of the study indicated that foreign aid had a significant positive role in promoting economic growth in Vietnam.

In the recent study, Refaei and Sameti (2015) studied the relationship between foreign aid and economic growth in Iran over the period 1980-2012 by adopting Fully Modified Ordinary Least square, Canonical Cointegration Regression and Dynamic Ordinary Least square estimation

techniques. According to the Authors, in the long run foreign aid has a positive and significant effect on economic growth and as compare to domestic resources and other capital inflows, foreign aid become more productive.

2.2.2. Empirical literature on the Unpredictability of aid and Economic growth

Lensink and Morrissey (2000) studied the effect of aid uncertainty on the relationship between aid and growth of 75 developing countries over the period 1970-1995 by using cross country growth regression approach; the Authors found that aid uncertainty had a consistent and significant effect on growth. Further, they suggested that when the uncertainty of aid controlled, foreign aid had a positive and robust effect on economic growth via the level of investment.Djankov et.al (2005b) similarly concluded that the effectiveness of foreign aid conditional on the level of fragmentation of the donors the country is facing.

In the year 2000, Gabriele et al tried to examine the evolution and volatility of different component of foreign aid flow to developing countries. According to the authors, over the period 1990-1998 as compared to the earlier periods the volatility of external capital inflow has increased significantly. Additionally, the Authors argued that the increasing volatility of capital inflows may lead to macroeconomic instability and contribute to financial crises.

Similarly Pallage and Robe (2001) depicted that aid flows were highly volatile over time and about two times more volatile than the recipients output. They suggested that as compared to bilateral aid flows, multilateral aid flows were more volatile. They further concluded that aid flows were a main source of income and foreign capital for African recipients (on average, 12.5 percent of domestic output) and aid commitments were typically larger than disbursements: about 2 percent of GDP higher for African countries, and 1 percent outside Africa.

The volatility and uncertainty of aid flow was also studied by Bulǐř and Hamann (2003) by taking the dataset of 72 countries for the period 1975-1997. According to the Authors, as compared to domestic revenue, foreign aid was highly volatile and unpredictable for aid dependent countries. The Authors suggested that shortfalls in aid tend to coincide with shortfalls

in domestic revenue and countries that suffered from revenue volatility also exhibit higher volatility in aid receipts, perhaps because both revenue and aid fluctuations are driven by domestic policy instability. Fielding and Mavrotas (2005) on the other hand, analyzed the issue of volatility aid in disaggregated form; and they found that programme aid tends to be more volatile than project assistance.

In 2008, Bulir and Hamann reassessed the volatility of aid flows and domestic revenues to the developing countries. The Authors found that volatility of aid creates macroeconomic instability in the aid dependent countries; and they also concluded that in these aid dependent countries, actual loan delivery fell short of promises by more than 40 percent. Consistently, Djankov et.al (2006) also argued that the higher is the level of fragmentation of the external assistance, the lower is the positive impact of aid on economic performance. By disaggregating foreign aid in to direct productive and pure aid, Neanidis and Varvarigos (2009) found that the negative impact of foreign aid emanates only when foreign aid become volatile.

According Hudson and Mosely (2008a), the impact of aid on economic growth was depending on the types of aid and the trust between donor and recipient relationships. The Authors concluded that reductions in the degree of donor oligopoly reduced the volatility of the actual disbursement of aid to recipient countries. On the other study, Hudson and Mosely (2008b) examined the macroeconomic impact of aid volatility; the Authors found that positive volatility reduced import shares whilst negative volatility increases consumer's expenditure shares.

To deal with the effectiveness of foreign aid, Celasun and Walliser (2008) examined the predictability and volatility of foreign aid. The Authors showed that the predictability of budget aid is strikingly low', with budget aid disbursements deviating by about one percent of GDP from projections, representing about 30 percent of budget aid promised on average. Additionally the Authors demonstrated that the lack of predictability often entails managing both aid shortfalls and windfalls (i.e. disbursements exceeding and falling short of promises), while making aid management a difficult task even in countries with stable implementation of macroeconomic policies.

Using a four-year panel data for 155 countries over the period 1966-2001, Chervin and Wijinbergen (2009) studied the impact of volatility of aid on economic growth. The Authors found that when the volatility of aid was controlled, aid had a positive impact on economic growth; but volatility of aid flows was negatively related to growth. The Authors also found that investment and foreign aid had no significant interaction, but aid had a positive correlation with consumption but aid volatility had a negative relationship with consumption.

Bhavan et.al (2010) empirically investigated the growth effect associated with aid and its volatility for five South Asia countries during the period 1995-2008 by employed two stages least square (2SLS) method. The authors concluded that both aid and volatility of aid had strong effect on economic growth and they suggested that gross aid was positively associated with growth rate where as its volatility had a negative impact on growth rate South Asian countries. In the other study,Agenor and Aizenman (2010) studied the links in chain of aid volatility, factor of production (focusing on labor) and economic growth, they tried to show whether aid volatility has an impact on the recipient's economic growth through its influence on labor. Based on their finding, aid volatility prevents economic agents from working in the industrialized sector. As a result, they argue that through the chain of aid volatility, labor and economic growth; a high level of aid volatility harms economic growth.

2.3.Studies on the effectiveness of aid on the Ethiopian economy

Like other Sub Saharan African countries, Ethiopia depends on foreign aid and this external assistance play an important role to its economy. There are several studies that attempted to assess the effectiveness foreign aid in Ethiopia. Dawit and Yemiserach (2001) examined the relationship between foreign aid and economic growth for the period 1970-1999. Theyconcluded that aid had a negative contribution to the economic growth, but this aid flow enhanced imports through its contribution to capital formation and the acquisition of important inputs, respectively.

Tolessa (2001) examined the role of aid in the Ethiopian economy for the period 1964/65-1998/1999 by conducting Johansen maximum likelihood estimation techniques. The Author desegregated foreign aid into grants and loans by assuming that the two components have different impact. The investment equation in the study revealed long term positive and significant impact of foreign loan on investment while this is not the case for foreign grant. The study has also shown that domestic savings and foreign loans have positive and significant influence on economic growth over a long period of time whereas the impact of foreign grant appeared to be significantly negative. Finally the Author recommended that the government should encourage domestic saving instead of foreign aid.

In the year 2000, Haile and Alemayehuanalyzed the relationship between savings, foreign aid and economic growth for the period 1967-1997. The researchers found that foreign aids have insignificant negative impact on economic growth. In 2011, Alemayehu also found that aid not only fails to have significant positive impact on major macro variables such as saving and growth but also could bring about negative macroeconomic effects.

Wondwosen (2003) assessed the relationship between aid, policies and economic growth in Ethiopia for the period 1962/63 to 2001/02. He found that aid has a significant positive contribution to investment, whereas uncertainty of aid flow, as a result of aid volatility, significantly and negatively affected the capital formation activity. But the effect of foreign aid on economic growth appeared to be negative but insignificant; aid interacted policy term on the other hand, produced significantly positive result.

By applying Johansson maximum likelihood approach over the period of 1970/1-2008/09, Yohannes (2011) has examined the impact of foreign aid on economic growth and the Transmission mechanisms (i.e. investment, import and government consumption expenditure) of Ethiopia. According to him, the long run foreign aid has a positive and significant impact on growth through its significant contribution to investment and import. However, the dynamic short runs model points out that aid to have a significant impact on growth it has to be assisted by good macroeconomic policy environment.

According to the researcher, in the short run aid had a significant impact on government consumption expenditure and the study confirmed the existence of aid fungibility and debt overhanging problem. Finally the Author suggested that Aid enhanced growth by financing the three gaps, however to mitigate the problems with aid fungibility and debt overhang, foreign aid has to be linked to a good policy framework. Contrary to Yohannes, Alemayehu and Kibrom (2011) argued that the inflow of foreign aid was not effective in Ethiopian economy, instead it brought a negative macroeconomic impact through Dutch Disease and undesirable government fiscal response.

A recent study by Ejigu (2015) similarly examined the impact of foreign aid on economic growth in Ethiopia over the period 1980/01 to 2013/14 by conducting multivariate co integration analysis. The empirical result concluded that aid has a significant positive impact on the economic growth and the result also indicated that the positive and significant contribution of aid on investment in the long run. In other words the study proven the theoretical view of the gap models that Aid can enhance growth by financing the saving gap. Finally the study indicated that the country has no problem of capacity constraint as to the flow of foreign aid.

Table 2.1, Summary of empirical literatures on the relationship between foreign aid and economic growth: the case of Ethiopia

N0.	Author	Title	Model used for the study	Estimation technique used for the analysis	Finding of the study
1	Tolessa (2001)	The impact of foreign aid on domestic saving, investment and economic growth in Ethiopia	Endogenous growth model	Johansen maximum likelihood estimation techniques	Foreign grant has a negative and significant impact on growth of output but foreign loans have a positive and significant impact
2	Dawit and Yemiserach (2001)	The Impact of Foreign Financing on Economic Performance in Ethiopia	Neoclassical production function		Foreign aid ha negative contribution to economic growth.
3	Wondowsen (2003)	An empirical investigation of an Aid-Growth relationship in Ethiopia	Endogenous growth model	Johansen Maximum Likelihood Procedure	Foreign has a negative and insignificant contribution to economic growth. But Aid interacted policy term has positive and significant.
4	Yohannes (2011)	The impact of foreign aid on economic growth in Ethiopia accounting for transmission mechanim	Harodomar growth model	Johansen maximum likelihood approach	In the long run Foreign aid has a positive and significant impact on growth through its significant contribution to investment and import. However in the short run the role of foreign aid to economic growth was insignificant.
5	Tadesse (2011)	Foreign aid and economic growth in Ethiopia		Multivariate co integrated VAR approach	Foreign aid contributed positively to economic growth in the long run, but its short run effect appeared insignificant. Aid is interacted with

					policy, the growth impact of aid is negative.
6	Bitew (2014)	Foreign aid and Economic growth in Ethiopia	Neoclassical production function	Johansen coentigration estimation technique	In the long run foreign aid has a positive contribution to economic growth, while in the short run aid has a negative impact
7	Girma (2015)	The impact of foreign aid on economic growth: Empirical evidence from Ethiopia	Solow growth model	Auto regressive distributed lag (ARDL) approach	Both in the short and long run aid has a negative impact on economic growth. But aid interaction policy variable has a positive effect to economic growth.
8	Ejigu (2015)	The Impact of Foreign Aid on Economic Growth of Ethiopia (Through Transmission Channels)	Harodomar growth model	multivariate co integrated VAR approach	Foreign aid has a significant positive impact on growth in the long run, but in the short run its effect become insignificant.

The above table presents the empirical literature that contribute to study of foreign aid on economic growth in Ethiopia by different researchers; as the above table shows different studies come up with different result on the relationship between foreign aid and economic growth. As it is indicated from the table, many of the studies employed Johansen contigration estimation techniques for their analysis.

Moreover, to determine the effectiveness of foreign aid, some of the studies concluded that the effectiveness of foreign aid depends on the macroeconomic policy environment of the country; but none of them, except Tadesse (2011) did not mention the issue of predictability of aid to assess the effectiveness of foreign aid. Therefore, this study by taking a lesson from the previous findings about the effectiveness of foreign aid and contributed towards the impact of aid predictability on economic growth in Ethiopia in addition to the macroeconomic policy environment.

CHAPTER THREE

METHODOLOGY

3.1Theoretical Framework

To examine the effect of Predictability of aid on the economic growth, this empirical work start with specifying the theoretical framework of exogenous growth model which was developed by Robert Solow and T.W. Swan (1956). The Solow growth model was originally developed to describe how growth in the capital stock, growth in the labor force, and advances in technology interact in an economy, and how they affect a nation's total output of goods and services (Mankiw, 2001). The production function takes in the form of:

$$\boldsymbol{Y(t) = F[A(t), K(t), L(t)]} \quad \textbf{(1)}$$

Where $\boldsymbol{Y(t)}$ is Gross Domestic Product at time $\boldsymbol{t}$

$\boldsymbol{K(t)}$ is Physical capital stock at time $\boldsymbol{t}$

$\boldsymbol{L(t)}$ is labor force and

$\boldsymbol{A(t)}$ is Technology at time t $\boldsymbol{t}$

From discussion in the Solow growth model, physical capital stock is a key determinant of the economy's output, through which it changed overtime and those changes can lead to economic growth. Among different factors that influence to raise capital stock in the country's economy was investment i.e. both private and public investment (Mankiw, 2001). In recognition of this fact, private and public investment has an impact of increasing physical capital stock in an economy which has positive contribution to growth. Financing of public investment is from government revenue such as from tax, foreign aid or loan from external source.

Studies of aid-growth regressions usually exclude public investment from their models by assuming that aid is intended to affect growth via its effect on investment. However, in the economy not all public investments are financed solely through aid and not all aid is intended for investment, thus caution arises in treating the public investment variable in the estimation of aid-growth equations (Ojambo, 2009).

As stated in different studies, including both aid and investment variables as regressors introduces a problem of double counting, since some part of investment will be funded by aid. In this regard, there have been possibilities of including the aid variable and omitting the investment variable, but this has the potentiality of resulting in model misspecification and a biased coefficient on the variable (Feeny, 2005). Gomanee et.al (2005) also argued that omitted investment in the growth model will cause the problem of omitted variable bias because any effect of investment on growth is attributed to the other variables (especially aid).

To overcome the above problemsGomanee et.al (2005) introduced the technique of generated regressors (the mechanism of residual generated regressor) to assess the effect of non-aid financed investment in the growth model by separating from aid financed investment. On the other hand, Ojiambo (2009) proposed to address the problem of multicollinarity, public investment is omitted from the growth equation and instead the tax and foreign debt variables are found to be better substitutes as they formed major ways in which public investment was funded.

In this study as last time aid (i.e. concessional loan is included as ODA) will be a current period debt that create a highly correlation between aid and debt with one period lag; and has come up with the problem of functional misspecification in the estimated equation. So that in order to overcome this issue, the variable of foreign debt is not include in the model.

Thus, the growth functional specification of equation becomes:

$$\boldsymbol{Y(t) = F[Pinv\ (t),\ Tax\ (t), Aid\ (t),\ L(t)]} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{(2)}$$

Where $\boldsymbol{Aid\ (t)}$ is the foreign external assistance at time $\boldsymbol{t}$ as a share of GDP,

$\boldsymbol{Tax\ (t)}$ is the total tax revenue at time $\boldsymbol{t}$ as a share of GDP,

$\boldsymbol{Pinv\ (t)}$ is private investment at time $\boldsymbol{t}$ as a share of GDP

The other important variable in determining the effectiveness of aid on the economic growth is macroeconomic stability. In order to capture the effect of macroeconomic stability in the model, the level of inflation, trade openness and government spending are good macroeconomic variables that can give a clear picture of the macroeconomic stability indicator.Burnside and Dollar (1997) discussed in their study, economic growth depends on foreign aid, investment and macroeconomic policy environment. Thus, inflation, final government consumption as a percentage of GDP and degree of openness is considered as three proxy variables for macroeconomic policy environment.

Inflation plays an important role in the economy of the country. High and variable inflation causes many distortions in the economy through discouraging savings, causes nominal interest rates to rise and this may affect demand for credit, thus affecting investment and economic growth negatively and it also erodes the value of financial assets. According to Burnside and Dollar (1997, 2000), high inflation rates are an indication of macroeconomic instability, which is not good for foreign aid effectiveness. Thus, inflation is considered a monetary policy measure in the aid-growth debate (Fischer, 1993; Burnside and Dollar, 1997, 2000). It would be assumed, therefore, that foreign aid flows would be predictable under situations of stable macroeconomic policy environment (Ojiambo, 2009).

Foreign trade is also another variable that influences economic growth, on the other hand, increases competitiveness and provides access to enlarged markets (Balassa, 1978; Feder, 1982). Trade openness has been used as a trade policy variable in the role of macroeconomic policy environment in the aid growth relation (Burnside and Dollar, 1997, 2000; Feeny, 2005). An increased in the trade openness would enhance the trade relations between the recipient and donor country. It would be assumed that in such case, foreign aid flow would be predictable, arising from the increased trade flows between the countries.

The other macroeconomic variable is government spending. To capture the fiscal policy in the model, Burnside and Dollar (1997) argued that budget deficit was also another good proxy. Budget deficit increases in final government consumption expenditure beyond the revenue generating capacity of the economy. In this regard, it is expected that foreign aid would play an important role in filling the financing gap arising from budget deficit. The study uses the final government consumption expenditure as a proxy for fiscal policy (Ojiambo, 2009).

Therefore fiscal policy was proxied by government final consumption expenditure (Easterly and Rebelo, 1993), while monetary policy was proxied by inflation (Burnside and Dollar, 1997, 2000). Trade policy was proxied by trade openness measure, which is (imports + exports)/GDP (Burnside and Dollar, 1997; Feeny, 2005).

The macroeconomic policy variable was first time indexed by Burnside and Dollar (1997), including inflation, trade openness and budget deficit included. The macro policy environment index (policy index) will be constructed for the study as,

$$\boldsymbol{Policy\ Index = \alpha_1 INF + \alpha_2 FGC + \alpha_3 OPEN} \quad \textbf{(3)}$$

Where $\boldsymbol{\alpha_1}$,$\boldsymbol{\alpha_2}$and $\boldsymbol{\alpha_3}$ are the weights for inflation, final government consumption and openness, respectively.

Thus production function is as follow:

$$\boldsymbol{Y(t) = F[Pinv\ (t),\ Tax\ (t), Aid\ (t), Policy\ (t), L(t)]} \ldots\ldots\ldots\ldots\ldots \textbf{(4)}$$

Moreover, this study introduced measurement in capital inflow uncertainty in the spirit of the works of Lenisinik and Morrisey (2000). The Authors measured aid unpredictability by first estimating a forecasting equation so as to be able to determine the expected component of the variable under consideration. Secondly, the uncertainty (unpredictability) proxy was derived by calculating the standard deviation of the residuals from the forecasting equation. However, the study used cross-section data, and therefore, would not provide a good measure for a country specific study. For this problem, this study used a predictability indicator defined as the difference between commitments and disbursements as a percentage of disbursements (also known as the predictability per a unit of aid dollar) (see Celasun and Walliser, 2008). This measure of aid predictability is independent of the scale of aid as a share of GDP.

The aid predictability indicator was constructed by finding the difference between commitment and disbursement. The unpredictability of aid (predictability indicator) is defined as the difference between commitments and disbursements as a percentage of disbursements (Celasun and Walliser, 2008).

$$\boldsymbol{Xaid_t = \left(\frac{C_t - D_t}{D_t}\right) * 100} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{(5)}$$

Where $Xaid_t$ is aid predictability indicator at time t

To examine the effect of aid unpredictability in the model, aid predictability indicator (xAid) is incorporated in the model.

Then the production function is

$$\boldsymbol{Y(t) = F[Pinv\ (t),\ Tax\ (t), Aid\ (t), Policy\ (t), L(t), Xaid\ (t)]} \ldots\ldots\ldots\ldots\ldots\ldots \textbf{(6)}$$

WherexAid (t) is aid predictability indicator and

Now, final specification of the growth model to be estimated becomes:

$$Y_t = \alpha_0 + \alpha_1 Pinv_t + \alpha_2 Aid_t + \alpha_3 Tax_t + \alpha_4 Policy_t + \alpha_5 Xaid_t + \alpha_6 Lf_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (7)$$

3.2. Variables definition

Real GDP (Y):is the market value of the goods and services produced by an economy over time. It is conventionally measured as the percent rate of increase in real Gross Domestic Product. Real GDPincluded in the model as dependent variable in order to measure economic growth.

Private Investment (Pinv):is an injection of capital into a business from a private investor, obtained by deducting government investment from gross fixed capital investment.

Foreign aid (Aid): is defined as net official development assistance flow from bilateral donor countries and multilateral organizations. It consists all grant component and concessional loans with a grant elements of at least 25 percent.

Aid Predictability Indicator (Xaid): is the difference between aid commitment and its actual disbursement as a percentage of disbursement.

Tax Revenue (Tax): is defined as revenue collected by central government from different types of taxes.

Trade openness (Open): is defined as a degree to which a country's willingness to have a trade with the rest of the world. This measured as the summation of both export and import as a share of gross domestic product.

Inflation: is a percentage increase in the aggregate price level of good and service in an economy and hurts the purchasing power of the currency.

Final Government Consumption (FGC): defined as, a current expenditure incurred by the central government on good and services that are used for the direct satisfaction of individual needs (individual consumption) or collective needs of members of the community (collective consumption).

Policy Index (Policy): Constructed by indexing the selected macroeconomic policy variables, such as, Inflation (Monetary policy), trade openness (Trade policy) and final government consumption (Fiscal policy).

Labor force (Lf): Are all people whose ages are 15 and older and actively participated in an economy. It includes both employed and unemployed as a share of total population.

3.3. Source of data

In order to conduct econometric analysis, the study used secondary data over the period 1981-2014. The sources of the data are World Bank (WDI, 2014 and 2015), Ministry of Finance and Economic Development (MoFED), National Bank of Ethiopia (NBE), Organization for Economic Corporation and Development (OECD)(from OECD.stat database).

3.4. Stationary Properties

A time series data by its nature either has stationary or non-stationary property. It's a rare case for time series data to become stationary in the level form (i.eI(0)). The responsiveness to shock has a significant difference among the stationary and non-stationary time series data. Effect of a shock for stationary time series are temporary and will die out gradually over time, while effect of shock for non-stationary time series persists over time and permanent. As a result, regression with non-stationary time series will lead to problem of spurious regression. Therefore, it's important to check the stationary property of the variables before making estimation in the regression model.

To avoid the above problem, the study will test the unit root test for each time series variable using Augmented Dickey-Fuller test (ADF).

The ADF equation for an ARDL model without intercept and trend gives as:

$$\Delta \boldsymbol{Y_t} = \boldsymbol{\varphi Y_{t-1}} + \sum_{\boldsymbol{i=1}}^{\boldsymbol{p-1}} \boldsymbol{\alpha_i} \, \Delta \boldsymbol{Y_{t-i}} + \boldsymbol{\varepsilon_t} \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots .. (\mathbf{8})$$

WhereY_ta time series variables under consideration in this model at is time t; Δ denotes the first difference operator;ε_t is a random white noise error term; $\boldsymbol{p}$ is the optimal lag length.

Then the ADF equation for an ARDL model with both intercept and trend is:

$$\Delta \boldsymbol{Y_t} = \boldsymbol{\beta_1} + \boldsymbol{\beta_2 t} + \boldsymbol{\varphi Y_{t-1}} + \sum_{\boldsymbol{i=1}}^{\boldsymbol{p-1}} \boldsymbol{\alpha_i} \, \Delta \boldsymbol{Y_{t-i}} + \boldsymbol{\varepsilon_t} \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots .. (\mathbf{9})$$

Where$\beta_1$is the intercept; t is a time trend variable and $\beta_2$coefficient for time trend variable

Now, to test stationarity of the variable, the ADF test of hypothesis is:

$$\boldsymbol{H_o}: \boldsymbol{\varphi} = \mathbf{0} \;\; \boldsymbol{or\ the\ series\ contains\ a\ unit\ root}$$

Against

$$\boldsymbol{H_1}: \boldsymbol{\varphi} < 0 \; or\ the\ series\ is\ stationary$$

If $H_o$is rejected we simply conclude that $Y_t$does not contain a unit root. Or in other word, if the t-statistics less than the critical values (t-value < C), then the null hypothesis (I.e.H_o) is rejected and conclude that the series is stationary and vice versa.

3.5. Estimation Procedure

To examine the long run relationship between economic growth and explanatory variables (private investment, tax revenue, foreign aid, policy index, aid predictability indicator and labor force), the study employ an autoregressive distributed lag (ARDL) model which was modified by Pesaran and Shine (1999). Compared to other estimation techniques, ARDL approach has different advantages. First, ARDL approach is simple to apply; unlike to other cointegration techniques, once the lag order of the model is identified it's possible to estimate the long run relationship by OLS. Second, pre testing of the variables for unit root test in the model does not necessarily required, it is applicable irrespective whether the underlying regressors are I(0), I(1) or mixed (Pesaran et.al, 1999). For instance, the cointegration approach by Johansen (1991) and Johansen-Juselius (1990) requires that variables be of the same order of integration (i.e., I(1)).

Third, ARDL approaches gives a reliable estimates of long run parameters and a valid t-statistics even in the presence of endogenous variables (Inder, 1993 cited in Ojimbo (2009). Finally, in contrast to Johansen and Juseliuscointegration technique, ARDL is relatively more reliable and efficient approach for small sample (see Pesaran and Shin, 1999). This is the case for this study that the sample size is limited to a total of 34 observations only, this approach will be appropriate. It is also argued that using the ARDL approach avoids problems resulting from non-stationary time series data (Laurenceson and Chai 2003) as cited in Bathalomew (2011).

The simple generalized ARDL (p,q) model can be shown as follows(Green,2003):

$$\boldsymbol{Y_{t=}C + \alpha_1 Y_{t-1} + \cdots + \alpha_p Y_{t-p} + \beta_0 X_t + \beta_1 X_{t-1} + \cdots + \beta_q X_{t-q} + U_t} \ldots\ldots\ldots\ldots \textbf{(10)}$$

Where$C$ and $U_t$are intercept of the model and white noise error term respectively. The above model is "autoregressive" since it includes p lags of the dependent variable and at the same time it is also a "distributed lag" model because it includes q number of lags of the explanatory variable.

Another critical step is to test the long run relationship between the variables through the Bound Testing approach which is first applied by Pesaran and Shin (1999) and Pesaran, Shin, and Smith (2001). After checking and estimating the long run relationship of the variables, then one can estimate the appropriate short run parameters by using Error Correction model (ECM).

Let us Assume ARDL (1, 1), then the above equation can be written as:

$$\boldsymbol{Y_t = \beta_0 X_t + \beta_1 X_{t-1} + \rho Y_{t-1} + U_t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{(11)}$$

Subtracting Y_{t-1} from both sides of the model will give as the following equation:

$$\boldsymbol{\Delta Y_t = \beta_0 X_t + \beta_1 X_{t-1} + (\rho - 1) Y_{t-1} + U_t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{(12)}$$

Let us $(1 - \rho) = \delta$ then we will get:

$$\boldsymbol{\Delta Y_t = \beta_0 X_t + \beta_1 X_{t-1} - \delta Y_{t-1} + U_t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{(13)}$$

$\Delta X_t = X_t - X_{t-1}$ And $X_t = \Delta X_t + X_{t-1}$

Now substituting X_t in the above equation will give us:

$$\Delta Y_t = \beta_0 \Delta X_t + \beta_0 X_{t-1} + \beta_1 X_{t-1} - \delta Y_{t-1} + U_t$$

$$\boldsymbol{\Delta Y_t = \beta_0 \Delta X_t + (\beta_0 + \beta_1) X_{t-1} + \delta Y_{t-1} + U_t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{(14)}$$

Let us assume$\beta_0 + \beta_1 = \varphi$, then

$$\Delta Y_t = \beta_0 \Delta X_t + \varphi X_{t-1} - \delta Y_{t-1} + U_t$$

$$\boldsymbol{\Delta Y_t = \beta_0 \Delta X_t + (\varphi X_{t-1} - \delta Y_{t-1}) + U_t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{(15)}$$

Then multiplying the term$(\varphi X_{t-1} + \delta Y_{t-1})$ by $\frac{\delta}{\delta}$ will give the following:

$$\boldsymbol{\Delta Y_t = \beta_0 \Delta X_t - \delta (Y_{t-1} - \frac{\varphi}{\delta} X_{t-1}) + U_t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{(16)}$$

Then we can write the error correction model as follows:

$$\boldsymbol{\Delta Y_t = \beta_0 \Delta X_t - \delta (Y_{t-1} - \alpha X_{t-1}) + U_t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{(17)}$$

Where$\alpha = -(\frac{\varphi}{\delta}) = \frac{\beta_0 + \beta_1}{\delta}$ and $\delta = 1 - \rho$

Therefore the above equation (17) can be rewritten as:

$$\Delta Y_t = \beta_0 \Delta X_t - (1-\rho)(Y_{t-1} - \left(\frac{\beta_0 + \beta_1}{(1-\rho)}\right) X_{t-1}) + U_t$$

$$\boldsymbol{\Delta Y_t = \beta_0 \Delta X_t + \delta ECT_{t-1} + U_t}\text{.. }\mathbf{(18)}$$

Where $\delta = (\rho - 1)$, is the error correcting parameter which measures the speed of adjustment of the model,

$(Y_{t-1} - \left(\frac{\beta_0+\beta_1}{(1-\rho)}\right) X_{t-1}) = ECT_{t-1}$, is the error correcting term lagged by one period.

Generally ARDL (p, q) model can now be expressed as an error correction model:

$$\boldsymbol{\Delta Y_t = \beta_0 \Delta X_t + \sum_{i=1}^{p-1} \theta_i^* \Delta Y_{t-i} + \sum_{i=1}^{q-1} i\, \Delta X_{t-i} + \delta ECT_{t-1} + U_t}\text{.................. }\mathbf{(19)}$$

Where, $\theta_i^* = -\sum_{j=i+1}^{p} \theta i\,;\ j = 1, 2, \ldots p-1$ and $\beta_i^* = -\sum_{i=j+1}^{q} \beta i;\ j = 1, 2, \ldots q-1$

Therefore, the following ARDL approach is specified in order to determine or test the long-run co-integration relationships between variables which first proposed by Pesaran and Shin (1997, 1999) and Pesaran, Shin, and Smith (2001). In other word the following ARDL equation is the final equation to check for the long-run co-integration relationships between the variables of interest.

Therefore the ARDL form of the growth model (lnYt) is:

$$\begin{aligned}\boldsymbol{LnY_t = \beta_0} &+ \sum_{i=1}^{n} \boldsymbol{\beta_{1i}\, \Delta lnY_{t-i}} + \sum_{i=0}^{n} \boldsymbol{\beta_{2i}\, \Delta lnPinv_{t-i}} + \sum_{i=0}^{n} \boldsymbol{\beta_{3i}\, \Delta lnTax_{t-i}} + \sum_{i=0}^{n} \boldsymbol{\beta_{4i}\, \Delta lnAid_{t-i}} \\ &+ \sum_{i=0}^{n} \boldsymbol{\beta_{5i}\, \Delta Xaid_{t-i}} + \sum_{i=0}^{n} \boldsymbol{\beta_{6i}\, \Delta Policy_{t-i}} + \sum_{i=0}^{n} \boldsymbol{\beta_{7i}\, \Delta lnLf_{t-i}} + \boldsymbol{\theta_1 lnY_{t-1}} \\ &+ \boldsymbol{\theta_2 lnPinv_{t-1}} + \boldsymbol{\theta_3 lnTax_{t-1}} + \boldsymbol{\theta_4 lnAid_{t-1}} + \boldsymbol{\theta_5 Xaid_{t-1}} + \boldsymbol{\theta_6 Policy_{t-1}} \\ &+ \boldsymbol{\theta_7 lnLf_{t-1}} \\ &+ \boldsymbol{ECT_{t-1} u_t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.. (\mathbf{20})\end{aligned}$$

Δ, Denotes the first difference operator,

$\boldsymbol{\theta_1, \theta_2, \theta_3, \theta_4, \theta_5, \theta_6, \theta_7,}$ arecoefficients that measure long run relationships,

$\boldsymbol{\beta_{1i}, \beta_{2i}, \beta_{3i}, \beta_{4i}, \beta_{5i}, \beta_{6i}, \beta_{7i},}$ are coefficients that measure short run relationships.

3.6. The Auto Regressive Lag (ARDL) Model Bound testing approach

In order to conduct ARDL technique, the study will utilize two steps (Pesaran and Pesaran, 1997). In the first steps, conduct the bound test for the hypothesis of no cointegration. For this study, the null hypothesis is the coefficients of the regressors of the underlying ARDL model are jointly zero.

The hypothesis of long run relationship of the variables specified as:

$$\boldsymbol{H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = 0}$$

Against

$$\boldsymbol{H_A: \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq \beta_6 \neq \beta_7 \neq 0}$$

There are two set of critical values in the bound testing result; the upper critical bound that assumes that all the series are I(1) and the lower critical bound values assume that the series are all I(0) (Pesaran et.al, 2001). If the computed F-statistic is higher than the upper critical value, then the null hypothesis of no cointegration is rejected, but if the computed F-statistics lower than the lower critical bound, then the null hypothesis of no cointegration accepted rather than rejected. In cases where the F-statistics falls inside the upper and lower bounds, a conclusive inference cannot be made.

In the second step, using ARDL method the long run and short run parameters will be estimated. To obtain the optimal lag length for each variables in the model, the study will use

Akaike'sInformation Criteria (AIC), because of its advantages for small sample size (Tsadkan, 2013), this study apply the same technique.

After establishing the long run relationship among the variables, the long run ARDLmodel for Y_t can be estimated as:

$$lnY_t = \theta_0 + \theta_1 lnY_{t-i} + \theta_2 lnPinv_{t-i} + \theta_3 lnTax_{t-i} + \theta_4 lnAid_{t-i} + \theta_5 Xaid_{t-i} + \theta_6 Policy_{t-i} + \theta_7 lnLf_{t-i} + \varepsilon_t \quad (21)$$

The short-run error correction model also specified as follow:

$$\Delta lnY_t = \beta_0 + \sum_{i=1}^{n} \beta_{1i}\, \Delta lnY_{t-i} + \sum_{i=0}^{n} \beta_{2i}\, \Delta lnPinv_{t-i} + \sum_{i=0}^{n} \beta_{3i}\, \Delta lnTax_{t-i} + \sum_{i=0}^{n} \beta_{4i}\, \Delta lnAid_{t-i} + \sum_{i=0}^{n} \beta_{5i}\, \Delta Xaid_{t-i} + \sum_{i=0}^{n} \beta_{6i}\, \Delta Policy_{t-i} + \sum_{i=0}^{n} \beta_{7i}\, \Delta lnLf_{t-i} + \delta ECT_{t-1} + \varepsilon_t \quad (22)$$

$\beta_{1I}, \beta_{2I}, \beta_{3I}, \beta_{4I}, \beta_{5I}$ *and* $\beta_{6I}$are Coefficients that represents the short run dynamics of the model,

ECT_{t-1}, is error correction term lagged by one period,

δ,iserror correction parameter that measure the speed of adjustment towards the long run equilibrium after a short-run disturbance.

3.7. Diagnostic and Stability test

To be certain whether the coefficients of the estimates were consistent and could be relied up on in making economic inferences, the study have to apply a diagnostic tests. Based on this, the study used Breusch-Godfrey for serial correlation, the Lagrange multiplier test for heteroscedasticity (ARCH), which were used on the residuals to determine the OLS assumption on the error term. The Ramsey RESET test for functional form, conducted for the correct

specification of the error-term. The Jarque-Berra statistic for normality was used to determine whether the sample data have the skewness and kurtosis matching a normal distribution.

To check the stability of the long-run parameters together with the short-run movements for the model, the study used cumulative sum of squares (CUSUM) and cumulative sum squares recursive (CUSUMSQ) tests as proposed by Borenszte*in et al.* (1998). The CUSUM test is particularly important for detecting systematic changes in the regression coefficients, while the CUSUMSQ test is useful in situations where the departure from the constancy of the regression coefficients is arbitrary and sudden (Pesaran and Pesaran, 2009) cited in Ojimbo (2009).

CHAPTER FOUR

4. OVERVIEW OF ECONOMIC GROWTH PERFORMANCE IN ETHIOPIA

This chapter presents the state of trends of economic growth performance, flow of external assistance, macroeconomic environment and economic growth in Ethiopia by revising documents and policy papers. So an attempt has been made to discuss the commitments and disbursement of aid, trends of aid flow and economic growth overview in Ethiopia for the period 1981-2014, using descriptive analysis.

4.1. Trends of Economic Growth Performance in Ethiopia

At the center of the country's strong economic performance has been the Government's proactive and forceful role in shaping socio-economic policy. In pursuit of its goal of making Ethiopia a middle-income country by the year 2025, the Government has been investing heavily in economic and social infrastructure, streamlining public services, revamping the tax collection system, and supporting small and medium enterprises. It has also prioritized key sectors such as industry and agriculture, as drivers of sustained economic growth and job creation. The most recent data, for 2012/13, reveal that GDP registered a growth rate of 9.7per cent; this was accompanied by an increase in the domestic savings rate backed by a prudent fiscal policy, helping to contain the budget deficit at 2 per cent of GDP.

From the period 2003/04 to 2009/10, has shown quite impressive economic growth. Real GDP and per capita GDP grew nimbly at an average annual rate of 11.3 percent and 8.3 percent respectively for the last seven consecutive years, which is the highest among the non-oil producing economies of Africa. However, following the recovery commencing in 2003/04, growth has been very much sustained and complemented by strong performance in the construction, manufacturing, trade and tourism, banking and insurance, and real estate

sectors/sub-sectors. The construction sector has been spurred by the much needed public sector investment in infrastructure (roads, rural infrastructure development including food security, telecom, power, irrigation, etc.) and private sector expansion as well (World Bank 2014).

The Government of Ethiopia‘s current five-year development plan (2010/11-2014/15), the Growth and Transformation Plan (GTP), is geared towards fostering broad-based development in a sustainable manner to achieve the Millennium Development Goals (MDGs). The GTP envisions a major leap in terms of not only economic structure and income levels but also the levels of social indicators. During the first year of GTP implementation (2010/11), the country has registered 11.4 percent real GDP growth rate surpassing the GTP target of 11 percent. Particularly, the agriculture and industry sectors have registered growth rates above their targets set for the year. Clearly, more effective implementation of prudent macroeconomic and sectoral policies has contributed to this faster and broad-based growth (MoFED, 2012).

Table.4.1. Economic performance indicator

	2004/05	**2010/11**	**2011/12**	**2012/13**
GDP growth (%)	12.6	11.4	8.8	9.7
Agriculture as % of (GDP)	13.5	9.0	4.9	7.1
Industry as % (GDP)	9.4	15.0	17.1	18.5
Services as % of (GDP)	12.8	12.5	11.1	9.9
Saving as % of (GDP)	9.5	12.7	15.0	17.7
Investment (as % of GDP)	26.0	27.9	33.1	33.0
Fiscal deficit (as % of GDP)	4.6	1.6	1.2	2.0

Sources: MoFED and NBE, 2014.

Measured by real GDP, the Ethiopian economy grew by 8.8 per cent and 9.7 per cent in the fiscal years 2011/12 and 2012/13, respectively. Although these growth rates show a decline compared with the 11 per cent average growth for the previous eight years, they remain relatively robust. In fact, Ethiopia was the 12th fastest growing country in the world in 2012 (World Bank, 2013).

The relative decline in the rate of growth is primarily the result of a slowdown in growth in the agriculture sector, from 9 per cent in 2010/11 to 4.9 per cent in 2011/12 and onward strengthening to 7.1 per cent in 2012/13. This has significantly reduced the contribution of the agriculture sector to the overall growth of the economy. Ethiopia's capacity to address poverty, food insecurity and various other socio-economic problems is highly dependent on the performance of agriculture (World Bank, 2013).

There are also other concerns, despite the impressive achievements. These include specific trends and shortfalls, such as the widening gap between domestic savings (17.7 per cent of GDP in the most recent year) and investment (33 per cent), as indicated in Table 2.1. There is a need to deepen the mobilization of domestic savings. The fact that fiscal deficit is as percentage of GDP shows a rising trend, especially in light of the significant role of state-owned enterprises in large-scale borrowing, warrants close attention. In particular, the greatest possible efforts should be made to ensure that large-scale public enterprise investments generate the expected returns in future.

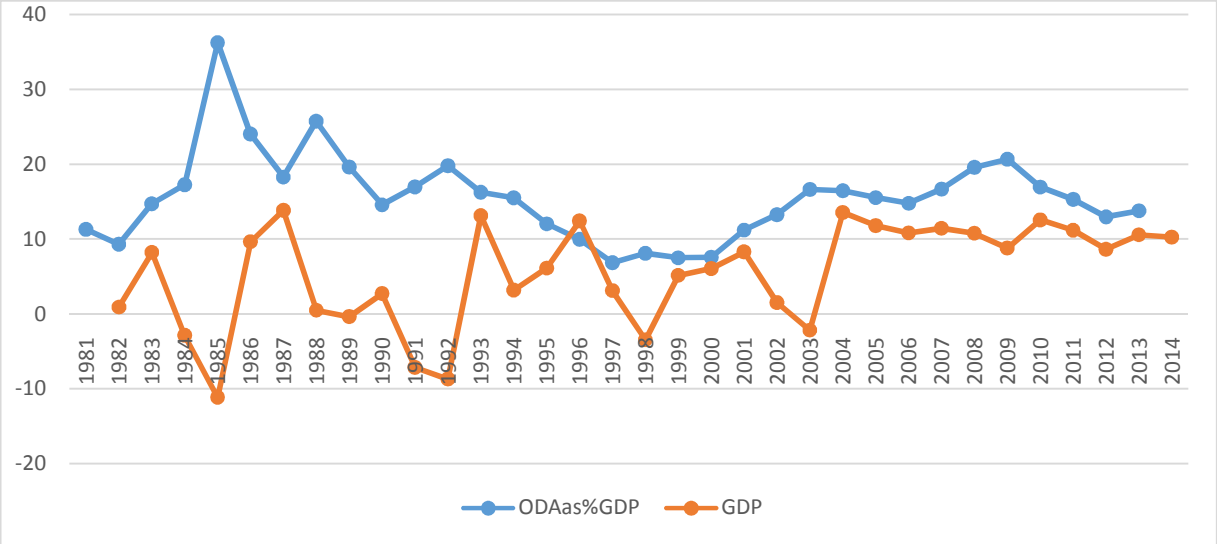
During the second year (2011/12) of GTP implementation, real GDP grew by 8.8 percent. In 2012/13, the GDP grew by 9.7 percent in real terms. Though the 9.7 percent growth performance registered in 2012/13 is below the 11.3 percent target set for the fiscal year under review, it was achieved under difficult domestic and global environment. Furthermore, the 2012/13 low real GDP growth was achieved due to the fall in prices of Ethiopia‘s major export commodities such coffee and gold while prices of its major import items such as fuel continued to be high. On the other hand, the 2012/13 economic growth was high compared to the sub Saharan average performance of around 5 percent. The performance was also above the 7 percent growth requirement set to achieve the Millennium Development Goals (MDGs). In general, Ethiopia‘s

economic performance in 2012/13 was widely regarded as one of the fastest growth rates in the world by different international financial institutions (MoFED, 2014). Moreover, the country‘s Real GDP expanded by 10.3 percent in 2013/14 ((WEO Update, July 2014).

4.1.1. Role of foreign aid in Economic Growth

To understand the role foreign aid on GDP over the study period, the below graph gives us a clear picture:

Figure.4.1.1. Trends of Foreign aid Growth rate in Ethiopia.



Source: WDI, 2015

It is clearly observed from the figure above that on average the share of foreign aid to GDP showed increasing trend from 9.3% in 1982 to 13.8% in 2013; on the other hand there is slight fluctuation in GDP growth rate over time, it is has a rising trend from 0.9% in the year 1981 to 10.6% in 2013. During the first half of 1980’s the country’s economic growth rate showed continuous decline and even went below zero in the 1985 (which was -11.1%), this is due to fact that the country has faced a catastrophic drought and famine in the year 1984. As indicated on the figure compare to other period, the share of foreign aid to GDP in the year were the highest

level (which was 36.3%), which gives a connotation that external assistance flows (in terms of food aid or other source) remain to be during occurrence of natural hazard.

The other reason that contributed for growth rate to decline in the first half of 1980's was internal political unrest and conflict in the country. Similarly, the share of foreign aid to GDP also moderately decline from 25.6 percent in 1988 to 16.9 percent in 1991. The border conflict between the Ethiopian and Eritrean government, resulted in deterioration of economic growth rate to -3.4 percent and the share of foreign aid relatively lower to 8.1 percent.

4.1.2.Driversof Economic Growth

Ethiopia's growth reflects a mix of factors. Private consumption and public investment have driven demand side growth, with the latter assuming an increasingly important role in recent years. For example, soaring public investment explains most of the 2011/12 growth (about two-thirds), with private consumption accounting for about one third (World Bank, 2013).

On the supply side, economic growth was driven by growth of the services and agricultural sectors, while the role of the industrial sector was relatively modest. Other factors and policy decisions have played a part in influencing the direction and pace of the economy. These include: political stability; the absence of war and civil strife; favorable weather (no severe drought except in 2011); external inflows (foreign direct investment, aid, and remittances); and a series of significant reforms in the areas of price deregulation, privatization, trade, exchange rate policy, public sector management, and debt relief (World Bank, 2013).

Strong political commitment on the part of the Government set the stage for a well-conceived policy and planning process. Growth was supported by consistent resource mobilization and allocation in line with carefully prepared development plans, institutional reform, agricultural modernization, the development of new export sectors, strong global commodity demand, and government-led development investments (UNDP 2014).

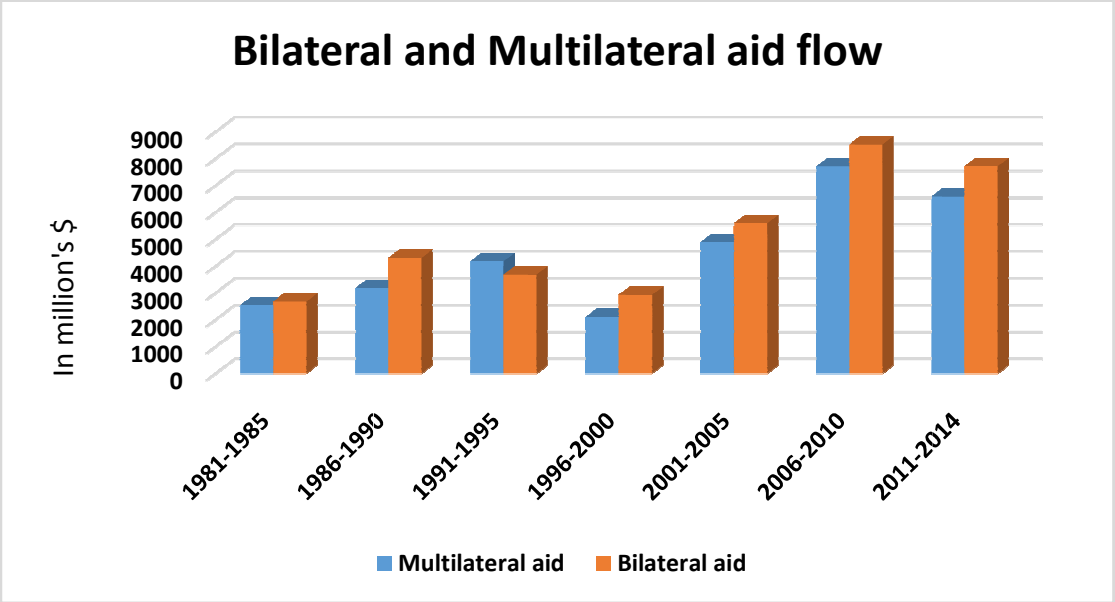
4.2.Foreign aid flow to Ethiopia

Ethiopia is one of the leading countries among the recipient of foreign aid starting from the late 1940s. This external assistance is transferred to Government in terms of both grant and concessional loan or through non-governmental organizations in the form of humanitarian aid for other different purpose. The government of Ethiopia has received foreign aid both from bilateral donors and multilateral donor agencies.

According to Furtado and Smith (2007) from the total amount of foreign aid, the country has received about 45 percent from bilateral donor countries and the rest 55 percent was from multilateral donor agencies. In terms percentage contribution of multilateral aid, the authors describedthatIDA (about 53 percent) had a largest contribution, contributions from the UN system (particularly UNICEF and UNDP, with WFP providing substantial emergency relief) and the European Union is about (17 percent), and the African Development Bank (11 percent). They also noted that the largest bilateral donors to the country were United States, Japan, Italy, Canada, Germany, the Netherlands, Norway and Ireland.

A summary of the Official Development Assistance (ODA) flows in terms bilateral donors and multilateral donors to Ethiopia in the period 1981-2014 is given in the figure below:

Figure.4.2.1. Trends of foreign aid flow to Ethiopia



Source: OECD, 2016

Fig.4.2.1. above shows that contrary to Furtado and Smith (2007), except from the year 1991-1995; compare to multilateral donors, the bilateral aids has relatively a larger share of ODA flow to Ethiopia. During 2004 fiscal year, both multilateral and bilateral development partners committed a total of $3,155 million through 85 projects in Ethiopia. From the total commitment bilateral donors accounted 55.1% and the rest 44.9% from multilateral agencies (MoFED, 2013).

As it is noted from the figure, in the 1980's foreign aid flow shows declining trend may be due to the fact that the country is on the different ideology from that of western donor countries as the regime is propagating the socialist system of the Soviet Union.

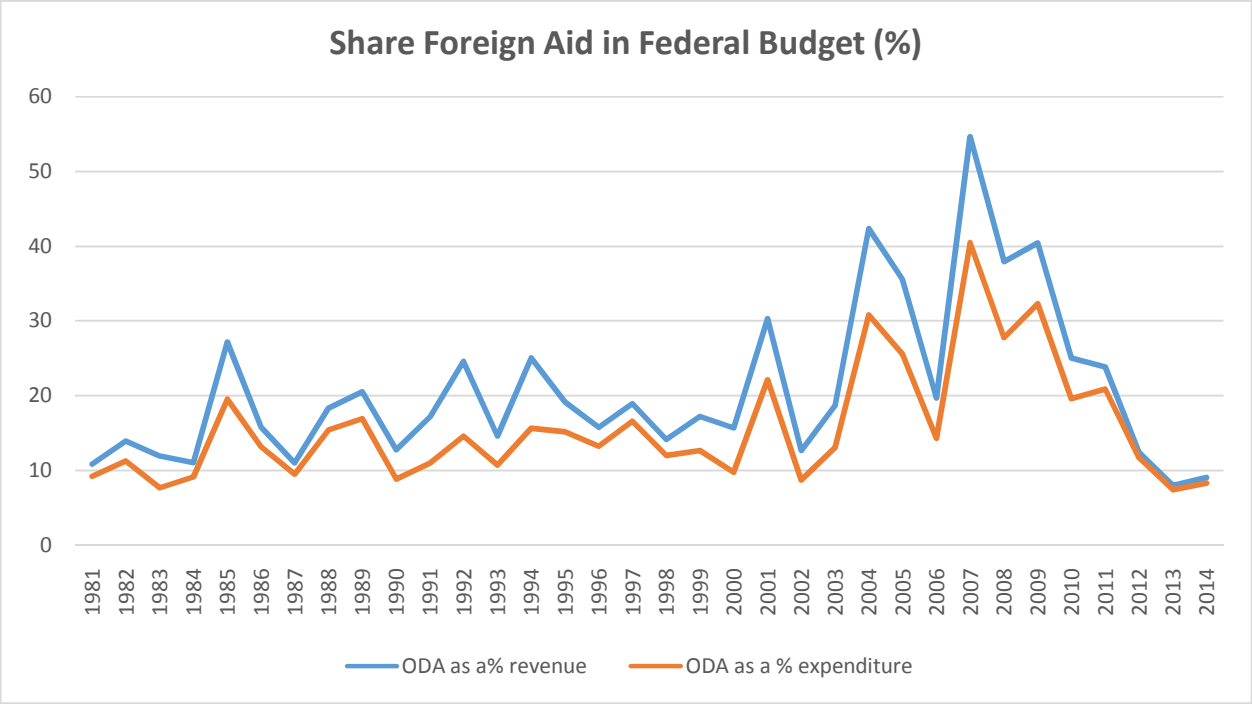
The ups and downs in the trend of grants reflect the frosty relationship between the government and donors since the advent of structural adjustment programs in the 1980s. It has become a ritual: the government turns to donors whenever faced with macroeconomic imbalances and donors on their part pledge their support so long as the government honors agreed

conditionalities. Once disbursements start and the domestic economic situation improves, the government reneges on agreed conditionalities, donors respond by discontinuing funding. At some stage, the government turns to donors once again and the ritual continues. So for foreign aid to make desired impact on growth, the flow should be less volatile and more predictable. Both parties must be realistic and sign conditionalities that are technically and politically feasible so as to avoid disruptions of planned projects and programs and thus improve the effectiveness of foreign aid.

Aftermath of fall of Derg regime in the 1991 and the current government (EPRDF) took the power the trend of aid flow to the country reversed the donor countries committed to increase external assistance specially in the health and education sectors, but in the late 1990's the war between the Ethiopian and Eritrean governments led the donor countries to withdraw the significant amount of aid commitments. After the end of the war the foreign aid flow has shown incremental trend. In the last decade both the bilateral and multilateral assistance to Ethiopia increased, mainly due to strong focus by donor institutions towards successful implementation of the millennium development goals (MDGs). Similarly Meyer (2012) showed that Official development assistance has increased significantly from the year between 2000 and 2010, reaching $2.395 billion and in 2010 Ethiopia was the largest aid recipient in Africa and the second largest in the world (OECD, 2012b). The Author also described that in 2011, United States (the largest bilateral donor), provided $847 million in aid, over a third of which was in food aid.

Bacha (1990) explained in his "Three Gap Model", introduced fiscal constraint as one of the constraint that limited the growth of the least developed countries by creating shortage of resources to finance the public investment required to support a given level of potential output.To fill this gap foreign aid has a significant role. In Ethiopia, similar to other developing countries external finance also plays a prominent role by financing national budget of the country. Lemi (2006) cited in his study, during the 2004/05 from the total deficit external borrowing accounted about 41%.Therefore; the flow of external assistance to those countries has an important task by financing the country's annual national budget able to fill the budget deficit.

Figure.4.2.2. Share of Foreign aid in Federal Budget



Source: MoFED, 2015.

The above figure illustrates the share of contribution of foreign aid in Ethiopian federal government budget. It can be easily concluded that the means of financing government budget deficit is from the flow of foreign aid to the country which gives implication that foreign aid remains to be source of government revenue to meet the increasing trends of government expenditure.

On the average, the share of foreign aid to revenue and expenditure has grown from 15.3% and 12.1% in the 1980's to 31.7% and 23.5% in the last decade respectively. This implies that across time the contribution of foreign aid on the federal government budget has shown rising trend and the flow of external assistance plays a crucial role by financing Ethiopia's national budget.

As indicated from the above figure, in the year 2007 the share of foreign aid in the national budget increases, while in the year 2014 its share falls, this may result from national election blasts in 2005which gave rise to for the governmentto focus only on internal political unrest and perhaps the less attention is given to the domestic source of revenue. This means that the government geared towards the external source to finance the budget deficit, but after the year 2007 as shown from the data, the domestic source of finance (i.e. from tax and non-tax revenue) was increased until to 2014, this may decreased the share of aid on the national budget.

4.3. Predictability of the Aid Flow

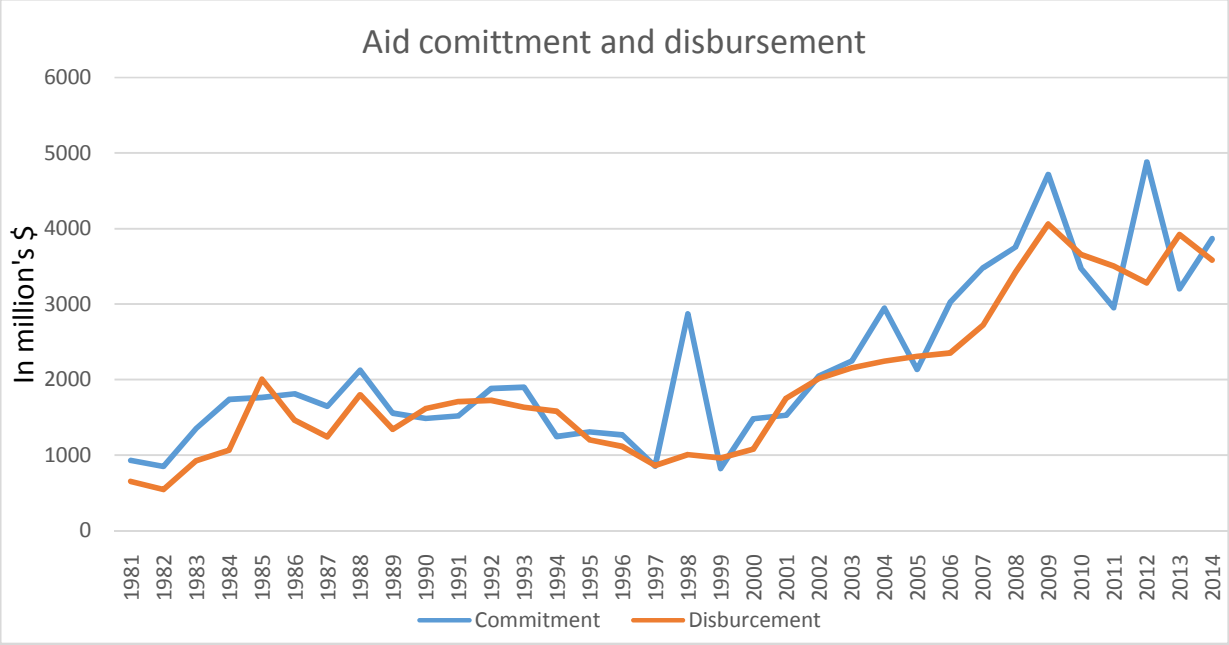
Foreign aid plays a crucial role on the short run and long run economic growth in Ethiopia. Through time the volume foreign aid flow has been grown enormously, this increasing amount implies that the country's reliance on external assistance to achieve development goals. On this ground dealing about the unpredictability of aid (the deviation between committed and disbursed aid) to aid dependent country like Ethiopia has a sound implication. Due to the unpredictability of aid hurts country's development because in time of planning the government may consider the commitment of aid but in the time of disbursement the actual aid might be lesser.In the Paris Declaration (2005) and the Accra Agenda for Action (2008), predictability of aid raised as a factor that affect governments' planning and budgeting processes in general, and aid effectiveness specifically.

Various studies has shown that unpredictability affect public investment and economic growth by undermining the effectiveness of foreign aid in aid dependent countries (see Lensink and Morrissey (2000), Djankov et.al (2006) and Celasun and Walliser (2008)). In developing countries foreign capital inflows determine the investment decisions, the uncertainty of aid make the government decide to postpone even cancel the investment decision and affect growth. The variability of the flow of aid also adversely affect economic policy of the recipient countries because foreign aid is one component of the countries national budget.

Alemayehu and Kibrom (2011) discussed in their study, even though the net disbursement of Official Development Assistance increased from US$ 15 million in 1960 to US$ 3.8 billion in

2009, due to change in the political setup in different period the flow was not smooth. The below figure demonstrate the extent of aid unpredictability in Ethiopia over the period 1981 to 2014.

Figure.4.3.1. Aid commitment and disbursement to Ethiopia



Source: OECD, 2016

Figure 4.3.1 shows that through time, the commitment aid have been higher than its disbursement in Ethiopia. The only periods that the disbursement of aid were higher than the commitment were 1985, 1990, 1991, 1994, 1997, 1999, 2001, 2005, 2010, 2011 and 2013. The figure depicted that over the study periods except the listed years, both the bilateral and multilateral donors actual disbursements of Official Development Assistance were less than their commitments. This clearly provides the real picture of the flow of foreign aid in terms of commitment and disbursement in Ethiopia.

Based on the above figure, over the study period as compare to other periods; in the year 1998 the gap between the commitment and actual disbursement of foreign aid was very large, from the total commitment donor countries were disbursed only 35% of their commitments, this because

the country has been entered in war with Eritrean government dissatisfied donor countries and most of them withdraw their commitment.

4.4. Macroeconomic Policy environment in Ethiopia

Macroeconomic policy environment determine the growth rate of the economy in general and effectiveness foreign aid in particular. Good macroeconomic policy create a stable economic environment and initiate investors to invest and to generate a profit (see Larrain and Vergara, 1993; Servén and Solimano, 1993b). For instance, high inflationary environment distorted the value of financial assets and investors become uncertain about the economic policies, this uncertainty might leads the investors not invest.In similar ground, Herandez-Cata, 2000 argued that inflation causes low levels of private investment as domestic and foreign investors foresee a low after-tax risk adjusted rate of return on capital.In Ethiopia, rising inflation in the post-reform period become became a challenge of the macroeconomic management and between 2001/02 and 2011/12, the average annual rate of inflation was reached to 14 percent (MoFED, 2014).

The other policy parameter that measure macroeconomic policy environment is trade openness. When the country become more open to the international market, computation among domestic industries as well as other foreign products. This foreign trade therefore, will have a direct effect on the investment and economic growth in the country. In Ethiopia, trade openness has been grown over time. As shown from the data, during 1981/90, openness of trade accounted (the sum of export and import as a share of GDP) about 18 percent. But these shares were continually increased to 43.4 percent and 44 percent during the year 2001/10 and 2011/14, respectively. As compare the level of trade openness over the study periods, in the 1980's registered was the lowest (which was 18%), this was due to the economic structure of the country (command economy). But in the current regime, the government by changing different institutional set up able to attract investors, and the level of openness simultaneously increased.

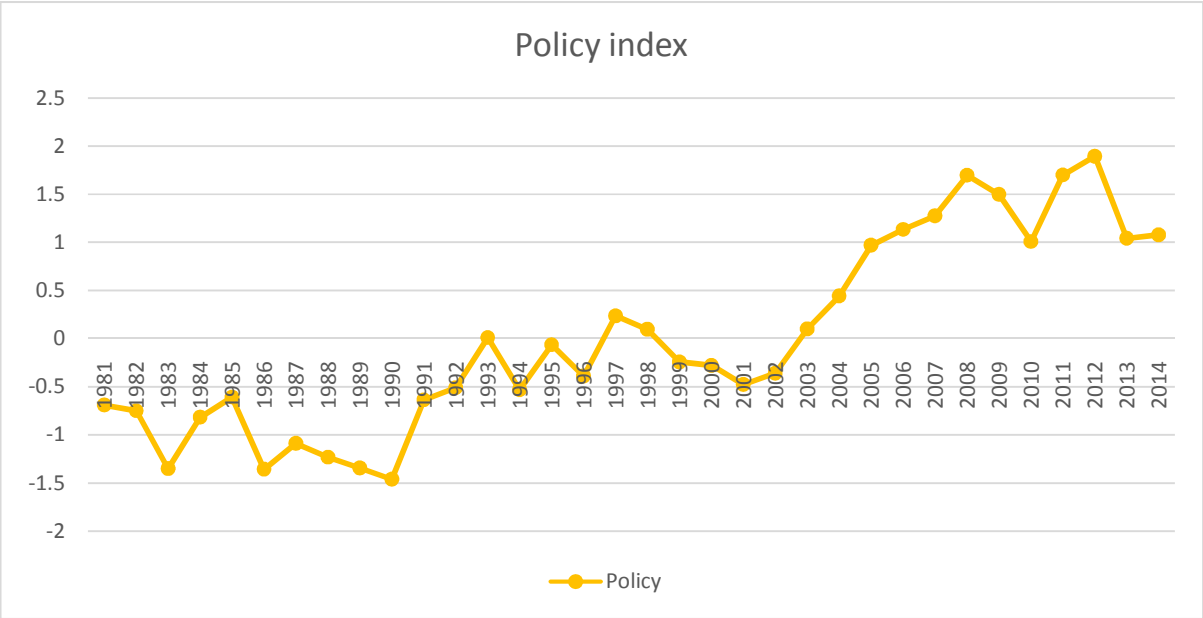
Fiscal policy also measures the county's macroeconomic policy environment. According to Burnside and Dollar in 1997, proxy fiscal policy by budget deficit. A successive budget deficit

(when government final consumption exceeds revenue) will result unstable economy, as a result final government consumption expenditure used as a proxy budget deficit (Ojimbo, 2009).

Over the study periods, the government consumption expenditure as a share of GDP substantially declined from 20.5 percent in the 1980's and now it reached to 7.5 percent. In the experience, the larger share budget was taken by defense. The share of defense expenditure to GDP was decreased from 8.3 percent during 1980's to 0.75 in 2014. In the 2011/2012 budget year, from the entire budget defense consumed only 5.2 percent, on the other hand the share of capital expenditure from the national has been raised from 35 percent to 59 percent, in the 190/90 and 2011/12 budget year, respectively (MoFED, 2014). This significant deterioration level of government consumption expenditure in general and defense expenditure in particular would implied that over time the government rather than spending on the current consumption gave much emphasis to allocate more resources on poverty reduction and on the development projects like great renascence dams.

Therefore, to see the macroeconomic policy environment of the country, similar to Burnside and Dollar (1997), the composite variable (policy) was constructed from the above macro policy variables (by taking inflation, final government consumption as a percentage of GDP and trade openness).

Figure.4.4.1 Graphical representation of policy index



Source: WDI, 2015

As shown from the above figure, over the study period Ethiopia's macroeconomic policy environment (which is an index of fiscal, monetary and trade policy) has shown both booms and declines under the study periods suggesting that the index of policy variables are not stable. As it is clearly indicated in the figure above, the final government consumption expenditure has a significant impact on the policy index, as compared to trade openness and inflation. In the late 1980's due high rate of government consumption expenditure and relatively lower share of trade openness, the policy index registered at a lower point.

CHAPTER FIVE

5. EMPIRICAL RESULTS AND DISCUSSION

5.1. Unit root test Analysis

Before conducting ARDL cointegration test, first we test for the stationarity status of the given time series data to determine their order of integration. A unit root test is carried out using Augmented Dickey-Fuller (ADF) test for each variables in the model. To apply ARDL approach, to avoid spurious results all the variables used in the regression model should not be stationery at an integrated of order two, because the computed F-statistics provided by Pesaran et.al (2001) are valid only when the variables are I(0) or I(1). Therefore, Augmented Dickey-Fuller (ADF) test was conduct and its result is presented in Table 5.1. The below unit root test results clearly shows all the variables are stationery on the I(0) and I(1) and but not on I(2).This gives a clue to meet the basic requirements in applying ARDL model due to fact that the order of integration of the time series is not I(2).

Table.5.1. Unit root test

Augmented Dickey-Fuller test statistic (ADF Test)						
Variable	**With Intercept**			**With Intercept and Trend**		
	At Level	**At First difference**	**Decision**	**At Level**	**At First difference**	**Decision**
LnY	1.716	-3.967	I[1] at 1%	0.509	-3.466	I[1] at 10%
LnPinv	-2.80	-2.68	I[0] at 10%	-2.447	-6.388	I[1] at 1%
LnAid	-2.354	-5.627	I[1] at 1%	-2.487	-5.591	I[1] at 1%
LnTax	-2.917	-4.292	I[1] at 1%	-3.215	-4.573	I[1] at 1%
LnLf	-2.019	-3.597	I[1] at 5%	-1.946	-3.579	I[1] at 5%
Xaid	-7.002	-7.555	I[0] at 1%	-7.241	-7.437	I[0] at 1%
Policy	-1.337	-3.672	I[1] at 5%	-4.255	-3.445	I[0] at 5%

Source: Eview 9.0 results

As indicated in the above unit root test result, real GDP (LnY) , foreign aid(LnAid), Tax revenue (LnTax), Labor force (LnLF) and Macroeconomic policy environment (Policy) are integrated of order 0ne (I.e. I(1)) while Private investment (LnPinv) and foreign aid predictability indicator(Xaid) are integrated of order zero (I(0)) with Intercept . On the other hand, with intercept and trend real GDP, private investment, foreign aid, tax revenue and labor force are stationery in first difference and aid predictability indicator and macroeconomic policy environment are stationery at level.

Table.5.2. Short run and long run ARDL estimation result

Dependent variable: Δ(Real GDP per Capital), No. observation=32		
Variable	**Coefficients**	**t-statistics**
Short run		
Constant	5.124920	
D(LNAID)	0.049206	1.060480
D(LNAID(-1))	-0.073723	-2.427636**
D(LNLF)	-0.067820	-0.222904
D(LNPINV)	0.012921	0.482078
D(POLICY)	-0.133431	-2.825497**
D(POLICY(-1))	-0.246516	-5.227063***
D(LNTAX)	0.138017	2.259057**
D(XAID)	0.024176	2.761719**
ECM(-1)	-0.250461	-4.179905***
Long run		
LNAID	0.492116	4.594933***
LNLF	-4.893052	-2.780819**
LNPINV	0.051588	0.490580
POLICY	0.516260	2.639878**
LNTAX	0.551051	2.757443**
XAID	0.184046	3.017888***

Diagnostic Tests

R-Squared	0.99033	Adjusted R-Squared	0.98335
Jarque-Bera (P-value)	0 .448	Ramsey RESET : P-value	0.4485
F-statistic	6.422938	Breusch-Godfrey Serial Correlation LM: P value	0.125
Prob(F-statistic)	0.000302	Heteroskedasticity Test: Breusch-Pagan-Godfrey	0.9235

***, ** denote significance at 1 and 5 percent, respectively.

5.2. Diagnostic and Model Stability Analysis

After checking the stationarity of the variables, standard property of the model is tested through diagnostic and model stability test. In order to check the diagnostic test for this study, we use tests such as Serial correlation test (Breusch&Godfray LM test), Functional form (Ramsey's RESET) test, Normality (Jaque-Bera test), and Hetroscedasticity test. In order to reject or accept the null hypothesis, we can decide by looking the p-values associated with the test statistics. That is the null hypothesis is rejected when the p-value are smaller than the standard significance level (I.e. 5%)

Table 5.2. Presents the summary of the diagnostic tests of the estimated ARDL model of the study. The p-value associated with both LM version and F version of the diagnostic test statistics is above the standard critical value (its above 5 percent). Therefore, it is possible to conclude that the ARDL cointegration model of the study fulfills the diagnostic tests (which includes, serial correlation, functional form, normality and heteroscedasticity).

To check whether the long run relationship are stable over the study period, the study employed the cumulative sum of recursive residual (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMSQ) to test whether the model is stable or not for the entire study period, which was proposed by Brown *et al*. (1975). If the plot of the CUSUM and CUSUMSQ stays within the 5 percent critical bound the null hypothesis that all coefficients are stable cannot be rejected. If however, either of the parallel lines are crossed then the null hypothesis (of parameter stability) is rejected at the 5 percent significance level.

As shown from the Appendix 6, the plot of CUSUM stays within the critical 5 percent bound for all equations, and CUSUMSQ statistics does not exceed the critical boundaries that confirms the long-run relationships between the economic growth and the explanatory variables, thus we can able to conclude that the parameters of the model do not suffer from any structural instability over the study period.

5.3. Long Run ARDL Bounds Tests for Co-integration

The study employed Autoregressive Distributed Lag (ARDL) bounds testing approach to examine whether there are long run relationships among the variables. Akaki Information Criterion (AIC) with a maximum of two lag length was selected (see Pesaran and Shin, 1999; Narayan, 2004). Selection of AIC as an appropriate lag length selection criteria for the study is because of that it used as a better optimal lag length selection for small sample size data, and additionally AIC also produce the least probability of under estimation among all criteria available (Liew*et al.*, 2004) as cited in Tsadkan (2013).

The joint significance of the coefficients is performed by F-test through the bound test. This test is conducted by imposing restrictions on the estimated long-run coefficients of real per capital income, private investment, foreign aid, aid predictability indicator, tax revenue, policy index and labor force. The computed F-statistic value is compared with the lower bound and upper bound critical values provided by Pesaran*et al.* (2001) and Narayan (2004).

Table 5.2 reveal that the calculated F-statistic (6.422938) was higher than the upper bound critical value at 1 percent level of significance using intercept only. Thus, the null hypothesis of no long-run cointegration between the variables is rejected, irrespective of the order of their integration implying that there was a long-run relationship between the variables.

5.4. Long run ARDL model estimation

Once we are checking long run cointegration among the variables, and then estimate the ARDL model to find out the long run coefficients. The results of the long-run estimations of the growth model presented in table 5.2.

The above table presents the summary of estimated results of the long run growth model in the regression with respect to the significant levels. As shown from the growth model, government tax revenue, foreign aid flow, foreign aid predictability and macroeconomic policy environment have a positive contribution on the economic growth in Ethiopia and on the other hand, private investment has a positive but insignificant effect and labor force has a negative impact.

The result in table 5.2, shows that elasticity of foreign aid has a positive and statistically significant effect on economic growth in the long run at 1 percent level of significant. This implies that by holding other things constant, a 1 percent increase in the flow of foreign aid, will lead to a 0.49212 percent increase in economic growth in the long run over the study period. The result of this study is in line with other different researches like Lloyd et al. (2001),Hatami-J and Irandoust (2005), Bhattarai (2009), Chervin and Wijinbergen (2009), Ojambo (2009), Bhavan et.al (2010), Kargoba (2012),Mitra (2013),Raheem and Ogebe (2014),Trinh (2014), Refaei and Sameti (2015). There are also other studies that contradicted to result of the study, such as Griffen (1970), Griffen and Enos (1970), Gong and Zou (2001), M'amanja and Morrisey (2005), Rajan and Submanian's (2005), Jonathan (2010), Ogundipe et.al (2014) stated that foreign aid has negative impact on the economic growth.

The result of the study also consistent with the Harro-Domar growth model and the Chenery-Strout two gap model, they described that physical capital was a driving force for economic growth and foreign aid flow is one source of physical capital accumulation to the developing countries like Ethiopia. Therefore, foreign assistance supplemented domestic saving and financed the required investment to attain a targeted growth rate by creating employment opportunity and by allocating enough resources to the developing plan of the country (like Growth and transformation plan) and poverty reduction programs in the long run. The finding of

the study therefore, tries to indicate an increase in foreign aid inflow will promote economic growth by increasing both demand for consumption and investment to upgrade technological progress by creating the ability to import capital goods.

Moreover, the result of this study also similar to Ejigu (2015) and Tadesse (2011), they stated that in the long run foreign aid contributes positively to Ethiopian economy. In contrary, Girma (2015) and Alemayehu (2011) argued that the flow of foreign aid has a negative impact on economic growth in Ethiopia.

The above result Table 5.2, shows that over the study period private investment has a positive effect but not statistically significant. This implies that the role of domestic physical capital formation (from private sector) to promote economic growth will not have a significant contribution. This is due to that based on the above result, flow of external assistance will contribute positively to economic growth in the future macroeconomic performance on the country; this may lead to enlarge public investment andcreate a crowding out effect on private investment.

As indicated from the result, the coefficient of aid predictability indicator which was measured by the difference between commitments and disbursements as a ratio of disbursements has a positive and statistically significant at 1 percent. The study found that a 1 per cent increase in aid predictability led to a 0.18405 percent increase on the economic growth in Ethiopia. The positive effect of aid predictability may arise as it is indicated in the descriptive analysis as shown in figure 4.3.1, it depicts relatively moderate predictability over the study period and the variation of flow of aid does not have a negative impact on the economic growth. This is in line with the suggestion of Alemayehu and Kibrom (2011); compared to other Africa countries, Ethiopia has received moderately a predictable Official Development Assistance.

The possible reason for the positive contribution of aid predictability on the economic growth perhaps related repeatedly heralded economic success stories of Ethiopia which gives donors countries a confidence to increase their commitments of aid flow to the country. This implies the current successive economic growth of Ethiopia provides the correct signal to the donor

communities to provide necessary amount of resources to the country for achieving the growth target set by the policy makers in the long run. This is consistent with the Paris Declaration (2005) and the Accra Agenda for Action (2008) that donor countries agreed that predictability of aid raised governments' planning and budgeting processes as well as aid effectiveness specifically.

The finding on the effect of aid predictability of this study similar to other studies on this topic for instance: Ojambo (2009), Lensink and Morrisey (2000), Djankov et.al (2005b), Neanidis and Varvarigos (2009) Chervin and Wijnbergen (2009), Kodaman (2012). According to these studies aid unpredictability in developing countries undermine the effectiveness of aid and has a negative impact on economic growth through its adverse effect on fiscal posture of government as well as contribute development programs not achievable as planned. Finding by Ethiopian Tadesse (2011) also conform that volatility of aid by creating uncertainty in the flow of aid had a negative impact on domestic capital formation.

As it is revealed from the above result table, over the study period Policy index has a positive contribution and statistically significant at 5 percent level of significance. The composite variable (policy) was constructed by weighted macro policy variables (by taking inflation, final government consumption as a percentage of GDP) to examine the status of macroeconomic policy environment of the country. Based on the result, taking other things constant a 1 percent increase in the macroeconomic policy environment leads to 0.51626 percent increase on the economic growth. Among different macro policy parameters, government consumption expenditure took the largest weight in the macroeconomic policy index (based on computation by SPSS version 20) which give rise to macro policy instability as a result of significant government budget deficit in Ethiopia. However, the existed data suggested that the government consumption expenditure has shown declining trend over the study period. This provide justification for despite, tight government macro policies, in the long run the macroeconomic policy environment become stable and it will have positive contribution on the economic growth.

Consistent with findings of IMF (2000), sound macroeconomic policy environment contributes to economic growth positively. It is natural to expect that over time, there will be a better frame to macro policy environment, so that their impact to economic growth is positive. Additionally in the long run, the country's macroeconomic policy environment improves effectiveness of foreign aid and promotes growth rate in the country. The result of the study is consistent with Burnside and Dollar (1997), Durbarry et.al (1998) and Chauvet and Guillaumont (2004). Therefore, the finding of this study suggests that the elasticity of macroeconomic policy environment to economic growth is positive and statistically significant.

Moreover, the result of this study revealed that the elasticity of tax revenue has a positive contribution to economic growth and statistically significant at 5 percent level of significance. This implied that a 1 percent increase in the level of government tax revenue leads to a 0.55105 percent increase in economic growth. This may due to that non distortionary tax revenue such as tax on imports will have a positive contribution to economic growth as this tax are taken as incentive to domestic investment and strengthen the import substitution macro policy.

Government tax revenue will also has a positive contribution to gross domestic physical capital accumulation and provision of finance to public investment for enhancing economic growth. This finding is consistent with the finding of Medee and Nenbee (2011), Ogbonna and Appah (2012), Okafor (2012) and Ihendinihu et.al (2014). To the reverse, the result of the study contradicted with the findings of Srithongrung and Juarez (2015), who suggested that government tax revenue has a negative short run and long run impact on economic growth in Mexico. Therefore, the government should expand the tax base system, build strong institution to fight corruption and minimize wastage in the use of tax revenue through appropriate legislative adjustments and financial discipline in governance.

As shown from result table 5.2. The elasticity of labor force has a negative and statistically significant impact on the economic growth at 5 percent level of significant. The finding shows that a 1 percent increase in the share of labor will lead to decrease the growth rate by 4.8931 percent. This negative and statistical significant relationship between labor force and economic growth due to the combined effect associated with in demographic dynamics and disguised

unemployment of the labor force. This is further implied by the fact that agriculture is the main stay of the economy and takes the predominant share in employment of labor opportunity without growth of total productivity leads the contribution of labor force negative. This result is consistent with the finding of Belloumi (2012) and in contrary Alemayehu et.al (2002) concluded that labor force had a strong contribution to economic growth both in the short and long run in Ethiopia.

5.5. Error correction model

The short run dynamic coefficient estimation was obtained from estimation of the Error-Correction Model (ECM). The error correction term (ECM), indicates the speed of adjustment to restore equilibrium in the dynamic model. It is a one lagged period residual obtained from the estimated dynamic long run model. The coefficient of the error correction term indicates how quickly variables converge to equilibrium and it should have a negative sign and statistically significant (i.e. p-value should be less than 0.05).

As presented in the Table 5.2, the error correction term is strongly significant and its coefficient (ecm-1) is -.25046, which implies that the deviation from the long-term economic growth is corrected by 25 percent in the next year. Cited in Ojimbo (2009), Bannerjeeet al. (1998) stated that a highly significant error-correction term was a further evidence of the existence of a stable long-run relationship. De Boef (2000) additionally noted that an ECM is of great relevance in the estimation of the aid-growth relationship as the short-run change is necessary to maintain the long-run relationship. In the short run error correction model, about 85 percent of variation in real per capital income explained by the explanatory variables in the model. This implied that the regressors highly explained real per capital income (the dependent variable).

The result table 5.2. Presents that consistent to the long run cointegration result both government tax revenue and predictability of aid have a positive and statistical significant contribution to economic growth in the short run at 5 percent level of significant. This implies that a 1 percent increase in the tax revenue and aid predictability indicator will result a 0.13802 and 0.024176 percent increase in economic growth rate in the short run, respectively.

Indicated in the above result table, contrary to its long run result the macroeconomic policy environment and its lagged variable has a negative and statistically significant impact at 5 percent and 1 percent to economic growth in the short run, respectively. As a result, a 1 percent increase in the instability of the macroeconomic policy environment and its lag variable deteriorates the economic growth by 0.13343 and 0.24652 percent in the short run, respectively. This instability of macroeconomic policy may create policy inconsistency and poor institutional framework that discourage private sectors to invest in the country. As shown from the short run model, instability of macroeconomic policy also has an adverse effect to aid growth relationship. As a result, in the short run bad macroeconomic policy become a challenge to economic growth.

On the other hand, in the short run foreign aid and labor force has no contribution to the economic growth, which is different from the long run result. However, one period lagged variable of foreign aid has a negative and statistically significant to economic growth at 5 percent level of significance. The finding show that a 1 percent increase in the disbursed volume of aid will adversely affect the economic growth rate by 0.073723 percent in the short run. In the short run, foreign aid may simply rises government spending on nonproductive sector and it simply increase the size of government which doesn't do nothing to support investment or economic growth; and the economy may suffer from absorptive capacity and fungibilty of aid.

CHAPTER SIX

6. CONCLUSION AND POLICY IMPLICATION

6.1. Conclusion

Similar to other developing countries, physical domestic capital accumulation has a pivotal role to lifting up economic growth in Ethiopia. Due to domestic resources gap, the country obliged to look for external source of capital in terms foreign aid to enhance economic growth. There are several empirical studies that are undertaken to analyze the nexus between foreignaid and economic growth in Ethiopia; but they came up with different results. Some of the studies concluded that foreign aid has a positive and significant effect on economic growth, while the other showed that foreign aid has a negative impact on economic growth. This enables to raise question of why impact of aid on economic growth in Ethiopia continues to be with paradoxical in its findings. To investigate and examine the inconsistency in findings in the literature of effectiveness of aid in Ethiopia; this study aims at exploring this question by analyzing the impact of aid unpredictability on economic growth in Ethiopia. In addition, study also examined the contribution of foreign aid and the macroeconomic policy environment to economic growth in the country.

In order to examine the long run and short run economic growth model, the study applied an autoregressive distributed lag (ARDL) approach over the period 1981-2014. The empirical finding of the study revealed that in the long run, foreign aid flow has a positive and strongly significant contribution to economic growth. This implies that by raising the level of domestic physical capital accumulation and financing investment, foreign aid promote economic growth in the long run. Aid predictability indicator has also a positive and statistically significant result on economic growth in the long run as well as in the short run. The positive effect of aid predictability may arise due to that over the study period the variation in the flow of aid (i.e. commitment v_s disbursement) in moderate term, did not accounted a large deviation or the recent repeatedly heralded economic success stories of the country may give donor countries a confidence to increase their commitments of aid flow to the country in the long run.

Macroeconomic policy environment and tax revenue also the other variables that have a positive and statistically significant effect on the economic growth. The positive contribution of macroeconomic policy environment to economic growth implies that the macro policy in the long run will become stable and this improve the effectiveness of foreign to promote economic growth, that's why the long run result for the coefficient of foreign aid become positive i.e. good macroeconomic policy environment is important for the effectiveness of foreign aid . The positive contribution of tax revenue may arises due to that non distortionary tax revenue such as tax on imports will have a positive contribution to economic growth as this taxes are taken as incentive to domestic investment and strengthen the import substitution macro policy. During the study period, labor force has a negative and statistically significant impact to economic growth in the long run. This may be because of that agriculture is the main stay of the economy and takes the predominant share in employment of labor opportunity without growth of total productivity leads the contribution of labor force negative.

6.2. Policy Implication

Based on the empirical findings, the study provides credible policy implication to the government of Ethiopia as well as the donor communities to formulate and implement policies.

The empirical finding of the study revealed that in the long run, foreign aid is an important component for Ethiopian economy. Therefore to enhance the contribution of external assistance, the government of Ethiopia should allocate on the successful development projects and spending this resources properly without wastage. Further, the government should build strong absorptive capacity and install proper monitoring and evaluation mechanisms for effectiveness of foreign aid.

As finding confirmed that predictability of aid play a significant role for effectiveness of foreign aid as well as for economic growth. To make the flow of aid more predictable and persistent over time, both the government of Ethiopia and the donor communities should come up mechanism of transparently working jointly. From the government side, government of Ethiopia should create a smooth socio-political and economic relation with the donor countries so that donors will meet their commitments. From donors' side, there should be more transparent in the allocation of aid and should also introduce proper timing in informing Ethiopian government in the event of inconsistency i.e. where there is possibility that the committed aid will not disbursed.

Macroeconomic policy environment is major important component for effectiveness of aid in turn contribute positively to promote economic growth. The macroeconomic policy should geared towards stable and sustainable macroeconomic policy environment. This will also results in stimulating domestic saving and encouraging private investment by allocating the required finance. To maintain stable macroeconomic policy, the government should develop instruments of both prudent fiscal and monetary policy to control the level of inflation.

The study also found that tax revenue was important to enhance economic growth both in the short and long run. Tax revenue have a crucial role by financing domestic investment demand to reduce the country's aid dependency in the long run. Therefore, the government should expand the tax base, build strong institution that can combat fraud and corruption in the tax allocation process and minimize wastage in the use of tax revenue through appropriate legislative adjustments and financial discipline in governance.

Reference

Abdulnasser, H.J. and Irandoust, M. (2005), "Foreign Aid and Economic Growth: New Evidence from Panel Co integration." Journal of Economic Development, Volume 30, No.1.

Abeba S (2002), "Macroeconomic impacts of external assistance in Ethiopia." A thesis submitted to the School of Graduate Studies of Addis Ababa University in Partial fulfillment of the requirements for the Degree of Master of Science in Economic Policy Analysis in Department of Economics.

Adeyemi A.O., Ojeaga, P. and Ogundipe, O.M (2014), "Is Aid Really Dead? Evidence from Sub-Saharan Africa." International Journal of Humanities and Social Science, vol.4.No.10 (1).

Agénor P-R. and Aizenman, J. (2010),"Aid volatility and poverty traps". Journal of Development Economics 91, pp 1–7.

Alemayehu G. (2011), "Reading on the Ethiopian Economy", Addis Ababa University Press.

Alemayehu G. and Kibrom T. (2011), "Official Development Assistance (Aid) and Its Effectiveness in Ethiopia". Institute of African Economic Studies Working Paper Serious NO. A07 /2011.

Alemayehu, G., Shimelis, A. and J. Weeks, (2002), "The Pattern of Growth, Poverty and Inequality in Ethiopia: Which way for a Pro-Poor growth?''.

Bacha E. (1990), ''A Three-gap Model of Foreign Transfers and the GDP Growth Rate in Developing Countries''. Journal of Development Economics, Vol.32, pp.279-96.

Balassa, B. (1978). Exports and Economic Growth-Further Evidence. Journal of Development Economics, Vol. 5 (2): pp. 181-189.

Bathalomew, D. (2011), "An Econometric Estimation of the Aggregate Import Demand Function for Sierra Leone". Journal of Monetary and Economic Integration. Vol. 10, No.1.

Belloumi, M. (2012), "The relationship between Trade, FDI and Economic Growth in Tunisia: An application of ARDL model." Faculty of Economics and Management of Sousse, University of Sousse.

Bhattarai, B.P (2005), "Foreign Aid and Growth in Nepal". The Journal of Developing areas, Volume 42, No. 2, spring 2009, pp. 283-302.

Bhavan. T, ChanguengXu, Chunping. Z, (2010), “Growth effect of aid and its volatility: An individual country study in South Asia countries”. Business and Economic Horizons. V.3. I.3. October, 2010. Pp.1-9 (ISSN: 1804-1205)

Boakye, P. F. (2008), “Foreign Aid and Economic Growth in Ghana (1970-2005)”. Unpublished Masters Dissertation, University of Science and Technology, Kumasi, Ghana.

Boone, P. (1994), ‘‘the impact of foreign aid on savings and growth’’. London School of Economics, processed.

Boone P. (1995), “Politics and the effectiveness of foreign aid”. Centre for economic performance, discussion paper No. 272

Boone, P. (1996), “Politics and the effectiveness of foreign aid”. European Economic Review, Vol. 40, pp. 289-328.

Borensztein, E., Gregorio, D. J., and Lee, J. W. (1998). How does foreign direct investment affect economic growth? Journal of International Economics, 45, pp. 115–135.

Bulíř, A., and Hamann, A. J. (2001), ‘’How Volatile and Unpredictable Are Aid Flows, and What Are the Policy Implications?’’ IMF Working Paper167, October.

Bulir, A. and Lane T. (2002), “Aid and Fiscal Management’’. Working Paper02/112, International Monetary Fund.

Bulíř, A., and Hamann, A. J. (2003), “Aid Volatility: An Empirical Assessment’’. IMF Staff Papers 50(1), p. 64-89.

Bulíř, A., and Hamann, A. J. (2005), “Volatility of Development Aid: From the Frying Pan into the Fire?” IMF, Mimeo.

Bulir, A. and A. Hamann (2006), “Volatility of development aid: from the frying pan into the fire.” IMF Working paperWP/06/65.

Bulír, A., and A.J. Hamann (2008), “Volatility of development aid: From the frying pan into the fire?” World Development36(10): 2048-2066.

Burnside C. and Dollar D. (1997), “Aid Spurs Growth – in a Sound Policy Environment”. Finance and Development, Vol. 34 (4), pp. 4-7.

Burnside, C. and D. Dollar (2000). 'Aid, Policies, and Growth,' American Economic Review, Vol. 90, No. 4, pp. 847-68.

Burnside C. and Dollar D. (2004), "Aid, Policies, and Growth: Revisiting the Evidence". Policy Research Working Paper Series 3251, the World Bank.

Celasun O. and Walliser J. (2008), "Predictability of Aid: Do Fickle Donors Undermine the Predictability of Aid?" Economic Policy, 23(55), pp. 545-86.

Chauvet, L., and P. Guillaumont (2004), "Aid and growth revisited: Policy, economic vulnerability and political instability". In Annual World Bank Conference on DevelopmentEconomics, Europe, 2003: Toward Pro-Poor Policies – Aid, Institutions and Globalization,edited by N. Stern, B. Tungodden, and I. Kolstad, 95–110.

Chauvet, L. and Guillaumont P. (2008), "Aid, Volatility and Growth Again: When Aid Volatility Matters and When It Does Not". UNU-Wider Working Paper No. 2008/78.

Chenery, H. B. and A. M. Strout, "Foreign Assistance and Economic Development", The American Economic Review, Volume LVI, Number 4, Part I, September 1966.

Chervin, M. and Wijnbergen. S.V. (2009), "Economic growth and volatility of foreign aid". Tinbergen Institute Discussion paper. TI 2010-002/2.

Cordella T. and Dell'Ariccia G. (2003), "Budget Support versus Project Aid", IMF Working Paper No. 88/03.

Dawit W. and Yemisrach T. (2001), "The Impact of Foreign Financing on Economic Performance in Ethiopia", Paper Presented at the 11th annual Conference on the Ethiopian Economy, Addis Ababa, Ethiopia.

Devarajan S., Rajkumar A.S. and Swaroop V. (1999), "What does aid to Africa Finance"? Development Research Group Research Paper, No. 20433, the World Bank.

Djankov S., Montalvo J. G. and Reynal-Querol, M. (2006), "Does Foreign Aid Help?" Cato Journal, 26(1), 1–28

Djankov S., Montalvo J.G. and Reynal-Querol M. (2008), "The curse of aid". Journal of Economic Growth, 13, 169-194.

Durbarry R., N. Gemmell and D. Greenaway (1998), "New evidence on the impact of foreign aid on economic growth". CREDIT Research Paper 98/8, University of Nottingham.

Easterly W. (1999), "The Ghost of Financing Gap: Testing the Growth Model used in the International Financial Institutions", Journal of Development Economics, 60, pp. 423-438.

Easterly W. (2003), "Can Foreign Aid Buy Growth". The Journal of Economic Perspectives, Vol. 17, No. 3, pp. 23-48

Easterly, W. R., and Rebelo, S. T. (1993). Fiscal Policy and Economic Growth: An Empirical Investigation. Journal of Monetary Economics, 32(3). pp. 417–58.

Ekanyake E.K and DashaChatrna (2007), "The effect of foreign aid on economic growth in developing countries". Journal of International Business and Cultural studies.

E. V. Ojambo (2009), "Effects of Foreign aid Predictability on Investment and Economic Growth in Kenya." A Thesis submitted to the school of Economics in fulfillment for the award of Doctor of philosophy in Economics of Kenyatta University.

Fantaye S. E., "The Impact of Foreign Aid on Economic Growth of Ethiopia (Through Transmission Channels)". International Journal of Business and Economics Research. Vol. 4, No. 3, 2015, pp. 121-132.

Fasanya I. O, Adegbemi, O. B.(2012), "Does Foreign Aid Accelerate Economic Growth?" An Empirical Analysis for Nigeria, Int. J. Econ. Fin. Issues.

Feder, G. (1982), On Exports and Economic Growth. Journal of Development Economics, Vol. 12, No. 1/2.

Feeny S. (2005), "Impact of Foreign Aid on Economic Growth in Papua New Guinea". The Journal of Development Studies, Vol.41, No.6, August 2005, pp.1092 – 1117

Fielding, D. (1997), ''Modeling the Determinants of Government Expenditure in sub- Saharan Africa'', Journal of African Economies, Vol.6, pp.377-90.

Fielding D. and G. Mavrotas (2005), "The Volatility of Aid", Mimeo, United Nation University, WIDER.

Furtado, X. and Smith J.W (2007), "Ethiopia: Aid, Ownership, and Sovereignty". Global Economic Governance Programme. Managing aid dependency project GEG working paper 2007/28.

Gabriele, A., Baratav, K. and Parikh, A., (2000), “Instability and Volatility of Capital Flows to Developing Countries.” the World Economy, 23(8), 1031-1056.

Gallagher M. (1994), ‘‘Government Spending in Africa: A Retrospective of the 1980s’’, Journal of African Economies3(1).

Gemmell N. and M. McGillivray (1998), ‘‘Aid and Tax Instability and the Government Budget Constraint in Developing Countries’’. CREDIT Research Paper 98/1, University of Nottingham.

Gomanee, K., Girma, S., and Morrissey, O. (2005), “Aid and growth in Sub-Saharan Africa: Accounting for transmission mechanisms”. Journal of International Development, 17, 1055-1075.

Gong, Liutang and Zou, Heng-fu (2001). “Foreign Aid Reduces Labor Supply and Capital Accumulation.” Review of Development Economics, 5(1), pp. 105 – 118.

Griffin, K. B. and Enos, J. L. (1970), "Foreign Assistance: Objectives and Consequences", Economic Development and Cultural Change, 18(3), 313-327.
Gustavo Javier C.B, E. Neumayer and P. Nunnenkamp (2014), “Why Aid is Unpredictable: An Empirical Analysis of the Gap between Actual and Planned Aid Flow”, Kiel Institute for the World Economy, Kiel Working Paper No.1933.

Haile Girma (2015). “The impact of foreign aid on economic growth: Empirical evidence from Ethiopia (1974-2011) using ARDL approach”. J. Res. Econ. Int. Finance. 4(1):1-12.

Haile K. and Alemayehu G. (2000), ‘‘Savings, Foreign Aid and Economic Growth: A review of theory and the existing Evidence’’, Paper presented at the 10th annual conference on the Ethiopian Economy.

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

Herandez-Cata, E. (2000). “Raising Growth and Investment in Sub-Saharan Africa: What Can be Done?” Policy Discussion Paper: PDP/00/4, International Monetary Fund: Washington, DC.

Hjertholm P., Laursen J. and White H. “Foreign aid and Development”, Lesson of experience and direction for the future. Development Economics Research group (DERG), university of Copenhagen, October 1998.

Hudson, J. and Mosley, P., (2008a), “Aid volatility, policy and development,” World Development, Vol.36, pp.2082-102

Hudson, J. and Mosely, P., (2008b), “The macroeconomic impact of aid volatility,” Economics Letters, Vol.99, pp.486-89.

Hudson J. and P. Mosley (2008), “Aid volatility, policy and development”, World Development36(10): 2082-2102.

Inder, B. (1993) “Estimating Long-Run Relationships in Economics: A Comparison of Different Approaches.” Journal of Econometrics, Vol.57, pp.53–68.

Ihendinihu, U.J, Jones, E. and Ibanichuka, A.E., (2014), “Assessment of the Long-Run Equilibrium Relationship between Tax Revenue and Economic Growth in Nigeria: 1986 to 2012”. The SIJ Transactions on Industrial, Financial & Business Management (IFBM), Vol. 2, No. 2.

Johansen, S. (1991), “Estimation and Hypothesis Testing of Cointegrating Vectors in Gaussian Vector Autoregressive Models,” Econometrica, 59, 1551-80.

Johansen, S., and Juselius, K. (1990), “Maximum Likelihood Estimation and Inference on Cointegration - with Applications to the Demand for Money.” Oxford bulletin of Economics and Statistics, Vol. 52, pp. 169-2 10.

Juselius K., N.F. Møller and F. Tarp (2014), “The long-run impact of foreign aid in 36 African countries: Insights from multivariate time series analysis’’. Oxford Bulletin of Economics and Statistics, 76(2): 154-84.

Kargbo, P.M (2012), “Impact of Foreign Aid on Economic Growth in Sierra Leone”. UNU-WIDER, Working Paper No. 2012/07.

Karras G. (2006), "Foreign aid and long-run economic growth: empirical evidence for a panel of developing countries," Journal of International Development, vol.18, no.7, p.15–28.

Kharas H. (2008). “Measuring the cost of aid volatility”, Wolfensohn Center for Development, Working Paper 3. Washington, DC: Brookings Institution.

Knack S. (2000), “Aid Dependence and the Quality of Governance: A Cross-Country Empirical Analysis”, World Bank Policy Research Paper.

Kodama M. (2012), “Aid Unpredictability and Economic Growth”, World Development Vol. 40(2), pp. 266-272.

Larraín, F. and Vergara, R. (1993). Investment and Macroeconomic Adjustment: The Case of East Asia. In L. Servén and A. Solimano (eds.), Striving for Growth after Adjustment. World Bank: Washington, DC.

Laurenceson, J. and Chai, J. C. H (2003), “Financial reform and economic development in China”, Cheltenham, UK, Edward Elgar.

Lemi, A., (2006), “Anatomy of Foreign Aid to Ethiopia: 1960-2003,” in Aid and Development: Dimensions and Experiences, Hyderabad, India: Icfai University Press, forthcoming, 37 pages.

Lensink R. and Morrissey O. (2000), “Aid Instability as a Measure of Uncertainty and the Positive Impact of Aid on Growth”, Journal of Development Studies, 36(3), pp. 31-49.

Liew V. and Khimsen A. (2004), “Which lag length selection criteria should we employ”, Economic Bulletin Vol.3, No.33 pp. 1-9

Lloyd T., Morrissey O. and Osei R. (2001), “Aid, Exports and Growth in Ghana”. Centre for Research in Economic Development and International Trade, University of Nottingham, No. 01/01.

M’Amanja D. and Morrissey O. (2005). “Foreign Aid, Investment, and Economic Growth in Kenya: A Time Series Approach”. Credit Research Paper, Centre for Research in Economic Development and International Trade, University of Nottingham.

Mankiw G.N (2002), “Macroeconomics text book”. 5th Edition.

Medee, P.N &Nenbee, S.G (2011), “Econometric Analysis of the Impact of Fiscal Policy Variables on Nigeria□s Economic Growth (1970-2009)”, International Journal of Economic Development, Research and Investment, Vol. 2, No. 1, Pp. 171–183.

Meyer, C. (2011), “Aiding Development or Aiding Politics? How Politics in Sub-Saharan Africa Impact the Efficacy of Official Development Assistance in Ethiopia”. Consilience: The Journal of Sustainable Development Vol. 9, Iss. 1 (2012), Pp. 47 – 69.

Mitra. R (2013), “Foreign Aid and Economic Growth in Cambodia”. Vol. 5, No. 2, pp. 117-121, Feb 2013 (ISSN: 2220-6140).

MoFED (2012). Growth and Transformation Plan (2010/11-2014/15) Annual Progress Report for F.Y. 2010/11. Addis Ababa, Ethiopia

MoFED (2013), EFY 2004 Annual Statistical Bulletin on Official Development Assistance.

MoFED (2014). Growth and Transformation Plan Annual Progress Report for F.Y. 2012/13. Addis Ababa, Ethiopia.

MoFED (2014), Ethiopia: Review of Macroeconomic Development (2002-2012). Addis Ababa, Ethiopia.

Mokoro Ltd. (2011), "Aid predictability: Synthesis of findings and good practices", Prepared for the DAC Working Party on Aid Effectiveness –Task Team on Transparency and Predictability Volume I.

Morrissey, O. (2001), "Does aid increase growth?" Progress in Development Studies, vol.1, no.1, p.37-50.

Narayan, P. K. (2004),"Reformulating the Critical Values for the Bounds R statistics Approach to Cointegration: An Application to the Tourism Demand Model for Fiji." Discussion Papers, Department of Economics, Monash University, Australia.

Neanidis, C. and Varvarigos, D., (2009), "The allocation of volatile aid and economic growth: Theory and evidence," European Journal of Political Economy, Vol.25, pp.447-62.

Nicolas A. Baletta. "The Role of Aid and Commercial flows", International center for Economic Growth. Panama City, Panama. February, 1991.

OECD (2008), "The Developmental effectiveness of united aid: Evaluation of Paris Declaration." Copenhagen.

OECD (2012b), "Development aid at a glance: Statistics by region 1. Developing countries (online). Retrieved July 22, 2012 from http//www.oecd.org/dataoecd/59/5/42139479.

OECD (2016), "Detailed aid statistics: ODA: disbursement and commitment", International Development Statistics (database). DOI: http//dx.doi.org/10.1787/data-00069-en.

Ogbonna G.N and E. Appah E. (2012), "Impact of Tax Reforms and Economic Growth of Nigeria: A Time Series Analysis", Current Research Journal of Social Sciences, Vol. 4, No. 1, Pp. 62–68.

Ojiambo E.O, Jacob, Mburu T. and Wawire, N. (2015), "Aid unpredictability and Economic Growth in Kenya". Working Paper Series N° 226African Development Bank, Abidjan, Côte d'Ivoire.

Pallage, S., and Robe, M. (2001), “Foreign Aid and the Business Cycle”, Review of International Economics9(4), p.641-672.

Pallage, S. and M. Robe (2003). ‘On The Welfare Cost of Economic Fluctuations in Developing Countries’, International Economic Review, Vol. 44, No. 2, 677-98.

Pesaran, H. M., and Pesaran, B. (1997). Microfit 4.0, Oxford: Oxford University Press.

Pesaran, H. M and Pesaran, B. (2009). Time Series Econometrics UsingMicrofit 5.0, Oxford: Oxford University Press.

Pesaran, M. H., and Shin, Y. (1999). An Autoregressive Distributed Lag Modelling Approach to Cointegration Analysis, Chapter 11, in Storm, S., (ed.), Econometrics and Economic Theory in the 20th Century: the Ragnar Frisch Centennial Symposium, Cambridge: Cambridge University Press.

Pesaran, M. H., Shin, Y., and Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. Journal of Applied Econometrics, Vol. 16, pp. 289-326.

Pesaran H. M, Shin Y., Smith J. R. (1999), “Bounds Testing Approaches to the Analysis of Long Run Relationships”. Edinburgh School of Economics. Discussion Paper Series. Number 46.

Qian N. (2014), “Making Progress on Foreign Aid”, Annu.Rev.Econ.3: Submitted .Doi: 10.1146/ annurev-economics.

Raheem, I.D. and Ogebe, J.O. (2014), “External Financial Flows, Policies and Growth in Sub Saharan Africa”. J. Glob. & Sci. Issues, Vol 2, Issue 4, (December 2014), ISSN 2307-6275
Rajan R. and Subramanian A. (2005). “What undermines aid’s impact on growth?” Mimeo, IMF, Washington D.C.

Rajan R. and Subramanian A. (2011). “Aid, Dutch disease, and manufacturing growth”. J. of Dev. Econ. 94:106–18.

Ram R. (2004). "Recipient country’s ‘policies’ and the effect of foreign aid on economic growth in developing countries: additional evidence", Journal of International Development, vol.16, no.2, p.201–211.

Ramirson H. Aime (2010), “Assessing the developmental role of foreign aid in developing countries: A special reference to the role of Japan’s aid in Far East Asia”, Institute of developing economies, Japan external trade organization. V.R.F series. No.462

Rand J. and Tarp F. (2002), “Business Cycles in Developing Countries: Are They Different?” World Development 30(12), p. 2071-2088.

Raymond F.M., Robert A.K and Arvin M.K (1982), “the Economics of foreign aid and self-sustaining Development”. Department of Treasury and State and the Agency for International Development.

Refaei, R., &Sameti, M. (2015). Official Development Assistance and Economic Growth in Iran. *International Journal of Management, Accounting and Economics, 2* (2), 125-135.

Rosenstein-Rodan, P.N. (1961). ‘‘International Aid for Underdeveloped Countries’’. Review of Economics and Statistics43: 107-38.

Rostow W.W. (1960), “The Stages of Economic Growth: A Non-Communist Manifesto”, Cambridge.

Sahn D.E. (1990), “Fiscal and Exchange Rate Reforms in Africa – Considering the Impact Upon the Poor”, Cornell Food and Nutrition Policy Program,Monograph 4, Ithaca: Cornell University.

Sahn D.E. (1992), ‘‘Public Expenditures in Sub-Saharan Africa during a Period of Economic Reforms’’, World Development20(5).

Servén, L., and Solimano, A. (1993b). Private Investment and Macroeconomic Adjustment: A Survey. I. L. Servén and A. Solimano (eds.), Striving for Growth after Adjustment. Washington D.C: World Bank.

Srithongrung, A. and Juárez, S.I (2015), “Fiscal Policies and Subnational Economic Growth in Mexico”. International Journal of Economics and Financial Issues. Vol. 5, No. 1, 2015, pp.11-22. ISSN: 2146-4138. www.econjournals.com

Subhayu B., Sajal L. and Javed Y. (2013) “Financing Growth: Foreign aid v_s Foreign Loans”, Federal Reserve Bank of St. Louis working paper 2013-031A.

Tadesse, T. (2011), “Foreign aid and Economic Growth”. The Economic Research Guardian – Vol. 1(2)2011. Semi-annual Online Journal, www.ecrg.ro. ISSN: 2247-8531, ISSN-L: 2247 8531. Econ Res Guard 1(2): 88-108.

Thierry S. K. (2011), “Essays on the institutional impacts of aid in recipient countries”, Economies and _nances. Universit_ed'Auvergne - Clermont-Ferrand I, English.

Tolessa A. (2001), "The Impact of Foreign Aid on Domestic Saving, Investment and Economic Growth: The case of Ethiopia", Unpublished M.Sc. Thesis, AAU.

Trinh, T. (2014), "Foreign Aid and Economic Growth: The impact of aid on determinants of growth-The case Vietnam", A Master's Thesis in Economics Submitted to the Department of Economics Aalton University School of Business.

Tsadkan A. (2013), "The nexus between public spending and economic growth in Ethiopia: Empirical investigation", unpublished Master thesis, Addis Ababa University

UNDP (2014), Ethiopia Country Economic Brief, Analysis Issue No. 1/Feb.2014.

Vargas H. (2005), "Assessing Rhetoric and Reality in the Predictability of Aid", UNDP Human Development Report Office Occasional paper 2005/25, UNDP.

Whitaker, M.T (2006), "The impact of foreign aid on economic growth". Bachelor of Arts in Economics Thesis Submitted to the Economics Faculty McAnulty College of Liberal Arts Duquesne University Pittsburgh, Pennsylvania.

Wondwosen T. (2003), "An Empirical Investigation of the Aid-Growth Relationship in Ethiopia", Unpublished M.Sc. Thesis, Addis Ababa University.

Yohannes B (2011), "the impact of foreign aid on economic growth in Ethiopia: accounting for transmission mechanisms"**,** A Thesis Submitted to the School of Graduate Studies of Addis Ababa University in Partial Fulfillment of the Requirements for the Degree of Master of Science in Economics.

Zahara S.A (2014), "The Effect of Foreign Aid on Economic Growth: A Cross Section Study on Aid to Sub-Saharan Africa". Bachelor thesis 15 hp Economics, Institution of Social Science, Sodertons University.

Appendix 1

Constructing the Macroeconomic Policy Index

Various studies suggested that good macroeconomic policies play a crucial role for the effectiveness of foreign aid to the economy (see Burnside and Dollar (1997, 2000) and Feeny (2005)). To analyze the effect of the policy variables, macroeconomic policy index was constructed by Principal Component Analysis (PCA) using SPSS Version 20. PCA is a statistical procedure of dimension reduction that transforms a set of observations of correlated variables in to a new set of uncorrelated variables.

Cited in Ojambo et.al (2015), construction of policy index helps to conserve the degrees of freedom arising from the reduction in the number of variables in the model and also it helps to avoid the possibility of high correlation among the macroeconomic variables (Kargbo, 2012). Therefore, to construct the index for the study; were inflation (INF) as a proxy for monetary policy, final government consumption expenditure (FGC) as a proxy for fiscal policy and degree of openness (OPEN) as a proxy for trade policy.

As indicated from the below table, the Eigen value show that about 63 percent of total variation was explained by first principal component and the rest (the second and the third) accounts about 37 percent. This gives as a confidence to consider that the first principal component as an appropriate measure of macroeconomic policy index. Therefore, the weight of the variables generated from the estimation are; -0.590, 0.852, 0.900 for inflation, trade openness and final government consumption expenditure, respectively. As a result, the contribution of the macroeconomic policy index based on their weigh presented below:

$$\boldsymbol{Policy\ index} = -\mathbf{0.590} * \boldsymbol{Inf} + \mathbf{0.852} * \boldsymbol{Open} + \mathbf{0.900} * \boldsymbol{FGC}$$

Table A 1 Principal Component Analysis results for constructing policy index

Principal component	Eigen values	% variance	Cumulative %
1	1.883	62.779	62.779
2	.816	27.190	89.969
3	.301	10.031	100.000

Variables	Variables weight
Inf	-0.590
Open	0.852
FGC	0.900

Source: Author's calculation

Appendix 2

ARDL Bounds Test

Included observations: 32
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	6.422938	6

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

Appendix 3

Diagnostic Tests

```
*****************************************************************************
*    Test Statistics  *        LM Version        *         F Version          *
*****************************************************************************
*                     *                          *                            *
* A:Serial Correlation*CHSQ(   1)=   .83676[.360]*F(   1,  17)=   .45647[.508]*
*                     *                          *                            *
* B:Functional Form   *CHSQ(   1)=   2.8634[.091]*F(   1,  17)=   1.6707[.213]*
*                     *                          *                            *
* C:Normality         *CHSQ(   2)=   1.6066[.448]*       Not applicable       *
*                     *                          *                            *
* D:Heteroscedasticity*CHSQ(   1)=   1.6489[.199]*F(   1,  30)=   1.6298[.212]*
*****************************************************************************
   A:Lagrange multiplier test of residual serial correlation
   B:Ramsey's RESET test using the square of the fitted values
   C:Based on a test of skewness and kurtosis of residuals
   D:Based on the regression of squared residuals on squared fitted values
```

Appendix 4

Estimated Long Run Coefficients using the ARDL Approach

ARDL(1,0,0,2,1,2,1) selected based on Akaike Information Criterion

****

Dependent variable is LNY

32 observations used for estimation from 1983 to 2014

****

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
LNPINV	.051588	.10516	.49058[.630]
LNTAX	.55105	.19984	2.7574[.013]
LNAID	.49212	.10710	4.5949[.000]
XAID	.18405	.060985	3.0179[.007]
POLICY	.51626	.19556	2.6399[.017]
LNLF	-4.8931	1.7596	-2.7808[.012]
INPT	20.4620	6.6290	3.0867[.006]

****

Appendix 5

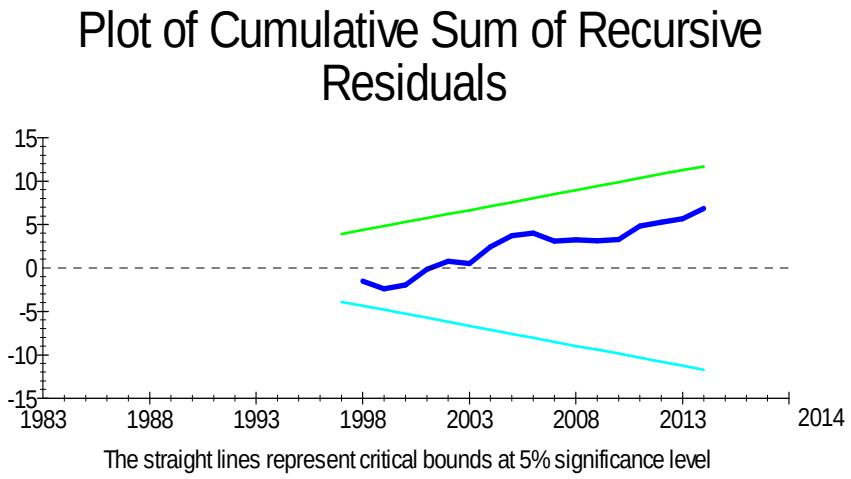
Error Correction Representation for the Selected ARDL Model

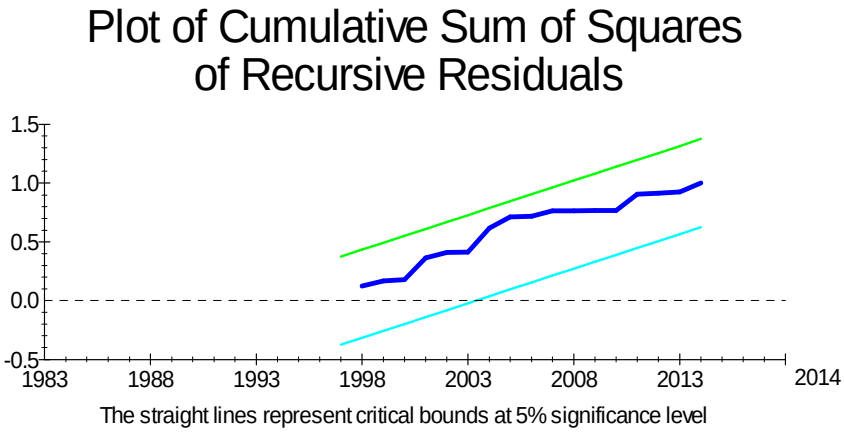
```
ARDL(1,0,0,2,1,2,1) selected based on Akaike Information Criterion
*******************************************************************************
 Dependent variable is dLNY
 32 observations used for estimation from 1983 to 2014
*******************************************************************************
Regressor              Coefficient       Standard Error         T-Ratio[Prob]
dLNPINV.012921            .026802              .48208[.635]
dLNTAX                     .13802            .061095             2.2591[.034]
dLNAID                    .049206            .046399             1.0605[.300]
 dLNAID1                  -.073723            .030368            -2.4276[.024]
dXAID                    .024176           .0087540            2.7617[.011]
dPOLICY                  -.13343            .047224           -2.8255[.010]
 dPOLICY1                 -.24652            .047161            -5.2271[.000]
dLNLF                     -.067820             .30426            -.22290[.826]
dINPT                      5.1249             2.1081             2.4311[.024]
ecm(-1)                   -.25046            .059920            -4.1799[.000]
*******************************************************************************
 List of additional temporary variables created:
dLNY = LNY-LNY(-1)
dLNPINV = LNPINV-LNPINV(-1)
dLNTAX = LNTAX-LNTAX(-1)
dLNAID = LNAID-LNAID(-1)
 dLNAID1 = LNAID(-1)-LNAID(-2)
dXAID = LNXAID-LNXAID(-1)
dPOLICY = POLICY-POLICY(-1)
 dPOLICY1 = POLICY(-1)-POLICY(-2)
dLNLF = LNLF-LNLF(-1)
dINPT = INPT-INPT(-1)
ecm = LNY -  .051588*LNPINV   -.55105*LNTAX   -.49212*LNAID   -.18405*XAID
  -.51626*POLICY +   4.8931*LNLF  -20.4620*INPT
*******************************************************************************
 R-Squared                      .84967   R-Bar-Squared                   .74109
 S.E. of Regression            .035306   F-stat.    F(  9,  22)   11.3036[.000]
 Mean of Dependent Variable    .022166   S.D. of Dependent Variable     .069386
 Residual Sum of Squares       .022437   Equation Log-likelihood        70.7985
Akaike Info. Criterion        56.7985   Schwarz Bayesian Criterion     46.5383
 DW-statistic                   2.2389
*******************************************************************************
 R-Squared and R-Bar-Squared measures refer to the dependent variable
```

dLNY and in cases where the error correction model is highly restricted, these measures could become negative.

Appendix 6

Testing Parameter Stability Using CUSUM and CUMSUMQ test





Declaration

I, the undersigned, declare that this thesis is my original work and has not been presented for a Master's degree in any other University, and that all sources of material used for this thesis have been duly acknowledged.

Declared By:

Name: Tewodros Girma

Signature: _____

Date: _____

Confirmed by (Advisor)

Name: Alemayehu Geda (PhD)

Signature: _____

Date: _____

Place and date of Submission: _____